مجلة جامعة الأقصى للعلوم الإنسانية، المجلد السادس والعشرون، العدد الثالث، ص561 – 579، سبتمبر2022
ISSN 2518-5810

تحليل فجوات مهارات الطلاب الإلكترونية في أنظمة إدارة التعلم الإلكتروني (ELMS): دراسة حالة جامعة الأقصى

د. يوسف أحمد يوسف*

الملخص

هناك معايير عديدة لنجاح أنظمة إدارة التعلم الإلكتروني (ELMS)، ومن أهمها المهارات الإلكترونية للطلاب، فقد جاء هذا البحث بهدف تحديد وتحليل الفجوات بين المهارات الإلكترونية التي يمتلكها الطلاب والتي يجب أن يمتلكوها في أنظمة التعليم الالكتروني ELMS، وكذلك قياس مدى تأثير المهارات الإلكترونية للطلبة في استخدام ELMS، ولتحقيق ذلك تم استخلاص (59) مهارة الإلكترونية يجب أن يمتلكها الطلاب من خلال الدراسات السابقة؛ حيث تم تصنيفها الى ستة أبعاد أولية: المهارات المستقلة، مهارات تكنولوجيا المعلومات، ومهارات الاتصالات الإلكترونية، واستخدام ELMS، ومهارات إدارة الوقت والمهارات الجماعية. وتكونت عينة الدراسة من (299) طالبًا وطالبة من كلية تكنولوجيا المعلومات و(69) خبيرًا في ELMS. وتَمّ تحليل البيانات المجمعة باستخدام تطبيق IBM SPSS 20 الإحصائية.

وقد كشفت نتائج الدراسة أن مهارات الاتصال الإلكتروني، ومهارات استخدام ELMS، والمهارات المستقلة هي مهارات مهمة جدًا للطالب كما يراها الخبراء، وقد وجدت أن 67.2٪ من الطلاب لديهم مهارات جيدة في تكنولوجيا المعلومات، وأنّ 66.2٪ لديهم مهارات مستقلة، و57.2٪ فقط لديهم مهارات اتصال إلكتروني، كما أظهرت النتائج أن هناك فجوة حقيقية بين المهارات الإلكترونية التي يمتلكها الطلبة والتي يجب أن يمتلكوه من وجهة نظر الخبراء في التعليم الإلكتروني، كما تبين وجود أثر دال إحصائيًا لمهارات الطلبة الإلكترونية في استخدام ELMS. وبناء على هذه النتائج، فإن الباحث يوصي الجامعات الفلسطينية العمل على تطوير مهارات الطلاب الإلكترونية من خلال مساقاتهم التدريسية؛ لتحقيق أقصى فائدة من ELMS.

الكلمات المفتاحية – انظمة التعليم الالكترونية، المهارات الإلكترونية، قطاع غزة، قطاعات التعليم العالي

د. يوسف يوسف – جامعة الأقصى – غزة . Ya.yousef@alaqsa.edu.ps

Gaps Analysis of E-learning Management Systems (ELMS) Students ' e-Skills: Al-Aqsa University Case Study

Abstract

The success of e-learning management systems (ELMS) heavily depends on the e-skills of students, making it a crucial factor. Therefore, the aim of this study is to identify and analyze the gaps between the e-skills that students should possess and the ones they currently have in the ELMS. Moreover, the study aims to evaluate the impact of students' e-skills on their usage of the ELMS. A comprehensive literature review led to the identification of 59 major e-skills that students should possess, categorized into six initial dimensions: independent, IT skills, e-communications, using ELMS, time management, and collective skills. Data were collected from 299 students and 69 ELMS experts, and IBM SPSS 20 statistical software was used for analysis. According to the experts, the most important e-skills for the success of ELMS are e-communication and IT skills, including creating a folder for document storage, setting up a long-term plan, sending voice messages, having special email capabilities, accessing online papers, installing software, and changing the computer setup configuration. The study found that 67.2% of students have good IT skills, 66.2% have independent skills, and only 57.2% have effective e-communication skills. Furthermore, there was a significant gap between the e-skills that students should have (according to expert view) and their current e-skills, with IT and e-communication skills having the largest gap. This includes the use of Microsoft Excel and digital pens, e-conversations and e-discussions, file attachment to an e-mail message, software installation, and configuration of the computer. The study found that student e-skills have a positive impact on the usage of ELMS, with a correlation of 24%. This suggests that developing student e-skills in ELMS can lead to greater utilization of the system. Therefore, the study recommends that Gaza universities prioritize the development of student e-skills in their courses to maximize the benefits of ELMS.

Keywords — ELMS, e-skills, Gaza strip, High Education Sectors

1. Introduction

The COVID-19 pandemic has led to a significant shift in the way we approach education, with electronic learning management systems (ELMS) being seen as a promising solution to addressing the educational curriculum from 2019 to present. The rapid development of information and communication technology (ICT) has played a crucial role in overcoming spatial and temporal barriers during this pandemic (Shulamit and Yossi 2011; Raheem and Khan 2020). As a result, traditional learning processes have been largely replaced by electronic ones, including e-courses, e-exams, and e-classrooms (Almaiah, Al-Khasawneh et al. 2020). Through utilizing multimedia, information networks, ELMS applications, and databases, ELMS increases the diversity and scope of learning environments. In addition, the availability of a reasonable standard of privacy and protection on the Internet has contributed to a rise in the use of ELMS. In this way, ELMS can help to overcome the problem of closing schools and universities during the Corona crisis.

The COVID-19 pandemic has made ELMS the go-to solution for continuing education. With schools, colleges, and universities around the world facing this crisis, ELMS has become an essential tool for teaching and learning (Radha, Mahalakshmi et al. 2020). Research indicates that online learning programs have been well received by students, who have readily embraced the initiative (Demuyakor 2020). As more students study from home every day using ELMS, the number of students enrolled in online courses is expected to rise in response to the pandemic. The use of ELMS is growing, and this trend is set to continue as more institutions offer online courses to the increasing number of students (Demuyakor 2020; Raheem and Khan 2020). Consequently, there is an urgent need to develop students' e-skills using computers, the internet, e-communication, and LMS (Raheem and Khan 2020).

Al-Aqsa University (AQU) is considered one of Palestine's largest public universities, with 26,580 students, 69 academic programs, and 700 lecturers (University 2020). Due to the Corona crisis, AQU adopted distance education using available technical resources, such as applications, networks, and computers, to continue delivering educational services to students. However, it faced several challenges, including the shortage of students' e-skills required for ELMS. This research aims to identify the e- skills gap between what students currently possess and what they should have, helping the university focus on developing students' e-skills crucial to the success of ELMS.

2. Research Questions

The main objectives of this research are to answer the following questions:

In the experts' opinion, what are the essential e-skills required for the success of ELMS?

1. What e-skills do students currently possess in ELMS?
2. What is the disparity between the e-skills that experts recommend students should have and their actual e-skills?
3. What is the impact of student e-skills on the ELMS environment?

3. Research Questions

The main objectives of this research are to answer the following questions:

1. In the experts' opinion, what are the essential e-skills required for the success of ELMS?
2. What e-skills do students currently possess in ELMS?
3. What is the disparity between the e-skills that experts recommend students should have and their actual e-skills?
4. What is the impact of student e-skills on the ELMS environment, and how can this be evaluated?

4. Research Objectives

The purpose of this research was to:

1. Determine the e-skills necessary for students to succeed in ELMS.
2. Assess the e-skills currently possessed by students in ELMS.
3. Measure the gap between the e-skills students should possess and their actual e-skills.

5. Literature Review

5.1 ELMS

ELMS are one of the most effective ways to face the challenges of the Corona crisis in education. This concept has arisen as a result of growing of advanced technologies. In the literature, the definition of ELMS was described as the intersection of education, teaching and learning with ICT (Sangrà, Vlachopoulos et al. 2012; Guragain 2016; Dhawan 2020). It is used to bring educational programs to students and to give them access to online learning / teaching resources using ICT and multimedia technologies, according to (Samsuri, Nadzri et al. 2014; Arkorful and Abaidoo 2015; Raheem and Khan 2020). According to Samsuri, Nadzri et al. (2014), ELMS is the use of technology to improve classroom interaction via positive environment through the Internet, interactive multimedia and others. It is a self-study in which students engage in online tutorials to complete a task given to them. It also gives students active learning opportunities (Tsai 2009).

In order to provide students with knowledge on the internet and interactive multimedia, ELMS use different applications. It also uses as a self-study in which students engage in e-classes to complete a task given to them. Learning through this medium can engage students' interest because it usually comes together with interactive graphics, texts, sounds, videos, collaborative sharing and others. At the same it can be accessed anywhere and anytime as long as we have a computer and an Internet connection.

There are broad ranges of applications and tools that can carry out ELMS tasks (Dhawan 2020). Zoom cloud meetings, Google classes, Kahoot, Socrative, and Scratch are the most ELMS applications commonly used. Such applications have solved space and time limitations and have attracted students and teachers from all over the world.

However, recent research has shown that ELMS is less successful than a traditional approach especially in developing countries (Hadullo, Oboko et al. 2017; Adnan and Anwar 2020). This is attributed to ELMS which includes certain disadvantages, such as lack of involvement, cooperation, lack of face-to-face interaction, and lack of piracy. Strong e-skills, Technical difficulties, computer and internet connection are also required (Samsuri, Nadzri et al. 2014; Pande, Wadhai et al. 2016). The gap between students and lecturers was also increased (Alshahrani, Ahmed et al. 2017).

The current research focuses on e-skills for students at al-Aqsa University. Therefore, the key aims of the present research are to measure the gap between the e-skills that students should have and their e-skills. The goal is also to assess the impact of student's e-skills on using ELMS, thus suggesting the following hypothesis:

H1: Students e-skills (Independent skills, IT skills, and e-Communication skills) have a positive impact on the use of the ELMS.

H2: There is a significant statistical contrast between the gender variables concerning e-skills.

5.2E-Skills Dimensions

Benefiting from the rapid growth of ICT is related to the knowledge needed to make use of this technology called electronic skills (e-skills). E-skills refer to a variety of technology-related expertise and skills that are complex (Fleaca and Stanciu 2019). According to Hadullo and Oboko (2017), students need ELMS training to prepare them for ELMS activities. As a result, a number of researchers have been interested in addressing the relationship between e-skills and ELMS. For instances, Levy and Ramim (2017) develop a hierarchical ELMS Skills Index (ELSI) to measure the ELMS Skills Gap. They concluded that Independent Skills and critical thinking are the most important skills. Radha and Mahalakshmi (2020) study the ELMS process among students who are familiar with web-based technology. The results of this study indicate the effect of ELMS, the interest of students in utilizing ELMS tools and their performance. McVeigh (2009) claimed that the ELMS understanding is positively influenced by its flexibility in time management and increased access to information. Table 1 shows the dimensions of student's e-skills in ELMS and references.

Table 1. Student Skills Dimensions of ELMS

Skills Category	References	Item

1. Independent Skills	(Tsai 2009; ÖZBEK 2015; Levy and Ramim 2017; Singh and Singh 2017)	Record e-lectures, read and review the e-course study plan, self-desired ELMS.
2. Research Skills	(McVeigh 2009; Wilkinson, Roberts et al. 2010; Ben Youssef, Dahmani et al. 2012; Levy and Ramim 2017; Fleaca and Stanciu 2019; O'Doherty, Lougheed et al. 2019)	Using YouTube to watch and download e-lectures, searching for papers and journals, finding an article in the e-journal
3. Effective Time-Management Skills	(Foltynek and Motycka 2008; McVeigh 2009; Tsai 2009; ÖZBEK 2015; Ahmad, Batool et al. 2019)	Log in to e-courses at least three or four times a week, spend 6-10 hours every week to study the e-course, set a timeline for studying the e-course, record all assignment dates, set goals and deadlines for e-activities, task scheduling, establish a long-term plan to complete major tasks.
4. IT Skills	(Tsai 2009; Wilkinson, Roberts et al. 2010; Ben Youssef, Dahmani et al. 2012; ÖZBEK 2015; Mat Yamin and Wan Ishak 2016; Fleaca and Stanciu 2019)	Utilizing WinZip, WinRAR, Microsoft office, and e-mobile program, Safe Internet access, Computing and Internet-related problems solved, Software installation, converting of PDF-format to Microsoft Word, Storing files in Google Drive, web-based download.
5. E-communication	(Ben Youssef, Dahmani et al. 2012; Lebenicnik, Pitt et al. 2015; Fleaca and Stanciu 2019)	Send e-messages to the lecturer, using e-mail and social media, perform e-conversations, share files with others (using Drop box, Google Drive, etc.)
6. ELMS skills	(Lebenicnik, Pitt et al. 2015;	Use digital pens, e-classroom, submit e-

	Hadullo, Oboko et al. 2017)	assignments, perform short e-exams, e-attendance.

Table 1 summarizes the different skills dimensions required for successful implementation of ELMS. The skills categories include independent skills, research skills, effective time-management skills, IT skills, e-communication skills, and ELMS skills. The table provides specific examples of each skill dimension, as well as references to studies that have explored these skills in the context of ELMS.

6. Methodology

The study is divided into three phases (as shown in Figure 1). In the first phase, experts identify the e-skills that are essential for the success of ELMS from a student perspective. The second phase involves assessing the current e-skills of the students. The third and final phase involves comparing the e-skills that students should have with their actual e-skills to identify any gaps.

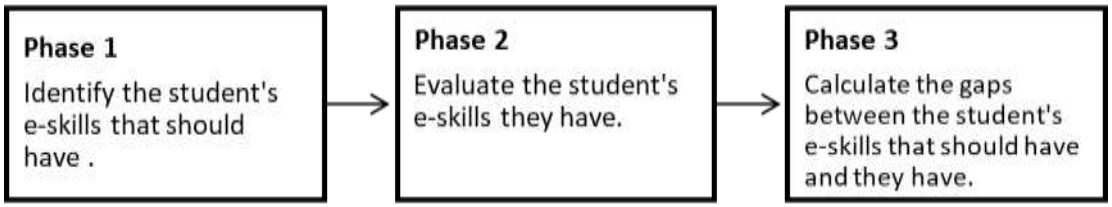

Fig 1. Three-phases to measure the gaps of students' skills

5.1 Instrument

In this study, a questionnaire was employed as the research instrument. The questionnaire was divided into two parts. The first part aimed to identify the e-skills that students should possess according to the opinion of an ELMS expert. The second part evaluated the actual e-skills possessed by the students. The initial questionnaire comprised of 59 items, which measured seven dimensions of student e-skills (IT skills, research skills, independent skills, using ELMS, effective time-management skills, and e-communication skills). The questionnaire was created using Google-Docs, and the data was analyzed using Microsoft Excel 2010 and SPSS 20. To ensure the reliability and construct validity of the initial questionnaire, statistical reliability analysis and factor analysis were performed. Additionally, multi-regression techniques were used to test the study hypotheses.

5.2 Sampling

Table 2 presents the demographics of the students who participated in the study. The sample included 299 students, with 98 (32.7%)

male and 201 (67.3%) female participants. In terms of academic level, 19 (6.4%) were in their first year, 85 (28.4%) were in their second year, and 195 (65.1%) were in their third year. The majority of students (92%) were studying for a Bachelor's degree, while 8% were enrolled in a diploma program.

Table 2. Demographics of the Students

Characteristics		Sample Number	Percentage %
Gender	Male	98	32.7
	Female	201	67.3
Academic level	First	19	6.4
	Second	85	28.4
	Third	195	65.1
Type of study	Bachelor	275	92
	diploma	24	8

This study also involves 69 ELMS experts. Table 3 provides information on the demographics of the ELMS experts who participated in the study. The table includes the sample number and percentage for gender, years of experience, and qualification. The majority of the experts were male (79.7%) and had more than 10 years of experience in ELMS (78.3%). In terms of qualifications, 88.4% of the experts were postgraduate.

Table 3. Demographics of the ELMS Experts

Characteristics		Sample Number	Percentage %
Gender	Male	55	79.7
	Female	14	20.3
Years' of experience	1-5	6	10.1
	6-10	9	13.0
	More than 10	54	78.3
Qualification	Postgraduate	61	88.4
	undergraduate	8	11.6

5.2 Reliability and Validity Analysis

Cronbach's alpha is a widely used measure of internal consistency and is an indicator of the reliability of a scale or questionnaire (Shetty, 2018). In this study, the Cronbach's alpha coefficient was calculated to be .961, indicating high reliability of the questionnaire used. Therefore, it can be concluded that the questionnaire is a reliable measure of the constructs being assessed.

5.3 Factor Analysis

A factor analysis was used in this study to reduce the dimensions of student's e-skills in ELMS in Gaza. The method of factor analysis depends on the Eigenvalues and the cross loading in order to determine the number of dimensions in the instrument. Eigenvalues are

important factors in which components with Eigenvalues greater than 1 are more significant and factors less than 1 with Eigenvalues are negligible. Cross loading refers to the two or more-dimensional distribution of items. The component analysis and varimax rotation for students e-skills were run on 59 items from a survey of 299 respondents. The results show only four dimensions that eigenvalues greater than 1.0 and 15 items were eliminated due to cross loading as seen in the table 4.

Table4. Results of Factor Analysis

Factors	Items			
	1	**2**	**3**	**4**
Factor1: Internet Skills				
1. Complete the task independently	0.476			
2. Record e-lectures	0.462			
3. Review the curriculum for each e- course	0.598			
4. Self-desired learning by ELMS systems	0.548			
5. Spend 6-10 hours every week to study the online course	0.664			
6. Set a timeline for studying the electronic course.	0.638			
7. Finish the project or activity that started it	0.562			
8. Set goals and deadlines for electronic activities	0.587			
9. Record all assignment dates for the entire course into the calendar.	0.599			
10. Task scheduling (allocating times to different online courses)	0.657			
11. Establish a long-term plan to complete major tasks.	0.635			
12. Participate in small online educational groups.	0.543			
13. Learn independently in a variety: online lectures, audio recording, etc.	0.553			
14. Interact with others using a variety of learning formats such as text, images, audio, and video.	0.548			
Factor2: IT Skills				
15. Searching for research papers and journals		0.525		

Factors	Items			
	1	2	3	4
16. Download educational videos from YouTube		0.537		
17. Using compression programs as WinZip and WinRAR		0.553		
18. Using the Microsoft PowerPoint software		0.567		
19. Connect to a secure internet connection like a DSL connection.		0.534		
20. Solve problems related to the Internet and computer		0.586		
21. Access to special articles on the Internet		0.65		
22. Create a folder to store documents		0.509		
23. Install programs and change configuration settings on the computer.		0.691		
24. Update internet browsing software.		0.604		
25. Save files in Google Drive		0.478		
26. Download files from the web and save them to computer		0.618		
27. Save a document to a folder		0.548		
28. Take advantage of e- course resources		0.572		
Factor3: ELMS System Skills				
29. Using the model system			0.673	
30. Submit assignments via Moodle			0.581	
31. Provide short exams through Model			0.487	
32. Provide short exams with the Model			0.689	
33. Track grades and assessments through Moodle			0.581	
34. Log in to electronic courses at least three or four times a week.			0.487	
Factor 4: e-Communication Skills				
35. Using the Microsoft Excel software				0.5
36. Use digital pens				0.526

Factors	Items			
	1	2	3	4
37. Conducting discussions with students and lecturers through model				0.532
38. Send voice messages via WhatsApp and other programs				0.511
39. Send messages to the lecturer via Moodle.				0.595
40. Interact with others by exchanging instant messages				0.489
41. Communicate with others using e-mail				0.728
42. Attach a file to an email message				0.586
43. Perform e-conversations online.				0.584

Table 4 presents the results of the factor analysis, which aimed to identify the underlying factors of the ELMS skills. The analysis revealed four factors, which were labeled as Internet Skills, IT Skills, ELMS System Skills, and e-Communication Skills. The items that loaded onto each factor are listed in the table. Factor 1 (Internet Skills) included 14 items related to the use of the Internet to facilitate learning, such as completing tasks independently, reviewing the curriculum for each e-course, and setting goals and deadlines for electronic activities. Factor 2 (IT Skills) included 14 items related to the use of technology, such as searching for research papers and journals, using compression programs, and updating internet browsing software. Factor 3 (ELMS System Skills) included six items related to the use of the ELMS system, such as submitting assignments via Moodle and tracking grades and assessments through Moodle. Factor 4 (e-Communication Skills) included nine items related to communication skills using technology, such as communicating with others using e-mail, exchanging instant messages, and conducting discussions with students and lecturers through model.

7. Results and Discussion

7.1 Critical Student's E-Skills

Table 5 shows the mean ratings of the four critical e-skills dimensions assessed by the ELMS experts in the first phase of the research. The e-communication skills dimension received the highest mean rating of 4.24, indicating that the experts considered it to be the most important e-skill for student success in ELMS. The IT skills dimension followed closely with a mean rating of 4.15. The ELMS skills and independent skills dimensions received mean ratings of 4.13 and 4.08, respectively.

Table 5. Critical Student's E-Skills

No.	E-Skill Dimension	Mean
1.	Independent Skills	4.08
2.	IT Skills	4.15
3.	e-Communication Skills	4.24
4.	ELMS Skills	4.13

According to expert views, Table 6 lists the top 10 e-skills rated from most to least important for students.

Table 6. The top 10 critical Students e-skills.

No.	e-Skills	Mean	Ranking
1.	Install software and change configuration settings.	4.64	1
2.	Self-desired learning by ELMS systems	4.59	2
3.	Use digital pens	4.59	3
4.	Perform e-conversations online.	4.59	4
5.	Create a folder for document storage	4.55	5
6.	Establish a long-term plan.	4.48	6
7.	Send voice messages.	4.36	7
8.	Attach a file to an email message.	4.36	8
9.	Access to online articles.	4.32	9
10.	Online discussions.	4.32	10

Table 6 presents the top 10 critical e-skills for students, ranked based on their mean scores. The skill with the highest mean score is "Install software and change configuration settings" with a score of 4.64, followed by "Self-desired learning by ELMS systems" and "Use digital pens" with scores of 4.59. The skills with the next highest mean scores are "Perform e-conversations online," "Create a folder for document storage," "Establish a long-term plan," "Send voice messages," "Attach a file to an email message," "Access to online articles," and "Online discussions." These skills are essential for students to succeed in ELMS and are ranked based on their importance as perceived by the experts.

7.2 Student E-skills Level

Table 7 presents the mean scores for the different e-skills possessed by the students. The results show that the students have a relatively high mean score for using ELMS skills (4.13), followed by IT skills (3.36), independent skills (3.31), and e-communication skills (2.86).

Table 7. The level of e-skills that students have

No.	Students E-Skills	Mean
1.	Independent Skills	3.31
2.	IT Skills	3.36
3.	e-Communication Skills	2.86
4.	Using ELMS Skills	4.13

7.3 Gaps Analysis of Students' e-skills

Table 8 below displays the e-skills of most significant gaps from e-skills students have and E-skills should Students have from expert's perspective.

Table 8. Gaps Analysis of Students' E-skills

No.	Student's e-Skills	E-skills		Gap	Ranking
		Student have	Student should have		
1.	Self-desired learning by ELMS systems	3.29	4.59	1.30	7
2.	Set a timeline for studying the e-course.	2.94	3.98	1.03	16
3.	Task scheduling (allocating times to different e-courses)	3.20	4.20	1.01	17
4.	Establish a long-term plan to complete major tasks.	3.23	4.48	1.25	11
5.	Searching for papers and journals	2.93	4.23	1.30	8
6.	Solve problems related to the Internet and computer	3.03	4.30	1.26	10
7.	Access to special articles on the Internet	3.37	4.32	0.95	20
8.	Install software and change computer configuration settings.	3.17	4.64	1.46	6
9.	Take advantage of e- course resources	3.20	4.30	1.10	15
10.	Using the Microsoft Excel software.	2.65	4.18	1.53	3
11.	Use digital pens.	2.42	4.59	2.17	1
12.	Conducting discussions with students and lecturers through ELMS.	2.85	4.32	1.47	5

13.	Send voice messages via Whats App and other programs.	3.23	4.36	1.13	14
14.	Send messages to the lecturer via Moodle.	3.03	4.00	0.97	19
15.	Communicate with others using e-mail.	2.72	3.91	1.19	13
16.	Attach a file to an email message.	2.65	4.18	1.53	4
17.	Perform e-conversations.	2.42	4.59	2.17	2

Table 8 summarizes the gaps analysis of students' e-skills. The table lists the e-skills that students have, the e-skills that they should have, the gap between the two, and the ranking of each e-skill based on the magnitude of the gap. The results show that the biggest gap is in using digital pens, with a gap of 2.17. This means that students' current proficiency in using digital pens is only 2.42, while the level they should have is 4.59. Similarly, performing e-conversations is also an area where students have a significant gap, with a gap of 2.17. Students' current proficiency in this area is only 2.42, while the level they should have is 4.59. Other areas where students have significant gaps include installing software and changing computer configuration settings (gap of 1.46), establishing a long-term plan to complete major tasks (gap of 1.25), and solving problems related to the Internet and computer (gap of 1.26). On the other hand, students have relatively smaller gaps in accessing special articles on the Internet (gap of 0.95), sending messages to the lecturer via Moodle (gap of 0.97), and communicating with others using e-mail (gap of 1.19). The following figure demonstrates the difference between the dimensions of e-skills that students have and should have.

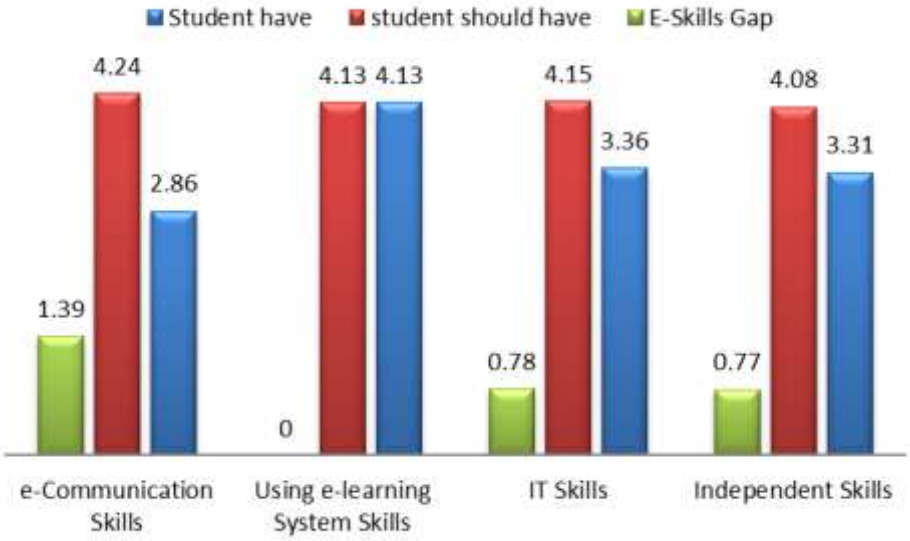

Fig 2. Gaps Analysis of the dimensions of students' e-skills

As seen in figure 2, the e-communication skills gap is the largest (1.39). Followed by IT skills (0.78) and independent skills (0.77). This means that the expert believes that e-communication and IT skills are very important to the success of ELMS and also that students need to develop these skills.

7.4 Regression Analysis

Table 9 demonstrates the impact of students' e-skills on their utilization of the ELMS system.

Table 9. Impact of students' e-skills on the ELMS system

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
	(Constant)	1.869	.304		6.152	.000
1	Independent skills	.365	.127	.242	2.886	.004
2	IT skills	.295	.101	.251	2.911	.004
3	e-Communication skills	.072	.086	.070	.836	.049
Where, R=0.489, R^2=0.24, Adjusted R^2=0.227, F value=19.738, Sig. F=0.000						

Table 9 presents the impact of students' e-skills on the ELMS system using a linear regression model. The unstandardized coefficients (B), standard error, standardized coefficients (Beta), t-value, and significance level (Sig.) are presented for each e-skill dimension. The regression model also includes a constant term.

The results indicate that independent skills and IT skills have a significant positive impact on the ELMS system, with standardized coefficients of 0.242 and 0.251, respectively, and p-values of 0.004 for both. On the other hand, e-communication skills have a smaller positive impact with a standardized coefficient

of 0.070 and a p-value of 0.049. The regression model as a whole has a moderate level of explanatory power, with an R-squared of 0.24, which means that 24% of the variance in the ELMS system can be explained by the students' e-skills. The F-value of 19.738 with a significant p-value of 0.000 indicates that the overall regression model is statistically significant.

Using ELMS = 1.869 + 0.365 Independent skills +0 .295 IT skills + .072 e-Communication skills + e (E1)

7.5 An evaluation of e-Skills based on Gender.

The independent t-test conducted on two separate groups to examine gender disparities in e-skills are presented in Table 10.

Table 10. Gender Disparities in Electronic Skills.

Factor	Sig. (2-tailed)	t	Mean		Std. Deviation	
			Female	Male	Female	Male
e-Skills	0.244	1.167	3.420213	3.539505	0.682621	0.66444

According to Table 10, there is no significant difference between gender and e-skills [t = 1.167, p = 0.244 > 0.05]. This suggests that there is no significant statistical contrast between the gender variables with regard to e-skills. Therefore, based on these results, the second hypothesis is rejected.

Based on the previous analysis, it has been discovered that enhancing students' e-skills would have a beneficial effect on the ELMS system. In light of these conclusions, Figure 3 illustrates the model that demonstrates the connection between the independent variable (students' e-skills) and the dependent variable (use of ELMS).

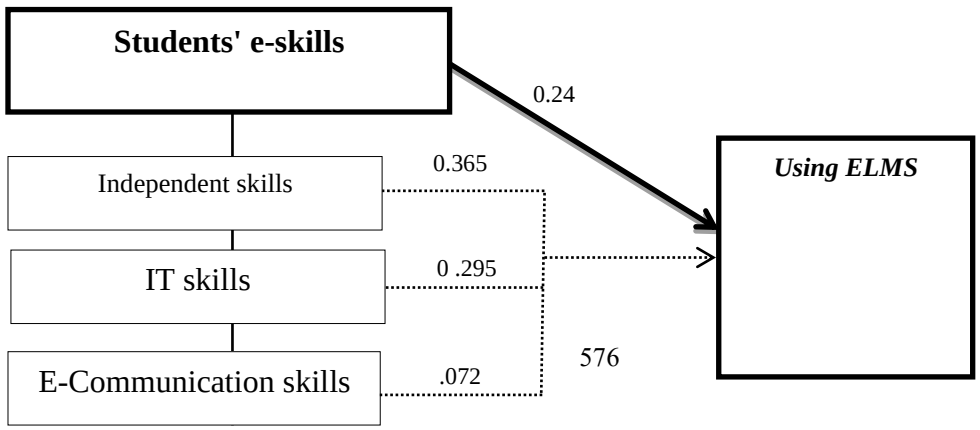

Fig 3. Research Model

8. Conclusions

The purpose of this study is to examine the disparities between the e-skills that students are expected to possess in the ELMS and their current level of proficiency. Through the literature review, 59 key e-skills were identified and categorized into six primary dimensions: independent, IT, e-communications, using ELMS, time management, and cooperative e-skills. The findings suggest that e-communication and IT skills are the most crucial competencies for the success of the ELMS system, according to experts. Experts stress that students must be able to perform tasks such as creating a folder for document storage, establishing a long-term plan, sending voice messages, utilizing specialized email features, accessing online resources, installing software, and adjusting setup configurations. However, the results reveal that only 67.2% of students possess adequate IT skills, while 66.2% have independent skills, and 57.2% have sufficient e-communication abilities. Additionally, the study demonstrates significant gaps between the e-skills that students should possess and their current proficiency levels. IT and e-communication competencies, such as using Microsoft Excel and digital pens, engaging in e-conversations and e-discussions, attaching files to email messages, and installing software and configuring computers, were identified as areas where these gaps exist. Finally, the study shows that student e-skills have a positive impact (24%) on the use of ELMS.

9. References

1. Adnan, M. and K. Anwar (2020). "Online Learning amid the COVID-19 Pandemic: Students' Perspectives." Online Submission **2**(1): 45-51.

2. Ahmad, S., A. Batool, et al. (2019). "Path Relationship of Time Management and Academic Achievement of Students in Distance Learning Institutions." Pakistan Journal of Distance and Online Learning **5**(2): 191-208.

3. Almaiah, M. A., A. Al-Khasawneh, et al. (2020). "Exploring the critical challenges and factors influencing the E-learning system usage during COVID-19 pandemic." Education and Information Technologies: 1.

4. Alshahrani, S., E. Ahmed, et al. (2017). "The influence of online resources on student–lecturer relationship in higher education: a comparison study." Journal of Computers in Education **4**(2): 87-106.

5. Arkorful, V. and N. Abaidoo (2015). "The role of e-learning, advantages and disadvantages of its adoption in higher education." International Journal of Instructional Technology and Distance Learning **12**(1): 29-42.

6. Ben Youssef, A., M. Dahmani, et al. (2012). "Students' E-Skills, Organizational Change and Diversity of Learning Process: Evidence from French Universities in 2010." ZEW-Centre for European Economic Research Discussion Paper(12-031).

7. Demuyakor, J. (2020). "Coronavirus (COVID-19) and online learning in higher institutions of education: A survey of the perceptions of Ghanaian international students in China." Online Journal of Communication and Media Technologies **10**(3): e202018.

8. Dhawan, S. (2020). "Online learning: A panacea in the time of COVID-19 crisis." Journal of Educational Technology Systems **49**(1): 5-22.

9. Fleaca, E. and R. D. Stanciu (2019). "Digital-age learning and business engineering education–A pilot study on students' E-skills." Procedia Manufacturing **32**: 1051-1057.

10. Foltynek, T. and A. Motycka (2008). "Time management in e learning." Faculty of business and Economics, department of Informatics, Mendel University, Czech Republic: 112-130.

11. Guragain, N. (2016). "E-learning benefits and applications."

12. Hadullo, K., R. Oboko, et al. (2017). "A model for evaluating e-learning systems quality in higher education in developing countries." International Journal of Education and Development using ICT **13**(2).

13. Lebenicnik, M., I. Pitt, et al. (2015). "Use of online learning resources in the development of learning environments at the intersection of formal and informal learning. The student as autonomous designer." CEPS journal **5**(2): 95-113.

14. Levy, Y. and M. M. Ramim (2017). The e-learning skills gap study: Initial results of skills desired for persistence and success in online engineering and computing courses. Proceeding of the Chais 2017 Conference on Innovative and Learning Technologies Research.

15. Mat Yamin, F. and W. H. Wan Ishak (2016). "E-skills of undergraduate students." Journal of Education and Social Sciences **4**: 314-318.

16. McVeigh, H. (2009). "Factors influencing the utilisation of e-learning in post-registration nursing students." Nurse education today **29**(1): 91-99.

17. O'Doherty, D., J. Lougheed, et al. (2019). "Internet skills of medical faculty and students: is there a difference?" BMC medical education **19**(1): 39.

18. ÖZBEK, I. E. A. (2015). "A classification of student skills and competencies in open and distance learning." International Journal on New Trends in Education **6**(3): 174-185.

19. Pande, D., V. Wadhai, et al. (2016). "E-learning system and higher education." International Journal of Computer Science and Mobile Computing **5**(2): 274-280.

20. Radha, R., K. Mahalakshmi, et al. (2020). "E-Learning During Lockdown of Covid-19 Pandemic: A Global Perspective." International Journal of Control and Automation **13**(4): 1088-1099.

21. Raheem, B. R. and M. Khan (2020). "The role of e-learning in Covid-19 crisis." International Journal of Creative Research Thoughts **8**(3): 3135-3138.

22. Samsuri, N. N., F. A. Nadzri, et al. (2014). "A study on the student's perspective on the

effectiveness of using e-learning." Procedia-Social and Behavioral Sciences **123**: 139-144.

23. Sangrà, A., D. Vlachopoulos, et al. (2012). "Building an inclusive definition of e-learning: An approach to the conceptual framework." International Review of Research in Open and Distributed Learning **13**(2): 145-159.

24. Shetty, B. R. (2018). "GAP ANALYSIS OF STUDENTS' EXPERIENCE AND EXPECTATIONS WITH SPECIAL REFERENCE TO MBA EDUCATION IN INDIA." International Journal of Teaching, Education and Learning **2**(2).

25. Shulamit, K. and E. Yossi (2011). "Development of E-Learning environments combining learning skills and science and technology content for junior high school." Procedia-Social and Behavioral Sciences **11**: 175-179.

26. Singh, A. and L. B. Singh (2017). "E-learning for employability skills: Students perspective." Procedia computer science **122**: 400-406.

27. Tsai, M.-J. (2009). "The model of strategic e-learning: Understanding and evaluating student e-learning from metacognitive perspectives." Journal of Educational Technology & Society **12**(1): 34-48.

28. University, A.-A. (2020). " Al-Aqsa University Site." Retrieved 11/10/2020, 2020, from https://www.alaqsa.edu.ps/en/home.

29. Wilkinson, A., J. Roberts, et al. (2010). "Construction of an instrument to measure student information and communication technology skills, experience and attitudes to e-learning." Computers in Human Behavior **26**(6): 1369-1376.