

**تقييم الفائدة المتصورة وسهولة استخدام التعلم
الإلكتروني بين طلاب الطب في جامعة النهرين**

**Assessing Perceived Usefulness and
Perceived Ease of Use of E-Learning among
Medical Students at Al-Nahrain University**

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الكلمات المفتاحية: التعلم الإلكتروني، سهولة الاستخدام المتصورة، الفائدة المتصورة.

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الملخص

مستخلص البحث

هدفت هذه الورقة إلى تقييم تصورات الطلاب حول الفائدة المتصورة وسهولة استخدام منصات التعلم الإلكتروني باللغة الإنجليزية في كلية الطب وكلية الصيدلة بجامعة النهرين. تم جمع البيانات من خلال استبيان مُنظَّم تضمن عبارات تم تقييمها باستخدام مقياس ليكرت ثلاثي النقاط (موافق، محايد، غير موافق). ركز القسم الأول على الفائدة المتصورة، حيث تم فحص مدى مساهمة منصة التعلم الإلكتروني في تعزيز التحصيل الأكاديمي، وتوفير وصول فعال إلى المواد التعليمية، وتقديم مرونة في جداول الدراسة، وتحسين التفاعل مقارنة بالطرق التقليدية. تناول القسم الثاني سهولة الاستخدام المتصورة، من خلال تقييم سهولة استخدام المنصة وتحديد العوامل التي أثرت على آراء الطلاب بشأن قابليتها للاستخدام. تم تحليل البيانات كميًا باستخدام برنامج SPSS. كشفت النتائج عن تصورات إيجابية بين الطلاب فيما يتعلق بكل من الفائدة وسهولة الاستخدام للمنصة. وقد أشار معظم الطلاب إلى فائدتها في تنظيم جداول دراستهم وتعزيز ثقتهم في استخدام أدوات التعلم الإلكتروني بفعالية. بالإضافة إلى ذلك، ساهم دمج الأنشطة الرقمية والاستراتيجيات التحفيزية في تعزيز الاحتفاظ بالمعلومات وتحسين الأداء الأكاديمي. ومع ذلك، تم تحديد المشكلات التقنية وقلة التفاعل كعوائق رئيسية. وأوصت الورقة بتعزيز التعلم الإلكتروني من خلال استخدام أدوات تفاعلية وتوفير التدريب للمعلمين والطلاب.

Abstract

The purpose of this study was to determine the perception of students towards the perceived usefulness and ease of use of English e-learning tools in the College of Medicine and College of Pharmacy, Al-Nahrain University. A structured questionnaire with statements evaluated under a three-point Likert scale (agree, neutral, disagree) was used to gather the data. The first section was on perceived usefulness that considered the

question of whether the e-learning site enhanced performance in academics, had an effective access to learning materials, flexibility in learning programs and increased engagement compared to the traditional systems. The second part dealt with perceived ease of use, the ease with which the platform was perceived to be usable and what factors affected how the students perceived it to be usable. The SPSS was used to analyze data in a quantitative manner. The results indicated that students had positive perceptions both on the usefulness and ease of use of the platform. The majority of students emphasized its usefulness in planning their studying time and gaining confidence in the effectiveness of using e-learning tools. Also, the combination of online activities and motivation techniques improved retention and grades. Nevertheless, technical problems and lack of interaction were found to be the major obstacles. The research suggested the improvement of e-learning through the use of interactive tools and training teachers and learners.

Introduction

This paper aimed to assess the perceived usefulness (PU) and perceived ease of use (PEOU) of e-learning among medical students at the College of Medicine and the College of Pharmacy in Al-Nahrain. The electronic platform at Al-Nahrain University, established in 2015, provides official emails to all students and faculty members, along with electronic classes for all academic subjects. The study concentrated on investigating students' perceptions of the usefulness and ease of use of the English e-learning platform from the student's point of view. It mainly addressed two objectives: 1- To evaluate the perceived usefulness of e-learning among medical students at the College of Medicine and the College of Pharmacy. 2-To assess the perceived ease of use of e-learning among these students. Accordingly, two main questions were explored: 1- What is the perceived usefulness of e-learning among medical students at Al-Nahrain University? 2- What is the perceived ease of use of e-learning among medical students at Al-Nahrain University?

E-learning is an important medical education tool in various countries in recent years, responding to diverse issues and increasing accessibility. Other institutions such as the prestigious Harvard Medical School in the United States have been the first to introduce e-learning in their programs including HMX Fundamentals, (Harvard Medical School, n.d.).

HMX Fundamentals offers advanced online medical education, aimed at learning the general principles of physiology, immunology, and pharmacology. On the same note, the General Medical Council in United Kingdom has also promoted the application of e-learning in medical education so that medical students and medical practitioners can readily access the continuous medical education (CME) without regard to the physical geographical location or time (General Medical Council, n.d.).

E-learning helped to foster peer and instructor interaction across geographical limits, which encouraged different views and experiences) Rebut, 2024). According to Frehywot et al. (2013), third world nations like India and Nigeria utilized e-learning platforms to deal with shortages of physicians and educational materials by using online medical training courses to access the students in remote or underserved locations. This group of case studies was a manifestation of how e-learning was planned to respond to the local needs and constraints of the different regions and contributed to the evolution of medical training on a global scale.

E-learning in medical training, though handy in the academic knowledge, was confronted with some key challenges especially in imparting practical, hands-on skills. As the study by Jarelnape et al. (2024) has mentioned that the e-learning systems were ineffective in terms of practical training provision and monitoring the effectiveness of the clinical capabilities among medical students. As study done by Jarelnape et al. (2024) mentioned that e-learning platforms had limitations in providing adequate practical training and monitoring the effectiveness of clinical skills in medical students. Based on the research, a substantial proportion of teaching staff members believed that e-learning lacked sufficient measures of assessing practical skills, which is a major factor in preparing the students to qualify in real clinical environments.

Medicine was based on clinical skills that were challenging to impart in a pure virtual setting. Those skills were acquired with the help of simulations and online modules, yet, the complexity and variability of live patient interactions were essential in learning how to achieve an accurate diagnosis, a procedure, and bedside manner. Furthermore, many regions of low- and middle-income countries suffered from technical barriers such as lack of internet access or other infrastructure, which limited the full

implementation of e-learning modalities across medical programs (Waqas et al., 2020).

The history of e-learning in Iraq dated back to the early 2000s when the country was in huge difficulties to re-establish the system of education. The concept of online learning was not well developed and initial efforts to use technology in education were thwarted by the unavailability of the internet and inadequate infrastructure Al-Azawei, (2016). The late 2000s saw the beginning of the consideration of online learning by some schools, primarily in distance education, due to the increased internet connectivity. Nevertheless, the efforts were limited by the lack of digital resources and trained faculty members. Education sector realized the potential that e-learning could bring to provide better access to education in higher education (Al-Sammarraie et al., 2021).

Moreover, the COVID-19 pandemic further sped up the shift to e-learning, pushing universities such as the University of Karbala to create dependable e-learning units with platforms in order to sustain academic work during lockdowns (UNDP, 2020). The shift also brought into the limelight the planning and hindrances of e-learning in the context of medical education in Iraq.

The COVID-19 pandemic presented an unprecedented challenge to the education system in Iraq, with the need to quickly switch to e-learning since the classrooms around the country were shut down to prevent the spread of the virus. This shift emphasized the potential of digital learning as well as the significant limitations of teachers and students. Numerous institutions hastened to establish video calls on Zoom and lecture rooms on Moodle to provide lectures and stay connected (Hamid et al., 2021).

However, the lack of internet connectivity, the lack of technology infrastructure, and the lack of necessary training among the faculty

members on online teaching resulted in the process of implementation being challenging (Alsharif et al., 2022). Notwithstanding these difficulties, the pandemic created a new avenue of innovation and affected educators to explore novel methods of teaching and electronic learning resources.

Materials and Methods

This study employed a quantitative approach to gain deeper insights into medical students' experiences with English e-learning platform at Al-Nahrain University through using a questionnaire.

Participants: A purposive sample of 263 students participated in the study. It included students from the fifth and sixth years of the College of Medicine and the fourth and fifth years of the College of Pharmacy. These students completed a questionnaire to assess their perceived usefulness and perceived ease of use of the English e-learning platform. The questionnaire consisted of closed-ended statements.

Data collection: Data were collected using a questionnaire that contained six statements to evaluate perceived usefulness and four statements to evaluate perceived ease of use towards the English e-learning platform in the two medical colleges.

Analysis of the Data of the Questionnaire

Table (1) Descriptive Analysis of the Perceived Impact of English E-Learning Platforms on Academic Performance Among Medical University Students at Al-Nahrain University.

Items		F	%	M	SD	Asses.
Using English e-learning platform has enhanced my academic performance and achievements.	Agree	177	67.3	2.623574144	0.578672607	High
	Neutral	73	27.76			
	Disagree	13	4.94			
	Total	263	100			

Cut of points value (0.66): *Low* = $(1 - 1.66)$, *Moderate*
= $(1.67 - 2.33)$, *High* = $(2.34 - 3)$. *M* = *mean*, *SD*
= *standard deviation*, *F* = *frequency*, %
= *percenta*

Table(1) showed that the results summarized a substantial majority of participants (67.3%, n=177) agreed that the use of English e-learning platforms enhanced their academic achievements, while only a small fraction (4.94%, n=13) disagreed, and 27.76% (n=73) remained neutral. The overall mean score for this perception was 2.62 with a standard deviation of 0.58, placing it in the high assessment category, which indicated a strong belief in the benefits of these platforms for academic performance.

Table (2) Descriptive Analysis of the Effectiveness of English E-Learning in Facilitating Access to Learning Materials Among Medical University Students in Iraq.

Items		F	%	M	SD	Asses.
The English e-learning enables me to access learning materials more efficiently than traditional methods.	Agree	186	70.72	2.642585551	0.60026407	High
	Neutral	60	22.81			
	Disagree	17	6.46			
	Total	263	100			

Cut of points value (0.66): *Low* = $(1 - 1.66)$, *Moderate*
= $(1.67 - 2.33)$, *High* = $(2.34 - 3)$. *M* = *mean*, *SD*
= *standard deviation*, *F* = *frequency*, %
= *percentage*.

Table (2) showed that 70.72% of participants (n=186) agreed that English e-learning facilitated access to educational resources more efficiently than traditional methods, while only 6.46% (n=17) disagreed, and 22.81% (n=60) expressed a neutral stance. The mean score for this perception was 2.64, with a standard deviation of 0.60, categorizing it in the high assessment range.

Table (3) Descriptive Analysis of the Perceived Flexibility of English E-Learning Platforms Among Medical University Students in Iraq.

Items		F	%	M	SD	Asses.
The flexibility of English e-learning platform allows me to study at my own time.	Agree	193	73.38	2.711026616	0.502049322	High
	Neutral	64	24.33			
	Disagree	6	2.28			
	Total	263	100			

Cut of points value (0.66): *Low* = (1 – 1.66), *Moderate* = (1.67 – 2.33), *High* = (2.34 – 3). *M* = mean, *SD* = standard deviation, *F* = frequency, % = percentage.

Table (3) indicated a significant percentage of 73.38 of respondents (n=193) who agreed that the flexibility of the English e-learning platforms enabled them to study at their convenience which demonstrated the convenience that the platforms offered.. Conversely, the few who did not agree with this statement were only a small minority of students (2.28 percent, n=6), with 24.33 percent (n=64) students being neutral. The average score was determined to be 2.71 and the standard deviation was 0.50 which places this perception in the high assessment category.

Table (4) Descriptive Analysis of Student Interaction with English E-Learning Platforms as compared to Face-to-Face Learning.

Items		F	%	M	SD	Asses.
English e-learning platform enhances my engagement with course content in comparison with face-to-face learning.	Agree	119	45.25	2.292775665	0.726951897	Moderate
	Neutral	102	38.78			
	Disagree	42	15.97			
	Total	263	100			

Cut of points value (0.66): Low = (1 – 1.66), Moderate

= (1.67 – 2.33), High = (2.34 – 3). M = mean, SD

= standard deviation, F = frequency, %

= percentage.

Table (4) indicated that student involvement in English e-learning materials is seen to be moderate in comparison to the traditional face-to-face learning. Among the 263 students who participated in the survey, 119 (45.25) students confirmed that the English e-learning platform increased their engagement with course material, and the mean engagement score was 2.29 (SD = 0.73), which was in the moderate range with the established cut-off values. Out of the 263 students surveyed, 119 (45.25%) agreed that the English e-learning platform enhanced their engagement with course content, resulting in a mean engagement score of 2.29 (SD = 0.73), which fell within the moderate range according to the established cut-off values. Alternatively, 42 students (15.97) said they did not agree with this statement, 102 students (38.78) said they were neutral and this showed that there was a diversity of opinion about the effectiveness of e-learning in

creating a sense of engagement compared to the traditional classroom environment.

Table (5) Descriptive Analysis of the Impact of English E-Learning Platforms on Information Understanding and Retention.

Items		F	%	M	SD	Asses.
Using English e-learning platform has significantly affected my understanding and retaining information.	Agree	144	54.75	2.433460076	0.689577676	High
	Neutral	89	33.84			
	Disagree	30	11.41			
	Total	263	100			

Cut of points value (0.66): Low = (1 – 1.66), Moderate

= (1.67 – 2.33), High = (2.34 – 3). M = mean, SD

= standard deviation, F = frequency, %

= percentage

In Table (5), it was revealed that out of the 263 respondents, 144 students (54.75) reported that these platforms increased their understanding and memory, a mean score of 2.43 (SD = 0.69) was obtained a significant score as per the set rating scale.. On the other hand, 30 students (11.41%) only responded to this statement as not true, and 89 students (33.84) said that they were neutral, which indicated a good perception of most students on the value of e-learning platforms in the retention of course material in their academic performance.

Table (6) Descriptive Analysis of the Availability of Additional Resources under English E-Learning Platforms to undertake Academic Studies.

Items		F	%	M	SD	Asses.
English e-learning platform provides me with extra resources that are useful for my studies.	Agree	189	71.86	2.673003802	0.559028352	High
	Neutral	62	23.57			
	Disagree	12	4.56			
	Total	263	100			



Cut of points value (0.66): $Low = (1 - 1.66), Moderate = (1.67 - 2.33), High = (2.34 - 3).$ $M = mean, SD = standard deviation, F = frequency, \% = percentage.$

Table (6) showed that out of the 263 participants, 189 students (71.86%) agreed that these platforms offered valuable supplementary materials, yielding a mean score of 2.67 (SD = 0.56), which indicated a high level of satisfaction with the resources available. In contrast, only 12 students (4.56%) disagreed with this assertion, while 62 students (23.57%) expressed neutrality, highlighting a strong belief among most students in the effectiveness of e-learning platforms for enhancing their academic resources.

Analysis of the Second Section of the Questionnaire

Table (7) Descriptive Analysis of User Navigation Experience on English E-Learning Platforms.

Items		F	%	M	SD	Asses.
I find it easy to navigate the English e-learning platform.	Agree	160	60.84	2.539923954	0.621899327	High
	Neutral	85	32.32			
	Disagree	18	6.84			
	Total	263	100			

Cut of points value (0.66): $Low = (1 - 1.66), Moderate = (1.67 - 2.33), High = (2.34 - 3).$ $M = mean, SD = standard deviation, F = frequency, \% = percentage.$

Table (7) indicated that out of 263 respondents, 160 students (60.84) responded that they found navigating the platform easy and this gave a mean of 2.54 (SD = 0.62), which indicates high degree of navigational ease.. Conversely, 18 students (6.84) opposed the statement, but 85

students (32.32) were indifferent and it indicates a majority of the students have a positive experience in using the e-learning platform, which is critical to successful participation in their studies.

Table(8) Descriptive Analysis of the Usability of the English E-Learning System with Guidance and Support.

Items		F	%	M	SD	Asses.
The English e-learning system is easy to use with guidance and support.	Agree	189	71.86	2.703422053	0.489846993	High
	Neutral	70	26.62			
	Disagree	4	1.52			
	Total	263	100			

Cut of points value (0.66): Low = (1 – 1.66), Moderate

= (1.67 – 2.33), High = (2.34 – 3). M = mean, SD

= standard deviation, F = frequency, %

= percentage.

Table (8) showed that out of the 263 respondents, a significant 189 students (71.86%) agreed that the system is easy to use with appropriate assistance, resulting in a mean score of 2.70 (SD = 0.49), which indicated a high level of user-friendliness. In contrast, only 4 students (1.52%) disagreed with this statement, while 70 students (26.62%) expressed neutrality.

Table (9) Descriptive Analysis of Students' Confidence in Using English E-Learning Tools Effectively.

Items		F	%	M	SD	Asses.
I feel confident in my ability to use the English e-learning tools effectively.	Agree	173	65.78	2.608365019	0.581724197	High
	Neutral	77	29.28			
	Disagree	13	4.94			
	Total	263	100			

Cut of points value (0.66): Low = (1 – 1.66), Moderate =

(1.67 – 2.33), High = (2.34 – 3). M = mean, SD =

standard deviation, F = frequency, % = percentage.

Table (9) indicated a positive assessment of students' confidence in effectively utilizing English e-learning tools. Among the 263 participants, 173 students (65.78%) expressed agreement with the statement regarding their confidence in using these tools, leading to a mean score of 2.61 (SD = 0.58), which suggested a high level of self-assurance. Only 13 students (4.94%) disagreed with the confidence statement, while 77 students (29.28%) remained neutral.

Table (10) Descriptive Analysis of Technical Issues Impacting Uninterrupted Learning on the English E-Learning Platform.

Items		F	%	M	SD	Asses.
Technical issues with the English e-learning platform are minimal, allowing for uninterrupted learning.	Agree	128	48.67	2.33460076	0.727211376	Moderate
	Neutral	95	36.12			
	Disagree	40	15.21			
	Total	263	100			

Cut of points value (0.66): Low = (1 – 1.66), Moderate

= (1.67 – 2.33), High = (2.34 – 3). M = mean, SD

= standard deviation, F = frequency, %

= percentage.

Table (10) highlighted that students perceived a moderate level of technical issues impacting their learning experience on the English e-learning platform. Out of 263 participants, 128 students (48.67%) agreed that technical problems were minimal, facilitating uninterrupted learning, which resulted in a mean score of 2.33 (SD = 0.73). While nearly half found the technical hurdles manageable, a notable portion of 40 students (15.21%) disagreed with this sentiment, and 95 students (36.12%) remained neutral.

Results and Discussion

The research conducted on the perceived usefulness of English e-learning to students of a medical university in Iraq found out that there was a generally positive perception of English e-learning on academic performance which places it in the high assessment group. Students were convinced that these platforms increased their academic success, which is in line with results of Soe Thane (2023) who noted the significance of e-learning in enhancing access and flexibility in education. The e-learning flexibility provided to Iraqi students was valued by them, as it allows them to effectively manage their study schedules, as Al-Sammarraie et al. (2021) emphasize. A substantial majority perceived e-learning as more useful than traditional in achieving access to learning materials effectively, which increased their access to the necessary resources, which was consistent with the research study by Delungahawatta et al. (2022), which found that students perceived e-learning positively, and educational outcomes were significantly improved. The study highlighted that beneficial learning was closely associated with interactive, asynchronous, and user-friendly techniques, and student-instructor engagement.

Although students noted that they were moderately engaged in e-learning courses relative to their face-to-face learning contexts, they acknowledged that e-learning played a significant role in enhancing retention and comprehension of course content (Jarelnape et al., 2024). Also, numerous students stated fair to very good knowledge acquired during online classes and discussion boards, which indicates the impact of the platform in promoting academic interaction with the help of additional digital materials. The disadvantages, including bad internet connectivity and insufficient clinical training, did not negate the perceived benefits of e-learning as time-saving and cost-effective, with the Iraqi students



preferring a hybrid model of mobile learning and traditional learning being supported by Alsharif et al. (2022).

In the second part of the research, Perceived Ease of Use (PEOU) of English e-learning sites among Iraqi medical students was considered. The results revealed a fairly positive attitude, as students reported that the sites were easy to use and navigate.. This was consistent with the findings by Frehywot et al. (2013), who highlighted that e-learning platforms could be successfully modified to address the specific requirements of various regions, such as developing countries. Nevertheless, as popular as the platforms were among the students, technical problems and inadequate infrastructure were prevalent in low-and-middle-income nations, such as Iraq, and it conformed to Waqas et al. (2020), who observed the possibility of obstacles to smooth usage.

A high proportion of students were confident in their use of e-learning tools which were indicative of their increasing knowledge on digital platforms. This trust played a vital role in promoting interaction and academic achievement. Moreover, students also stated their worries regarding the lack in the clinical aspect that went hand in hand with the opinion that was underlined by Jarelnape et al. (2024) that constraints in practical training and the development of practical skills were still a concern, especially in clinical training. These restrictions underscored the importance of having powerful support mechanisms like tutorials and orientation programs to enhance the ability of the students to manoeuvre and avail themselves of e-learning platforms.

The lack of infrastructure, in the form of bad internet and electricity outages, was also mentioned by the students, which was already mentioned by Al-Azawei (2016); the research carried out by him admitted that the initial efforts of implementing e-learning in Iraq were hampered by the inaccessibility of the internet and inadequate infrastructure. Although

progress in connectivity had been achieved, there was still need to deal with these technical challenges and provide fair access to e-learning resources. As it has been mentioned by Al-Sammarraie et al. (2021), who pointed out that the education sector had noticed the potential of e-learning in transforming higher education, yet, its success depended on the way of overcoming the issues of usability and offering sufficient training to students and faculty.

Although students found e-learning platforms very easy to use, their effectiveness had to be constantly enhanced in terms of usability, technical infrastructure, and support systems. These actions were essential in order to maximize the benefits of e-learning and address such challenges as technical problems and the absence of hands-on training.

As a researcher, considering her experience in teaching English to students at the College of Medicine and College of Pharmacy at Al-Nahrain University, the online system was a savior of the desperate scenario in the whole world and more so during the COVID-19 pandemic. It possessed numerous good qualities, like the possibility to provide lectures in accordance with the very schedule of the students and some other qualities as well, the possibility to count the number of students who attend and the semester examinations. There were however some difficulties that arose like internet slowdown, lack of power or the inability of the students to be in places where there is good internet connectivity.



Conclusion

This research compared the perceptions of students in terms of the perceived usefulness and ease of use of the English e-learning platforms in the College of Medicine and College of Pharmacy at Al-Nahrain University. The results revealed that students generally held positive opinions regarding the platforms when it comes to its ability to improve academic performance, provide an effective access to learning resources, and provide flexibility in terms of studying schedule. In addition, the combination of online activities and motivational techniques was discovered to play a significant role in enhanced retention and performance. However, technical issues and less interaction were identified as significant impediments to the effectiveness of e-learning in general. These results highlighted the critical importance of addressing infrastructure limitations and enhancing digital literacy to fully optimize the benefits of e-learning systems.

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