

Satisfaction, effectiveness, and interaction of online teaching of community course among medical students of Al-Qunfudhah college of Medicine, Saudi Arabia.

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Submit Date : 21 August 2024

Revised Date : 26 August 2024

Accept Date: 10 September 2024

Keywords

- Online learning
- Satisfaction
- Effectiveness
- Interaction
- medical students

Abstract

Background: Online teaching is established to play a significant role in medical education. Much research discusses eLearning satisfaction, interaction between medical students and academic staff. This study aimed to investigate satisfaction of medical students at Al-Qunfudhah Medical College, Umm Al-Qura University toward online teaching of undergraduate community course and to evaluate the effect of gender and GPA grades on students' attitude. **Methods:** Online questionnaire delivered to Al-Qunfudhah medical students of fifth year who studied community medicine course through social media (WhatsApp). It is formed of four main compartments measuring demographic distribution, online students' satisfaction, effectiveness, and interactivity. Data of study were analyzed by SPSS software version 27.0. **Results:** Our work included 78 medical students (41 males and 37 females). 43 (55.1%) of students satisfied with community online learning, 48 (61.5%) of them see that eLearning matching their life and 39 (50%) of the students not stressed during online teaching. Out of 78 students 49 (62.8%) of them satisfied with community eLearning and 29 (37.2%) not satisfied. 66 (84.6%) of the students believed that online learning is very effective, and 68 (87.1%) of the participated students agreed that eLearning is very interactive. GPA level significantly affects students' satisfaction towards online learning (p -value = 0.029). Meanwhile, 31 (83.8%) of female students significantly (p -value = 0.043) reported the effectiveness of community eLearning. **Conclusion:** Majority of medical students reported satisfaction, effectiveness, and interactivity of community course online teaching. Meanwhile, students' attitude to traditional education is the same to online learning.

Introduction

The requirement for online teaching is increasing day by day, the spread of eLearning goes faster when compared to traditional education [1]. Online teaching can be defined as the usage of communication technologies to deliver information to students and facilitates student-student as well as student-teacher communications [2,3]. There are different forms of online teaching such as computer-based teaching, internet-based teaching, digital collaboration, and virtual classrooms [2]. In medical education, eLearning is considered a new concept of teaching but still facing some barriers for its implementation, which needs some promotion for students and staff to accept online teaching and its technologies and its updates [4].

The shift from traditional education to eLearning was declared by Saudi Arabia government on 8 March 2020, the universities on the next day go to online teaching. The universities started to use the blackboard as a platform for online teaching in the second term. Education has rapidly shifted to online which produced some problems especially unfinished examinations [5].

Saudi Arabia was considered the first Middle Eastern countries that execute complete quarantine. To sustain the educational process Ministry of Education provides public universities with tools for online teaching [6]. Currently, all Saudi Arabia Universities use the blackboard platform as an established eLearning platform. This raise online learning experience overcoming on the communication obstacles between the students and teaching staff [7,8].

It is very serious to take the opinion of the students regarding online learning [9]. The attitude of the

medical students to their approach of teaching plays a great impact on their achievement, productivity, and understanding both for graduate and undergraduate in different fields, one of them medicine [10,11]. Many studies during COVID-19 pandemics assessed medical students' satisfaction with eLearning either in preclinical or clinical years [12]. Therefore, the present study aimed to evaluate satisfaction and interaction of medical students in Al-Qunfudhah medical college regarding community course eLearning. Also, we intended to evaluate the difference in satisfaction level with respect gender and students GPA grades.

Material and Methods

Study design.

Across sectional study was performed to evaluate satisfaction of online teaching of community course for undergraduate students in Al-Qunfudhah medical college especially fifth year students who studying it. The course of community was conducted over 2 months.

Sample

According to Raosoft program for calculation of sample size with 95% confidence interval (CI) and margin error 5%, the minimum sample required is 76 students, 78 students participate in our study. All participating students were clearly informed about the objective of this study as the first page of the questionnaire contained a brief description. The participating students were voluntary, respecting their anonymity and confidentiality.

Questionnaire Design

Online questionnaire consists of four compartments delivered through social media (WhatsApp) to fifth year medical students who included in this study both male and females. However, students

from other educational levels were excluded. First compartment covering demographic data and consisted of three questions; Second compartment assess students' satisfaction during community course online teaching and formed of seven questions; Third and Fourth compartments evaluates online learning effectiveness and interaction, and both contains three questions. Platform effectiveness was considered by the usage of Likert scale for ranking (from one to five). Ethical approval was obtained from the Biomedical Research Ethics Committee of Umm Al-Qura University, Al-Qunfudhah, Saudi Arabia (approval number: HAPO-02-K-012-2024-02-2070).

Statistical analysis

After finishing data collection, our collected data gathered from questionnaire imported to IBM

Table 1: Sociodemographic data (n = 78)

Parameter	Category	N	%
Gender	Male	41	52.6
	Female	37	47.4
Educational level	Fifth year	78	100.0
GPA	Less than 2	1	1.3
	Between 2-2.5	8	10.3
	Between 2.5-3	28	35.9
	Between 3-3.5	31	39.7
	Between 3.5-4	10	12.8

The values are given as n (%)

Satisfaction of students on community course online learning.

The study investigated students' satisfaction with online teaching. Out of 78 students, 43(55.1%) of them have a good experience with e-Learning, with 40(51.3%) of students self-disciplined during online teaching. A significant portion of participated students 30(38.5%) reported that online learning and in site teaching was the same, meanwhile 26(33.3%) neutral. A total of 39(50%) don't stressed during online learning. 32(41%) of

SPSS Statistics version 27.0 (IBM Corp. in Armonk, NY). For categorial variables a descriptive analysis was performed expressing it in frequency and percentages. However, to determinethe association between different variables we used chi-Square tests. The significance was considered when p-value <0.05.

Results

Sociodemographic characteristics

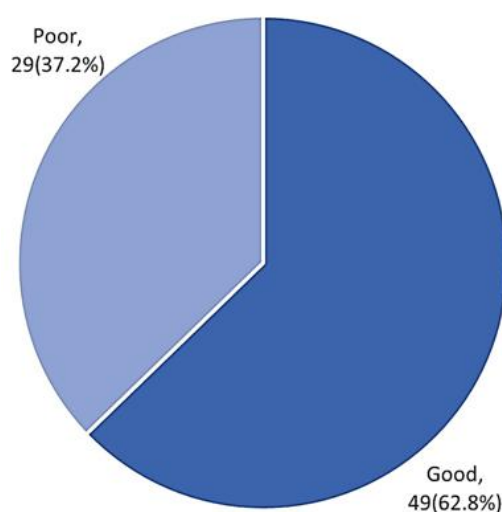
The study measures the satisfaction and effectiveness of online learning among Al-Qunfudhah medical college students. A total of 78 students participates in this study 41(52.6%) males and 37(47.4%) females. Regarding their GPA a large number of them 31(39.7%) with GPA between 3-3.5(Table 1).

the students preferred eLearning PBL, TBL, CBL, seminars as a method of teaching strategy, 27(34.6%) neutral. Most of students 48(61.5%) agreed that online teaching of community courses matches their life. Finally, majority of students 43(55.1%) agreed that online teaching is competent for them, however 23 (29.5%) were neutral (Table 2). Overall, the general satisfaction of participant students revealed that 49(62.8%) of students were satisfied with community eLearning while only 29(37.2%) of students weren't satisfied with it (Figure 1).

Table 2: Students' responses on the items evaluating online satisfaction (n=78).

Parameter	Category	N	%
Q1. Do you think that community eLearning good?	Strongly Disagree	2	2.6
	Disagree	8	10.2
	Neutral	25	32.1
	Agree	30	38.4
	Strongly agree	13	16.7
Q2. Is your self-discipline during community e-learning?	Strongly Disagree	3	3.8
	Disagree	7	9.0
	Neutral	28	35.9
	Agree	32	41.0
	Strongly agree	8	10.3
Q3. Do you think that online learning and face-to-face learning at the same level?	Strongly Disagree	6	7.7
	Disagree	16	20.5
	Neutral	26	33.3
	Agree	22	28.2
	Strongly agree	8	10.3
Q4. Are you stressed during community online learning in comparison to traditional education?	Strongly Disagree	4	5.1
	Disagree	5	6.4
	Neutral	30	38.5
	Agree	31	39.7
	Strongly agree	8	10.3
Q5. Do you prefer PBL, TBL, CBL, seminars in classroom learning rather than online teaching?	Strongly Disagree	6	7.7
	Disagree	13	16.7
	Neutral	27	34.6
	Agree	25	32
	Strongly agree	7	9.0
Q6. eLearning compatible with your life.	Strongly Disagree	3	3.9
	Disagree	7	9.0
	Neutral	20	25.6
	Agree	32	41.0
	Strongly agree	16	20.5
Q7. I study community more efficiently with online learning	Strongly Disagree	4	5.1
	Disagree	8	10.3
	Neutral	23	29.5
	Agree	31	39.7
	Strongly agree	12	15.4

The values are given as n (%)

**Figure 1:** Overall satisfaction of Al-Qunfudah medical students regarding community online teaching.

Effectiveness and interaction of community eLearning

Table 3 shows that 66(84.6%) agreed that online teaching during community course education was effective. Furthermore, the uploaded learning material on blackboard was very effective 71(91%) with 66(84.6%) of students convinced

about prerecorded lectures and tutorials. About the level of student's interaction to community eLearning. Table 4 shows that the majority 68(87.1%) of students agreed that live lectures were more interactive, and 69(88.5%), 69(88.5%) recorded the effectiveness of uploaded and prerecorded lectures respectively.

Table 3: Assessment of blackboard Platforms' Effectiveness (n=78).

Parameter	Category	N	%
Q8. Online tutorial and lectures via blackboard	Least effective	7	9.0
	Less effective	5	6.4
	Mild effective	20	25.6
	Moderate effective	37	47.4
	Most effective	9	11.6
Q9. Uploaded lectures on Blackboard	Least effective	4	5.1
	Less effective	3	3.9
	Mild effective	21	26.9
	Moderate effective	40	51.3
	Most effective	10	12.8
Q10. Pre-recorded community tutorials and lectures	Least effective	4	5.1
	Less effective	8	10.3
	Mild effective	24	30.8
	Moderate effective	33	42.3
	Most effective	9	11.5

The values are given as n (%)

Table 4: Assessment of online blackboard platform Interaction Level in community teaching

Parameter	Category	N	%
Q11. Online lectures through blackboard platform	Least interactive	3	3.9
	Less Interactive	7	9.0
	Mild Interactive	19	24.3
	Moderate interactive	38	48.7
	Most interactive	11	14.1
Q12. Community lectures on blackboard	Least interactive	4	5.1
	Less Interactive	5	6.4
	Mild Interactive	16	20.5
	Moderate interactive	35	44.9
	Most interactive	18	23.1
Q13. Pre-recorded community lectures via blackboard	Least interactive	0	0.0
	Less Interactive	9	11.5
	Mild Interactive	22	28.2
	Moderate interactive	31	39.7
	Most interactive	16	20.5

The values are given as n (%)

The association between satisfaction, effectiveness, and interaction of community eLearning and sociodemographic data.

Analysis of several factors affecting community course eLearning satisfaction, effectiveness, and interaction between undergraduate Al-Qunfudhah medical students revealed little significant

associations. GPA showed a strong association with students' eLearning satisfaction with 26(83.9%) of students with GPA between 3-3.5 satisfied with online teaching (p-value =0.029). Gender also a significant factor in effectiveness of online teaching, as 31(83.8%) of females reporting an effective eLearning compared to 26(63.4%) of

males (p -value = 0.043). Interestingly, gender with satisfaction level, GPA with online effectiveness, gender and GPA with online interaction did not

show any statistically significance among participant students (p -value > 0.05 for all) (Table 5,6,7).

Table 5: The association between Blackboard e-learning satisfaction and sociodemographic data

Characteristic	Category	Poor satisfaction No (25)	Good satisfaction No (53)	P-value
Gender	Male	12 (29.3%)	29 (70.7%)	0.579
	Female	13 (35.1%)	24 (64.9%)	
GPA	Less than 2	0 (0.0%)	1 (100%)	0.029*
	Between 2-2.5	5 (62.5%)	3 (37.5%)	
	Between 2.5-3	13 (46.4%)	15 (53.6%)	
	Between 3-3.5	5 (16.1%)	26 (83.9%)	
	Between 3.5-4	2 (20%)	8 (80%)	

Pearson's Chi-squared test, * $P < 0.05$ (significant)

Table6: The association between Blackboard e-learning effectiveness and sociodemographic data

Characteristic	Category	Poor effectiveness No (21)	Good effectiveness No (57)	P-value
Gender	Male	15 (36.6%)	26 (63.4%)	0.043*
	Female	6 (16.2%)	31 (83.8%)	
GPA	Less than 2	0 (0%)	1 (100%)	0.892
	Between 2-2.5	2 (25%)	6 (75%)	
	Between 2.5-3	9 (32.1%)	19 (67.9%)	
	Between 3-3.5	7 (22.6%)	24 (77.4%)	
	Between 3.5-4	3 (30%)	7 (70%)	

Pearson's Chi-squared test, * $P < 0.05$ (significant)

Table 7: The association between Blackboard e-learning interactives and sociodemographic data

Characteristic	Category	Poor Interaction No (16)	Good interaction No (62)	P-value
Gender	Male	9 (22%)	32 (78%)	0.741
	Female	7 (19%)	30 (81%)	
GPA	Less than 2	0 (0%)	1 (100%)	0.773
	Between 2-2.5	1 (12.5%)	7 (87.5%)	
	Between 2.5-3	6 (21.4%)	22 (78.6%)	
	Between 3-3.5	8 (25.8%)	23 (74.2%)	
	Between 3.5-4	1 (10%)	9 (90%)	

Pearson's Chi-squared test, * $P < 0.05$ (significant)

Discussion

At the period before pandemics of Covid-19, eLearning in medical education was promoted several times but does not receive the appropriate interest from either student or faculties [13]. But now online learning has become necessary rather than a choice. Traditional education in medicine has a role in development of student's cognitive

skills [14]. However, online resources for medical education rapidly expanded with availability and accessibility of its tools [15,16]. However, there are some studies documenting many barriers for eLearning implementation in medical colleges [17]. The aim of this study to is to assess satisfaction of medical students in Al-Qunfudhah

medical college on eLearning of the undergraduate community course.

Our work showed that the majority of medical students 43(55.1%) with good experience with community eLearning, and 32(41%) of them preferred online learning of community course, moreover, 48(62.5%) of them founded that eLearning suitable for their life and 43(55.1%) of the student see that community online teaching is competent with them. Overall, the students were satisfied with community online teaching. This result was consistent with the previous studies done by Al-Mazidi, [18] who documented that online teaching is very suitable for medical students and staff members in problem based learning and theoretical teaching but in clinical sessions. Similarly, the work done by Obi et al. [19] who reported that Nigerian medical students believed that online teaching may be suitable as a method of teaching than traditional teaching in the future. Moreover, the research done by Alzamil et al. [20] to the medical students at King Saud University during the pandemic, the participant students documented their satisfaction on online learning, but preferred traditional teaching on it especially preclinical students. Also, the study done in Al Qassim university medical students showed positive attitude on eLearning of basic sciences [21]. On the contrary of our results, the study done on nursing and medical students in Indian reported that the participant students dissatisfied on online teaching especially in the first years [22]. Also, the study done by Khalil et al. [23] documented that more than half of participants students favored face to face teaching over online learning. The divergence between our study result and the previous research could be

regarded the depth of online questionnaire questions as we use general questions. Regarding the relation between students' online satisfaction and GPA, our results revealed a significant p -value $=0.029$ relationship. Similarly, the work done by Khamis et al. [24] who reported that high GPA a good predictor for online teaching acceptance among medical students of Saudi Arabia. Also, the study done in Majmaah University, Saudi Arabia documented those students with high grade of GPA preferred online teaching [25]. However, the study done by Salih et al. [26] reported that no significant difference between GPA grades and online teaching acceptance between the medical students at University of Bisha, Saudi Arabia.

According to effectiveness of blackboard online learning of community course, the result of present study revealed that 57(73.1%) of Al-Qunfudhah medical students that participates in our study agreed that eLearning more effective especially female students how reported a significant (p -value $= 0.043$) response that male student. This in line with the previous study done by Alkabaa, [27] who documented that 42% of female students were affected by communication with the instructor on the blackboard, compared to 14% of male students in college of engineering, King Abdulaziz University, Saudi Arabia. Furthermore, our findings reported that 62(79.5%) of our participant students believed that the community eLearning was interactive with no significant difference between male and female students or GPA grade. The finding parallel to the previous works how reported the online teaching offers a good tool for the interaction between the participants during online lectures [28,29].

Limitations of study

This study entrapped some limitations. Firstly, our cross-sectional study focused only on medical students of Al-Qunfudhah medical college at Umm Al-Qura University; so, its results difficult to be generalize on the medical students from other universities; Secondly; this study was performed only on the undergraduate community course so the study findings can't be applied on the other course even at the same institution; lastly; we are not confirmed from students GPA that filled by them in the questionnaire which may offered some results bias.

Conclusions

The majority of participant students in study are satisfied with the online learning of community ungraduated course especially the students with high GPA, moreover the students divided in their opinion between traditional teaching and online teaching. Additionally, majority of them documented that community eLearning very effective especially female students, also the participant student's response regarding online interactivity was very high. In our opinion, the finding of our study can help the stallholders of educational processes considered online teaching as an alternative method of education side by side to traditional teaching in medical education as a hybrid method for academic and clinical medical learning.

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