Bull. Egypt. Soc. Physiol. Sci. *Vol. (45), Issue (4)*, 475-486

Bull. of Egyp. Soc. Physiol. Sci.

(Official Journal of Egyptian Society for Physiological Sciences)

(pISSN: 1110-0842; eISSN: 2356-9514)

Exploring Student Satisfaction and Self-Efficacy During Unexpected Shifts to Online Learning at Al-Qunfudhah Medical College, Saudi Arabia: A Comparative Analysis with Traditional In-Person Study

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Submit Date : 19 April 2025
Revised Date :12 May 2025
Accept Date : 16 May 2025

Keywords

- Satisfaction
- Self-efficacy
- ELearning
- Medical Students
- Al-Qunfudhah

Abstract

Abstract: This cross-sectional study at Al-Qunfudhah Medical College examines the impact of unexpected transitions to online teaching on student satisfaction and self-efficacy compared to traditional education. A structured questionnaire distributed via WhatsApp surveyed 270 students—both male and female from various academic years—about their experiences with e-learning tools and platforms. Statistical analyses, including descriptive statistics and chi-square tests, identified key predictors of student satisfaction and self-efficacy in e-learning. The data revealed high satisfaction levels (82.6%) with online transition, particularly concerning the suspension of in-person classes, the efficacy of online lectures (61.5%), and communication with staff members (80.8%). However, satisfaction with remotely conducted practical sessions was lower (40.5%). Additionally, our study found that 66.9% of students expressed positive opinions regarding their self-efficacy in using the Blackboard platform. A clear gender difference emerged, with female students reporting greater satisfaction (63.1%) compared to male students (36.9%). Furthermore, satisfaction levels were significantly related to academic year, but not GPA. Our findings providevaluable insight into the effectiveness of virtual learning during unexpected disruptions and offer a foundation for future improvements in online teaching experiences.

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Introduction

The pandemic of coronavirus broke out at the beginning of 2020, leading to the infection of millions of people, resulting in serious complications, as its definite treatment has not been discovered until now [1,3]. At the end of December 2019,the World Health Organization (WHO) declared that there were some cases of unexplained pneumonia in Wuhan city, China [4]. In the middle of January, the coronavirus was transported to surrounding countries in Eastern and Southern China; at this time, Chinese authorities closed all the transport media from and to Wuhan on 23 January 2020 [5]. On the eleventh of March 2020, the WHO declared the coronavirus pandemic, which pushed most countries to take preventive measures to stop the COVID-19 outbreak [6]. The coronavirus outbreak has limited people's lives, and education in institutions has severely affected them, especially high education [7,8]. In the middle of March, many schools in hindered countries closed, affecting the education of millions of students [9]. As a result, conventional education stopped and changed to online teaching worldwide [10,11]. China was considered the first country to apply quarantine procedures with online teaching at the beginning of the semester in mid-February in many Chinese institutes.

Blackboard was considered one of the principal tools used in e-learning education in Saudi Arabia during the COVID-19 outbreak [12]. The blackboard is a learning management system (LMS) platform that enables staff members to share educational materials with students and make discussions with them [13]. This platform helps Saudi universities easily transfer education from traditional to online learning despite pandemic obstacles [14]. The use of Blackboard faces several difficulties, such as technological obstacles, insufficient staff member training, and minimizing the specific utilization of blackboard platforms [15]. Despite these difficulties, the application of Blackboard increases the educational background of the students, introducing interactive and flexible teaching [16]. Extreme weather disruptions, such as floods, heatwaves, storms, and cyclones, have shifted to virtual teaching,similar to pandemic conditions, in the closure of universities and learning interruption [17]. The discontinuity of learning during either coronavirus outbreaks or weather changes forces students and educators to accommodate new technologies in learning [18].The experience earned in e-learning by students and staff provides fixability in the transition of learning from the classroom to online teaching [19]. This study was designed to examine the satisfaction and self-efficacy of virtual teaching shifts during weather changes among Al-Qunfudhah Medical College students and compared them with their experiences in traditional classrooms.

Materials and methods

Study design, participants and sampling: This cross-sectional study targeted medical students at Al-Qunfudhah Medical College. A convenience sampling method was used, ensuring a 95% confidence level and a 5% margin of error with the Raosoft software. Out of 519 invited students, 270 participated in the study, exceeding the minimal sample size of 78 students calculated by the software.

The inclusion criteria were students who were currently enrolled in any year of the medical

program at Al-Qunfudhah Medical College and students who had experienced both in-person and online learning.

The exclusion criteria were as follows: students who did not provide informed consent and students who were exclusively enrolled in either in-person or online learning without experiencing the other mode.

Data collection: Data were collected via WhatsApp via a structured questionnaire introduced to medical students. Compared with traditional in-person studies, the questionnaire assessed various aspects of student satisfaction and self-efficacy during the shift to online learning. The survey included items on sociodemographic information, satisfaction with e-learning, and self-efficacy in using e-learning tools.

Questionnaire: The questionnaire used in our study was administered to medical students through WhatsApp social media, and the questionnaire comprised multiple sections. The sociodemographic information section collected data on gender, academic year, and self-reported GPA. The satisfaction with e-learning section included questions assessing students' satisfaction with various aspects of e-learning,, the quality of remote lectures, the accessibility of learning platforms, communication with lecturers, and the effectiveness of distance learning. The self-efficacy in the e-learning section evaluated students' self-efficacy in using e-learning tools, maintaining self-motivation, participating in remote lectures, completing assignments, and performing practical or clinical sessions. Our study proposal was approved by the Ethical Committee of Umm Al-Qura University, Makkah, Saudi Arabia, with code HAPO-02-K-012-2023-10-1813.

Statistical analysis: To analyze our data, descriptive analysis, chi-square testswere performed via IBM SPSS Statistics software (version 27.0, IBM Corp., Armonk, NY). Descriptive analysis summarized the sociodemographic characteristics of the participants, such as sex, academic year, and self-reported GPA, providing frequency counts and percentages. The chi-square test of independence was used to assess the relationships between categorical variables, such as gender and satisfaction with e-learning, academic year and satisfaction with e-learning, and self-reported GPA and satisfaction with e-learning. P value less than 0.05 was considered significant.

Results

3.1. Sociodemographic characteristics

The participants inour study at Al-Qunfudhah Medical College displayed diverse sociodemographic characteristics in terms of sex, academic year, and self-reported GPA. Among the 270 participants, 120 were males (44.4%), and 150 were females (55.6%). The academic year of students participatedin our study as following: 29 students in Year 1 (10.7%), 34 in Year 2 (12.6%), 61 in Year 3 (22.6%), 77 in Year 4 (28.5%), 32 in Year 5 (11.9%), and 37 in Year 6 (13.7%). Regarding self-reported GPA out of 4, the distribution was as follows: one participant reported a GPA of less than 2 (0.4%), 17 participants reported a GPA between 2 and 2.5 (6.3%), 48 participants reported a GPA between 2.5 and 3 (17.8%), 73 participants reported a GPA between 3 and 3.5 (27.0%), and 131 participants reported a GPA between 3.5 and 4 (48.5%) (Table 1).

Table 1. Sociodemographic distribution

Parameter	Number	Percent
Gender		
Male	120	44.4
Female	150	55.6
Academic year		
Year 1	29	10.7
Year 2	34	12.6
Year 3	61	22.6
Year 4	77	28.5
Year 5	32	11.9
Year 6	37	13.7
Self-reported GPA (out of 4)		
Less than 2	1	0.4
Between 2 and 2.5	17	6.3
Between 2.5 and 3	48	17.8
Between 3 and 3.5	73	27.0
Between 3.5 and 4	131	48.5

3.2. Satisfaction with online teaching

As shown in Table 2, the majority of participants were generally satisfied with the transition to online education due to weather-related circumstances. Overall, 82.6% of respondents expressed satisfaction with distance learning compared to in-person classes. The quality of remote lectures received a 61.5% satisfaction rate, with 22.8% remaining neutral. Accessibility and reliance on distance learning platforms were positively rated by 71.5% of participants, while 19.6% stayed neutral. Communication with lecturers was well-received, with 80.8% expressing satisfaction, and 11.4% feeling neutral. Regarding the effectiveness of distance learning in understanding academic subjects, 70.4% of respondents were satisfied, while 12.8% remained neutral. The interactive and stimulating nature of distance learning had a combined satisfaction rate of 61.9%, with 17.1% neutral. However, in-person exams assessing distance learning subjects had mixed responses, with 51.6% expressing satisfaction and 20.3% remaining neutral. Areas of dissatisfaction varied, including 17.1% for the suspension of in-person classes, 15.7% for remote lecture quality, 8.9% for accessibility and reliance on online platforms, 7.8% for communication with lecturers, 16.7% for effectiveness in understanding subjects, 21% for engagement and interactivity, and 28.1% for satisfaction with in-person exams. While the overall transition was viewed positively

Table 2. Satisfaction with e-learning education

S. No	Survey item	Strong disagree	Disagree	Neutral	Agree	Strongly Agree
Q1	How would you rate your satisfaction with the shift from in-person classes to distance learning due to weather-related disruptions?	11(3.9)	8(2.8)	30(10.7)	35(12.5)	197(70.1)
Q2	Do you agree that the quality of remote lectures is on par with traditional in-person lectures?	18(6.4)	26(9.3)	64(22.8)	56(19.9)	117(41.6)
Q3	How satisfied are you with the accessibility and reliability of distance learning platforms?	11(3.9)	14(5)	55(19.6)	54(19.2)	147(52.3)
Q4	How do you rate your satisfaction with the level of communication with lecturers during distance learning?	6(2.1)	16(5.7)	32(11.4)	70(24.9)	157(55.9)
Q5	Do you agree that distance learning is effective in helping you understand academic subjects?	18(6.4)	29(10.3)	36(12.8)	63(22.4)	135(48)
Q6	Do you agree that distance learning lectures are stimulating and interactive?	29(10.3)	30(10.7)	48(17.1)	57(20.3)	117(41.6)
Q7	Do you agree that in-person exams effectively assess your understanding of subjects learned through distance education?	51(18.1)	28(10)	57(20.3)	49(17.4)	96(34.2)

3.3. Self-Efficacy in E-learning

Our survey data indicate participants' self-efficacy in e-learning, with 66.9% expressing satisfaction in using e-learning tools effectively, while 23.5% remained neutral. Regarding self-motivation during distance lectures compared to traditional classes, 63.4% of respondents were satisfied, with 18.5% reporting a neutral stance. Participation in remote lectures was highly rated, with 85% expressing satisfaction, and 19.6% remaining neutral. Additionally, 66.9% of participants felt confident in completing and understanding remote assignments, while 20.6% were neutral.

However, practical or clinical sessions conducted remotely had a lower satisfaction rate of 40.5%, with 19.2% remaining neutral. The sudden transition to distance learning was perceived to have affected academic performance by 41.7% of participants, with 24.6% reporting neutrality on the matter. Regarding cooperation among students in group work, 58.3% expressed satisfaction, while 25.3% remained neutral. Satisfaction with the ability to ask questions and interact with lecturers remotely was positively rated by 65.8%, with 22.8% being neutral.

Areas of dissatisfaction included 9.6% for the effectiveness of e-learning tools, 18.2% for self-motivation, 13.5% for participation in remote lectures, 12.5% for remote assignments, 40.2% for performance in practical sessions, 41.7% for the impact on academic performance, 16.4% for cooperation in group work, and 11.4% for interaction with lecturers (Table 3).

Table 3. Self-efficacy in e-learning

S. No	Survey item	Strong disagree	Disagree	Neutral	Agree	Strongly Agree
Q8	To what extent do you agree that you are satisfied with your ability to use e-learning tools effectively?	10(3.6)	17(6)	66(23.5)	57(20.3)	131(46.6)
Q9	Do you agree that the level of your self-motivation during distance lectures is satisfactory compared to in-person lectures?	28(10)	22(8.2)	52(18.5)	50(17.8)	128(45.6)
Q10	Do you agree that you are satisfied with the effectiveness of your participation in remote lectures?	20(7.1)	18(6.4)	55(19.6)	58(20.6)	130(64.3)
Q11	Do you feel satisfied with your ability to complete and understand remote assignments compared to in-person assignments?	23(8.2)	12(4.3)	58(20.6)	56(19.9)	132(47)
Q12	Do you agree that you are satisfied with your performance in practical or clinical sessions remotely?	77(27.4)	36(12.8)	54(19.2)	42(14.9)	72(25.6)
Q13	Are you convinced that the sudden shift to distance learning has affected your academic performance?	82(29.2)	35(12.5)	69(24.6)	31(11)	64(22.8)
Q14	Do you agree that you are satisfied with the cooperation between students and group work during distance education?	25(8.9)	21(7.5)	71(25.3)	51(18.1)	113(40.2)
Q15	Are you satisfied with your ability to ask questions and interact with lecturers remotely?	14(5)	18(6.4)	64(22.8)	63(22.4)	122(43.4)

3.4. Factors and Predictors of Student Satisfaction with E-learning

Table 4 presents factors associated with students' satisfaction levels. Gender showed a significant association with satisfaction ($p = 0.01$), where females reported higher satisfaction (n=111, 63.1%) compared to males (n=65, 36.9%).

Academic year also exhibited a significant relationship ($p = 0.02$), with fourth-year students demonstrating the highest satisfaction (n=48, 27.3%), followed by third-year students (n=38, 21.6%) and sixth-year students (n=32, 18.2%). In contrast, second-year students had the lowest satisfaction (n=17, 9.7%).

Self-reported GPA was not significantly associated with satisfaction ($p = 0.4$). However, students with a GPA between 3.5 and 4.0 reported the highest satisfaction (n=84, 47.7%), followed by those with a GPA between 3.0 and 3.5 (n=51, 29%). Satisfaction levels were lower among students with GPAs below 3.0.

Table 4. Factors and predictors of student satisfaction with e-learning

Characteristic		Less satisfied	More satisfied	p value
Gender	Male	55(52.4)	65(36.9)	0.01
	Female	50(47.6)	111(63.1)	
Academic year	Year 1	13(2.4)	20(11.4)	0.02
	Year 2	19(18.1)	17(9.7)	
	Year 3	23(21.9)	38(21.6)	
	Year 4	29(27.6)	48(27.3)	
	Year 5	16(15.2)	21(11.9)	
	Year 6	5(4.8)	32(18.2)	
Self-reported GPA (out of 4)	Less than 2	1(1)	0(0)	0.4
	Between 2 and 2.5	6(5.7)	11(6.3)	
	Between 2.5 and 3	22(21)	30(17)	
	Between 3 and 3.5	23(21.9)	51(29)	
	Between 3.5 and 4	53(50.5)	84(47.7)	

3.5. Factors and Predictors of Student Self-Efficacy in E-learning

Table 5 showed the factors and predictors of student self-efficacy in e-learning, examining the influence of gender, academic year, and self-reported GPA. Gender did not show a significant association with self-efficacy (p = 0.2); however, female students reported slightly higher efficacy (60.7%) compared to males (36.9%).

Academic year demonstrated a marginal trend (p = 0.06), with third-year (35 students, 24.1%) and fourth-year students (35 students, 24.1%) exhibiting the highest self-efficacy levels, whereas second-year students reported the lowest efficacy (13 students, 9.0%).

Self-reported GPA was not significantly associated with self-efficacy (p = 0.4), but students with GPAs between 3.5 and 4.0 had the highest reported self-efficacy (49.7%). Other variables did not show statistically significant associations (p > 0.05)

Table 5. Factors and predictors of student self-efficacy in e-learning

Characteristic		Less efficacy	More efficacy	p value
Gender	Male	57(39.3)	65(36.9)	0.2
	Female	65(53.3)	88(60.7)	
Academic year	Year 1	12(9.8)	18(12.4)	0.06
	Year 2	20(16.4)	13(9)	
	Year 3	25(20.5)	35(24.1)	
	Year 4	39(32)	35(24.1)	
	Year 5	17(13.9)	19(13.1)	
	Year 6	9(7.4)	25(17.2)	
Self-reported GPA (out of 4)	Less than 2	1(0.8)	0(0)	0.4
	Between 2 and 2.5	6(4.9)	11(7.6)	
	Between 2.5 and 3	28(23)	23(15.9)	
	Between 3 and 3.5	30(24.6)	39(26.9)	
	Between 3.5 and 4	57(46.7)	72(49.7)	

Discussion

This study investigated the transition to distance education due to weather conditions, with a focus on student satisfaction and performance. The survey sample consisted of a various group of participants, with a notable representation of both male and female students, although females comprised a larger percentage. Our study included students from the first year to the sixth year, allowing us to perform a comprehensive analysis of different academic progress. Additionally, our work includes students with different GPA ranges, providing a general overview of the academic performance of the students within eLearning.

The results of our study revealed that most of the participating students were satisfied with the shift to online teaching during weather conditions. This finding is in line with a study performed in Saudi Arabia by Alqahtani et al. [20], which reported that 609 students (54%) from Saudi universities preferred online teaching during COVID-19 outbreaks.On the controverse, a study performed amongdental college students in India by Kaur et al. [21] reported that while 55.55% of the participating students were satisfied with online learning, a higher proportion 77.77% expressed a positive attitude towards traditional learning. With respect to the quality of remote lectures, many students reported satisfaction, supported by the findings of El Galad et al. [22], who documented the accessibility and flexibility of remote lectures.

Regardingthe accessibility and reliabilityof blackboard platforms, as well as communication of the students with staff members during online teaching in adverse weather conditions,the majority ofthe participating students reported positive opinions. This is in accordance with the previous work of Ong and Quek [23],how documented the effect of the quality of digital tools oneffective interaction between students and educators and engagement in e-learning. Also, the study by Alhur [24],reported that 63.9% of students agreed that online teaching enhances communication between students and educatorsin Saudi Arabia.Regardingcomprehension of academic subjects and online teaching interactions during weather-related disruption, most ofparticipated students were satisfied, in line with the findings of studies by Alqahtani et al. [20].However, the response of students to the assessment of online learning through in-person exams was variable; some were satisfied, while others remainneutral. This mixed attitude aligns with thestudy by Al-Qdah and Ababneh [25], who reported similarity in the satisfaction level between online and in-person exams across male and female students.

The findings of our study revealed that most students from Al-Qunfudhah Medical College (66.9%) demonstrated self-efficacy in online teaching, with 63.4% identifying themselves as self-motivated. These results align with Alkhalifah [26], who reported that students with high levels of learning efficacy and motivation tend to perform better academically. Similarly, Sulaymani et al. [27] reported that students' self-efficacy is influenced by their previous technological experiences, which play a pivotal role in their effective use of online tools. Additionally, the findings of our study reported that 66.9% of students successfully understood and completed remote assignments, aligning with results ofBoulos[28],who documented that 86 % of participating students agreed that assignments are

an ideal method of assessment in anatomy online learning.

Furthermore, Ali [29] demonstrated that self-efficacy in IT use is a strong predictor of academic self-efficacy, reinforcing our results on students' satisfaction with e-learning tools during the unexpected transition to online learning.

However, certain areas of dissatisfaction emerged, particularly regarding practical sessions, which recorded a satisfaction rate of 40.5%, and academic performance, where satisfaction was 41.7%. These challenges are consistent with findings of another study by Png et al. [30], who studied laboratory sessions in immunology education and highlighted while online practical enhanced conceptual learning, face-to-face sessions were more effective for developing psychomotor skills and sensory awareness. Furthermore, Mahyoob [31], reported the academic achievement during online learning among a sample of Saudi Arabia students at the University of Al-Baha, Taibah, and Hail in Saudi Arabia.

Our study examined the predictor factors affecting student satisfaction in online teaching during climate-changes. Gender was a significant factor influencing students' eLearning satisfaction, with females reporting a higher satisfaction rate (63.1%) compared to males (36.9%). Additionally, academic levels from the second year to the sixth year displayed varying levels of high satisfaction with online learning during urgent circumstances. Conversely, self-reported GPA did not significantly impact students' satisfaction with e-learning.

This finding aligns with the previous study by Kupczynski et al[32], which examined gender differences in online teachingperformance and found that female students generally performed better in eLearning, particularly those with lower overall GPAs. Similarly, Yu [33] explored the effects of educational level on eLearning outcomes during the COVID-19 pandemic, reporting that postgraduates showed a higher performance than undergraduates, indicating that academic level plays a role in satisfaction.

Our study also examined the predictors of student self-efficacy in e-learning, revealing that gender did not have a significant impact, although female students exhibited slightly higher levels than males. Furthermore, self-efficacy varied across academic years, while self-reported GPA showed no significant differences in relation to self-efficacy levels.These findings are consistent with the study by Özaydın Özkara and İbili [34], who similarly concluded that gender does not significantly influence confidence in e-learning.

Conclusion

Our study revealed significant differences in satisfaction levels with online learning under varying climate conditions, influenced by factors such as gender and academic year. Female medical students and those in senior academic years reported higher satisfaction rates, whereas self-reported GPA had no notable impact on satisfaction or self-efficacy.While students expressed high satisfaction with online learning tools, participation in virtual lectures, and timely completion of assignments, dissatisfaction was evident regarding practical or clinical sessions and overall academic performance.

List of abbreviations

WHO – World Health Organization

COVID-19 – Coronavirus Disease 2019

SPSS – Statistical Package for the Social Sciences

LMS – Learning Management System

GPA – Grade Point Average

IBM – International Business Machines Corporation

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