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ADAPTING TO NEW NORMS: EVALUATING STUDENT EXPERIENCES AND ACADEMIC PERFORMANCE WITH E-LEARNING AT JOUF UNIVERSITY DURING THE COVID-19 PANDEMIC

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ABSTRACT

Background: The COVID-19 pandemic has significantly impacted various sectors, including healthcare, the economy, and education, leading to a quick shift towards e-learning.

Aim: To evaluate student experiences and academic performance with E-Learning during the COVID-19 pandemic.

Methods: This descriptive cross-sectional study surveyed 378 students across 13 colleges in the Jouf region of Saudi Arabia, using a structured, self-administered electronic questionnaire.

Results: The majority of respondents expressed strong satisfaction with e-learning, reporting minimal challenges in adapting and observing an increase in their Grade Point Average (GPA) post-transition.

Keywords: E-learning, COVID-19, Pandemic, Public Health, Educational Innovation.

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ADAPTAÇÃO ÀS NOVAS NORMAS: AVALIANDO AS EXPERIÊNCIAS E O DESEMPENHO ACADÊMICO DOS ALUNOS COM E-LEARNING NA UNIVERSIDADE JOUF DURANTE A PANDEMIA DE COVID-19

RESUMO

Contexto: A pandemia da COVID-19 teve um impacto significativo em vários setores, incluindo os cuidados de saúde, a economia e a educação, levando a uma rápida mudança para o e-learning.

Objetivo: Avaliar as experiências dos alunos e o desempenho acadêmico com o E-Learning durante a pandemia do COVID-19.

Métodos: Este estudo transversal descritivo entrevistou 378 estudantes de 13 faculdades na região de Jouf, na Arábia Saudita, usando um questionário eletrônico estruturado e autoadministrado.

Resultados: A maioria dos entrevistados expressou grande satisfação com o e-learning, relatando desafios mínimos na adaptação e observando um aumento na sua média de notas (GPA) pós-transição.

Palavras-chave: E-learning, COVID-19, Pandemia, Saúde Pública, Inovação Educacional.

ADAPTACIÓN A NUEVAS NORMAS: EVALUACIÓN DE LAS EXPERIENCIAS DE LOS ESTUDIANTES Y EL DESEMPEÑO ACADÉMICO CON E-LEARNING EN LA UNIVERSIDAD JOUF DURANTE LA PANDEMIA COVID-19

RESUMEN

Antecedentes: La pandemia de COVID-19 ha impactado significativamente a varios sectores, incluidos la atención médica, la economía y la educación, lo que ha llevado a un rápido cambio hacia el aprendizaje electrónico.

Objetivo: Evaluar las experiencias de los estudiantes y el desempeño académico con E-Learning durante la pandemia de COVID-19.

Métodos: Este estudio transversal descriptivo encuestó a 378 estudiantes de 13 universidades de la región de Jouf en Arabia Saudita, utilizando un cuestionario electrónico estructurado y autoadministrado.

Resultados: La mayoría de los encuestados expresaron una gran satisfacción con el aprendizaje electrónico, informaron desafíos mínimos en la adaptación y observaron un aumento en su promedio de calificaciones (GPA) después de la transición.

Palabras clave: E-learning, COVID-19, Pandemia, Salud Pública, Innovación Educativa.

1 INTRODUCTION

The COVID-19 pandemic, identified in early 2020, has severely impacted various sectors, leading to significant morbidity and mortality, strain healthcare systems, and worldwide closure of educational institutions .[1] This crisis has necessitated a rapid shift towards e-learning. [2-4] E-learning, defined as the use of electronic media for various learning purposes, ranges from supplementing traditional classrooms to completely replacing face-to-face

meetings with online encounters.[5] This transition has been facilitated by applications and platforms, such as Blackboard, Microsoft Teams, Zoom, and Google Classroom, playing a crucial role in continuing education during the pandemic.

In Saudi Arabia, the Ministry of Education mandated a shift to e-learning for all educational institutions on March 8, 2020, in response to the COVID-19 pandemic.[6]This sudden transition raised concerns about education quality and adapting to new learning environments.[7] While e-learning offers advantages like flexible schedules and accessibility to resources, it also poses challenges such as reduced student-teacher interaction and technological barriers. [4,8]

Saudi Arabia's rapid technological advancements have bolstered its e-learning infrastructure, capable of managing millions of logins and courses, showcasing the nation's preparedness for such a transition.4 Despite this, assessing students' perceptions and experiences with e-learning during the COVID-19 pandemic is crucial for enhancing e-learning in higher education and understanding its impact on academic achievement.Therefore, this study aims to assess the perceptions and experiences of Jouf University students towards e-learning during the COVID-19 pandemic. This assessment was contributed to improve e-learning strategies in higher education and exploring the challenges and impacts of transitioning from traditional to online learning.

2 MATERIALS AND METHODS

This research utilized a cross-sectional survey design to investigate the perceptions and experiences of undergraduate students at Jouf University towards e-learning during the COVID-19 pandemic. Data collection tool place from May to July 2020, coinciding with the period when the university was closed due to the pandemic.

The study was conducted at Jouf University campuses in Sakaka, Al Qurayyat, and Tabargal, chosen for their direct involvement in the e-learning transition during the pandemic, providing a relevant context for exploring students' experiences.

A sample size of 387 students was calculated from the total undergraduate enrollment of 23,100 in the 2019-2020 academic year. This sample size was based on an expected frequency of 50% for the desired outcome, a 95% confidence level, and a 5% margin of error. Convenience sampling was used, and students involved in e-learning who provided informed consent were included in the survey.

A self-administered, structured electronic questionnaire was developed after reviewing relevant literature. [9,10]. It was translated and back-translated into Arabic, assessed for content

validity, and pilot-tested on 35 students to ensure reliability and readability. The questionnaire consisted of five sections. The first section included data about the sociodemographic characteristics of students, including age, gender, material status, University branch, Type of college, academic level, GPA and platforms used by students for E-Learning, including Twitter, WhatsApp, Telegram, telephone, Zoom and Blackboardh. The third section includes questions regarding challenges faced by students during e-learning, which includes internet connectivity, internet technical errors during lectures, inability to concentrate, interaction and communication. Finally, the satisfaction with E-learning experience questionnaire was measured by 5-point Likert scale ranging from strongly dissatisfied (1) to strongly satisfied (5).

The questionnaire was created using Google Forms, with all permissions obtained from Jouf University's Local Committee of Bioethics. The link was sent to students via university email and Blackboard.

Reliability: The primary instrument was the structured questionnaire, A pilot study tested on 35 students which demonstrated internal consistency with a Cronbach's alpha coefficient of 0.79, indicating reliable measurement of the constructs.

2.1 ETHICS STATEMENT

Ethical approval for the study was obtained from the Local Committee of Bioethics at Jouf University (HAP_13_s-00i)

Informed consent was obtained from all participating students, with the study's purpose clearly explained to them. The provided information and have had the opportunity to ask questions. I The participation is voluntary and free to withdraw at any time, without giving a reason and without cost. Confidentiality and anonymity of the participants were ensured through secure data storage and handling practices.

2.2 DATA ANALYSIS

Data were analyzed using IBM SPSS Statistics, Version 20 (IBM Corp., Armonk, NY, USA). Quantitative data were expressed as mean and standard deviation (SD) and analyzed using the student's t-test for comparison of two groups of normally distributed variables**.** Chi-square or Fisher's exact test was used to test the differences between categorical variables. Students' academic achievement was assessed using the grade point average (GPA) by dividing

the total grade points of the student by the total GPA credits attempted. Statistical significance was considered at *P*-values <0.05.

3 RESULTS

The study revealed that 83.6% of the participants were female, with 95.8% being single. Most of the participants, 73.5%, were below 23 years old, with a mean age of 22.2 years (±4.9 years). 70.1% were enrolled at the Sakaka branch, while 23.6% at Al Qurayyat and 6.3% at Tabargel. The participants were majorly enrolled in health science colleges, representing 60.0% of the sample. This was followed by students from social sciences and science colleges, accounting for 24.6% and 16.4% respectively. Preparatory level students constituted the largest group at 26.9%.

The majority, 80.7%, reported an increase in their GPA. In contrast, a smaller group of students experienced no change in their GPA, accounting for 11.9%. A minority of students, 7.4%, observed a decrease in their GPA. Blackboard and WhatsApp were the most predominant platforms (88.6%, 69.4% of respectively). In contrast, platforms like Email, Telephone, Twitter, Zoom, and Telegram were less frequently utilized as shown in table 1.

Table 1

Sociodemographic characteristics of participating students (N=378)

Characteristics	***n***	**(%)**
Gender		
Male	62	(16.4)
Female	316	(83.6)
Age		
<23	278	(73.5)
23 - <28	52	(13.8)
28 - <33	40	(10.6)
≥33	8	(2.1)
Mean ± SD: 22.2 ± 4.9		
Marital status		
Single	362	(95.8)
Married	16	(4.2)
University branch		
Sakaka	265	(70.1)
Al Qurayyat	89	(23.6)
Tabargel	24	(6.3)
Type of college		
Science	62	(16.4)
Health sciences	223	(60.0)
Social sciences	93	(24.6)
Academic level		
Preparatory	102	(26.9)
First	40	(10.6)

Second		45	(11.9)
Third		41	(10.7)
Fourth		50	(13.2)
Fifth		50	(13.2)
Sixth		51	(13.5)
GPA			
Increased	305 (80.7)		
Decreased	28 (7.4)		
Not changed	45 (11.9)		
E-Tools used for e-learning			
Email	96 (25.4)		
Telephone	88(23.4)		
Zoom	41(10.8)		
Twitter	21(5.6)		
Telegram	46(12.2)		
Blackboard	262 (69.4)		
WhatsApp	335 (88.6)		

SD, standard deviation

3.1 CHALLENGES FACED BY STUDENTS DURING E-LEARNING

Table 2 presents the challenges encountered by students at Jouf University during their e-learning experience amidst the COVID-19 pandemic. Notably, two primary technical issues emerged as the most significant challenges: poor internet connectivity and students' inability to resolve internet technical errors during lectures, each affecting 25.9% of the respondents.

The data also reveal that 18.5% of students struggled with concentration during e-learning sessions, and 16.4% reported a lack of interaction. Additionally, 13.2% of students cited a lack of communication as a barrier. Other notable challenges included limited access to computers (7.4%), inappropriate lecture timing (5.0%), excessive duties and tasks (6.9%), and limited time for duty completion (11.6%). Technical difficulties also extended to staff, with 9.3% of students noting that instructors faced challenges dealing with internet technical errors during lectures.

Table 2

Challenges faced by students of Jouf University during e-learning (N = 378)

Challenge	***n***	**(%)**
Internet access and contact issues		
Poor internet connectivity	96	(25.9)
Unavailability of computers	28	(7.4)
Time management issues		
Inappropriate lecture timing	19	(5.0)
Excessive duties and tasks	26	(6.9)
Limited time for duty completion	44	(11.6)

Communication and collaboration difficulties		
Lack of communication	50	(13.2)
Inability to concentrate	70	(18.5)
Lack of interaction	62	(16.4)
Technical difficulties		
Students' inability to deal with internet technical errors during lecture	98	(25.9)
Staff inability to deal with internet technical errors during lecture	35	(9.3)

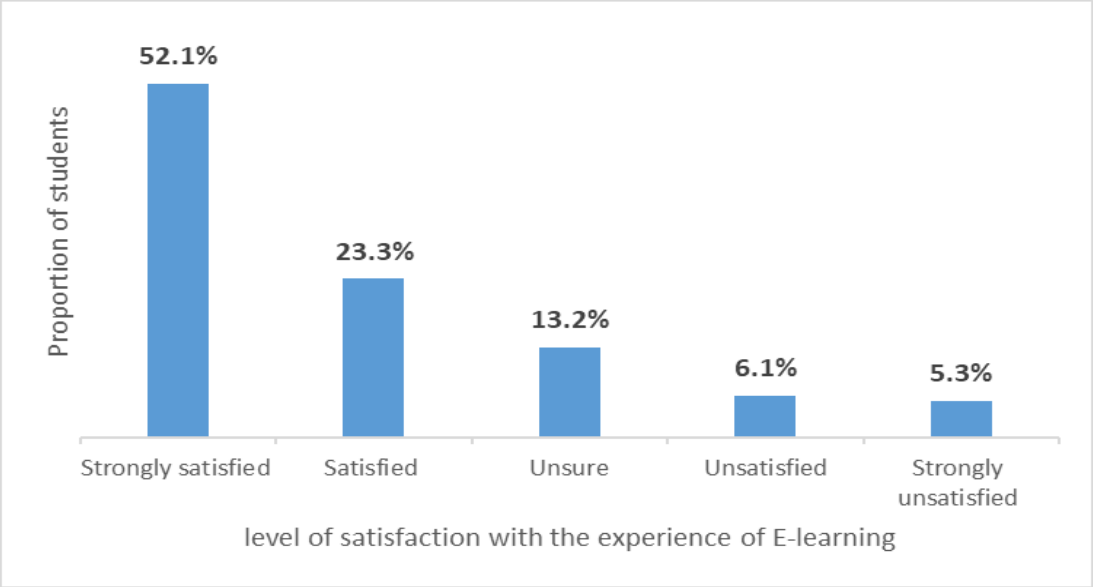
3.2 SATISFACTION WITH E-LEARNING EXPERIENCE

Figure1 delineates student satisfaction levels with the e-learning at Jouf University during the COVID-19 lockdown. 52.1% of students reported being strongly satisfied, indicating a high level of approval for the online educational measures. Furthermore, 23.3% of students felt satisfied, contributing to the majority with a positive e-learning experience.

However, 13.2% expressing uncertainty, while 6.1% were unsatisfied, and 5.3% were strongly unsatisfied.

Figure 1

Satisfaction with e-learning experience among students of Jouf University during COVID-19 lockdown in 2020



In Table 3, male students demonstrated a significantly higher negative perception towards e-learning (63.4%) compared to females (16.3%), with an odds ratio (OR) of 8.9, suggesting that gender's role in e-learning receptivity.

Age was also significant factor, with students aged 20 years and above reporting more negative perceptions (32.3%) compared to their younger peers (14.1%), supported by a P-value of 0.036.

Moreover, students in scientific colleges had a higher negative perception (29.8%) compared to those in theoretical colleges (10.8%). Academic level showed a significant correlation with negative perceptions towards e-learning; students at the third academic level or lower had a higher proportion of negative perceptions (67.7%) compared to those at the fourth level or higher (11.2%).

Table 3

Association of sociodemographic characteristics with students' negative perceptions towards e-learning at Jouf University

Characteristics		*N*	Negative perception				*P*-value
			n	(%)	OR	(95% CI)	
Gender							
	Male	71	45	(63.4)	8.9	(5.0–15.7)	0.011
	Female	307	50	(16.3)	Reference		
Age (years)							
	≥20	229	74	(32.3)	2.3	(1.4–3.9)	0.036
	<20	149	21	(14.1)	Reference		
	Marital status						
	Single	333	92	(27.6)	2.8	(0.8–9.6)	0.058
	Married	25	3	(12.0)	Reference		
University branch							
	Sakaka	265	72	(27.2)	1.4	(0.9–2.2)	0.063
	Al Qurayyat	95	18	(18.9)	0.9	(0.8–1.0)	0.079
	Tabargel	18	5	(27.8)	Reference		
Type of college							
	Scientific	285	85	(29.8)	4.0	(2.0–7.9)	0.027
	Theoretical	93	10	(10.8)	Reference		
Academic level							
	Third and lower	93	63	(67.7)	6.0	(3.7–9.8)	0.018
	Fourth and higher	285	32	(11.2)	Reference		

N, total number of respondents; n, respondents with negative perception; OR, odds ratio; CI, confidence interval.

4 DISCUSSION

The COVID-19 pandemic posed unprecedented challenges to global education[11-14], as lockdowns and social distancing measures compelled institutions to swiftly transition to online platforms.[14,15]

At Jouf University, Blackboard was the predominant online learning platform, utilized by 88.6% of students, demonstrating its effectiveness and widespread acceptance in students in Saudi Arabia universities. [16,17] The platform's discussion forums have been particularly

effective in fostering student engagement and cognitive involvement .[18] WhatsApp also played a significant role, utilized by about two-thirds of students for educational purposes. Its widespread use prior to the pandemic likely contributed to its ease of adoption. [19] The convenience of this and other social media platforms has been recognized as an effective tool for medical education.[20]

52.1% of students reported strong satisfaction with e-learning, aligning with previous studies reporting satisfaction levels.[121-25] It is evident that the switch to e-learning during the COVID-19 lockdown had a positive impact on the GPA of approximately 80% of the students in this study. A similar e-learning strategy was found to improve the academic achievement of Palestinian students during the COVID-19 pandemic. [26] However, challenges such as poor internet connectivity and technical issues were reported by a quarter of students, highlighting the need for infrastructure improvement.

While e-learning offers benefits, many students face significant challenges that impact their learning experience. These challenges can lead to detrimental outcomes such as decreased motivation and persistence. [27] The present study found that a quarter of the students considered poor Internet connection and inability to deal with technical errors as the major challenges during e-learning. Similarly, healthcare students in Saudi Arabia reported issues with poor internet connectivity and of audio-visual media quality. [28] Ghanaian students faced challenges accessing learning platforms and ineffective online learning.[26] Filipino students cited home environment as a major obstacle to online learning. [29] Communication and collaboration difficulties, including lack of concentration interaction, were major challenges reported by participants in this study. Similarly, a major challenge to successful online learning among students enrolled at the German Sport University was their striving for interaction.[30] It is noteworthy that non-verbal communication is crucial for successful teaching. [31]

Gender disparities were noted, with negative views more prevalent among male students. This contrasts with research from the UAE and India[32], where female students expressed greater satisfaction with online learning, and differs from studies in Austria [33], where negative attitudes were higher among female students. Age also influenced perceptions, with older students exhibiting more negative views, possibly due to less familiarity with digital technologies.

Students enrolled in scientific colleges expressed more negative perceptions of e-learning, indicating a need for a blended approach, especially for clinical training. In contrast, undergraduate medical students at Queen's University Belfast reported e-learning comparable to traditional methods in clinical skills education.[34] Additionally, higher academic level

students reported more negative perceptions of e-learning, potentially influenced by course content differences. Course content and curriculum type as known determinants of e-learning acceptance in higher education.[35]

5 CONCLUSION

The study conducted at Jouf University during the COVID-19 pandemic provides valuable insights into the transition to e-learning and its reception among students. The findings demonstrate that e-learning was predominantly well-received, with a majority of students adapting well to this mode of instruction and reporting an increase in GPA. The use of various e-learning platforms, particularly Blackboard, facilitated the continuation of academic activities, underscoring the potential of these technologies to support education in crisis situations.

5.1 LIMITATIONS AND FUTURE STUDIES

The cross-sectional nature of the research design captures perceptions and experiences at a single point in time, while longitudinal studies could provide a deeper insight into evolving attitudes towards e-learning. Convenience sampling might limit findings' generalizability to all Jouf University students or other institutions.

Future studies should explore e-learning's long-term educational outcomes, especially in academic performance and skill acquisition. Investigating challenges faced by different demographic groups can aid in tailoring e-learning systems to meet diverse student needs. Moreover, further research is needed to understand the impact of e-learning on practical skill development in scientific disciplines, potentially leading to advanced blended learning approaches.

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