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Article

The role of knowledge management in enhancing e-learning systems in Jordanian Public Universities

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Abstract: This study addresses the role of knowledge management in enhancing e-learning systems in Jordanian public universities. A questionnaire was distributed to a sample of students, where 610 questionnaires were collected to analyze students' opinions about the impact of knowledge management on the usefulness of e-learning systems. The results showed significant positive effects of knowledge management, knowledge acquisition, and knowledge sharing on the usefulness of e-learning systems. Students indicated that knowledge management facilitates the educational process, enhances their ability to access knowledge, and increases the value of knowledge exchange among them. The findings further reveal that effective knowledge acquisition practices improve students' engagement with digital platforms, while knowledge sharing strengthens collaboration and interactive learning experiences. The results also showed that e-learning systems are easy to use and save time for students, contributing to greater flexibility and improved academic performance. Moreover, the integration of knowledge management practices within e-learning environments supports continuous learning and promotes better communication between students and faculty members. Based on these results, the study recommended enhancing knowledge management training programs, encouraging a culture of participation among students and faculty members, and developing effective strategies for using e-learning systems. Such initiatives are expected to strengthen institutional capabilities, maximize the benefits of digital learning technologies, and contribute to improving the overall quality of education in Jordanian universities.

Keywords: knowledge management; knowledge acquisition; knowledge sharing; e-learning systems; Jordan Universities

1. Introduction

The rapid advancement of information and communication technologies (ICTs) has revolutionized higher education by introducing e-learning as a flexible and accessible learning method. E-learning platforms enable student-centered learning through interactive content, flexible scheduling, and self-paced education. However, challenges in knowledge management (KM) hinder the optimal utilization of e-learning systems. Universities must integrate effective KM strategies to facilitate knowledge creation, acquisition, sharing, and application to enhance learning outcomes.

This study explores how KM influences e-learning effectiveness in Jordanian public universities. Unlike previous studies, it examines the broader KM cycle rather than isolating knowledge acquisition (KA) and knowledge sharing (KS) as standalone factors. Additionally, this study explicitly addresses the research gap by emphasizing

the need for a holistic KM framework in e-learning environments. The research aims to bridge the gap in understanding KM's role in e-learning and provide recommendations for improved academic performance.

1.1. Problem statement

The problem statement is well-structured, addressing challenges in implementing e-learning at Jordanian universities. The discussion highlights difficulties in acquiring and sharing knowledge and emphasizes the necessity of KM strategies. To strengthen the argument, more recent references to global trends in KM and e-learning have been integrated.

1.2. Research objectives

The purpose of this study is to investigate how knowledge management affects the efficiency of e-learning platforms in public universities in Jordan. In order to understand how knowledge management techniques can improve educational quality and promote communication between students and professors, the study examines how they are applied. The study also seeks to offer useful suggestions that can help improve e-learning systems' effectiveness, creating a more engaging and productive learning environment that promotes sustainable learning and improves academic results.

1.3. Research questions

Based on the literature review and research objectives, the research questions are stated as follows:

RQ1: What is the impact of knowledge management on e-learning systems in Jordanian public universities?

RQ2: How do knowledge acquisition strategies affect the usefulness of e-learning systems?

RQ3: What is the impact of knowledge sharing on the ease of use of e-learning systems from the perspective of students and faculty members?

1.4. Research hypotheses

H1. *Knowledge management has a positive impact on e-learning systems at a significance level of $\alpha \leq 0.05$.*

H2. *Knowledge acquisition has a positive impact on the usefulness of e-learning systems at a significance level of $\alpha \leq 0.05$.*

H3. *Knowledge sharing has a positive impact on the usefulness of e-learning systems at a significance level of $\alpha \leq 0.05$.*

2. Literature review

The findings of a study of Abdekhoda showed that faculty members' attitudes and subjective norms on the use of e-learning are significantly and directly impacted by their acquisition and sharing of knowledge. Additional research revealed that faculty members' behavioral intention to use e-learning is influenced by their attitude and subjective standards. The conclusion is that knowledge sharing and acquisition play

a significant role in the effective application of e-learning and are useful components of user attitudes and subjective norms [1].

Another study looked at e-learning in knowledge management, specifically how it helps businesses manage e-learning and improve information transfer to boost employee knowledge management and performance. This study looked at the effects of jointly implementing e-learning, knowledge management systems, and technology on organizational performance. Additionally, organizational management was looked at. The current study looked into the connection between innovation performance (IP) and knowledge management (KM). The impact of knowledge management as a mediator was thoroughly investigated. There were 470 managers from the strategic, tactical, and operational levels of 57 Jordanian manufacturing enterprises that made up the study samples. The managers were chosen at random. Data collection was done through questionnaires, with questions covering the concepts of IP, knowledge management, organizational learning (OL), and knowledge-oriented leadership (KOL). Structural equation modeling (SEM) was used to test a proposed research model. The conclusions showed that KM positively affected IP; KM positively affected KM; OL negatively affected IP; KM positively affected KM; KM positively affected OL; and KM mediated the link between KOL, OL, and IP [2].

A study conducted by Alnemrat attempts to understand the current situation of e-learning from the perspective of faculty members and investigates the barriers to its successful implementation at a major Jordanian higher education institution. Analysis of the email survey responses from 157 faculty members revealed that they had a good level of understanding about e-learning. Faculty members at Yarmouk University benefit from their departments' technical assistance in implementing e-learning, according to ratings of the policy and support obstacles. However, overall responses to the policy and support barriers were ambiguous (M = 3.567). Furthermore, the majority of Yarmouk University faculty members were unsure about how to respond to the infrastructural and resource constraints (3.482). Faculty members at Yarmouk University exhibit favorable attitudes and are willing to include e-learning in their teaching, according to their answers to the attitude item [3].

In a study aimed to ascertain how computer self-efficacy (CSE) and information quality (IQ) affect perceived utility (PU) and perceived ease of use (PEOU), which in turn are thought to affect behavioral intention (BI) to use e-learning. This survey, which was carried out among undergraduate students at Cihan University-Erbil's College of Administrative and Financial Sciences, was based on the Technology Acceptance Model. During the COVID-19 pandemic, the students took part in online courses that supplemented traditional classroom instruction through the Moodle platform. Seven proposed hypotheses were examined by means of structural equation modeling analysis on a sample of 209 valid questionnaires. According to this study, CSE had a negligible effect on PU but a positive and considerable influence on PEOU. Furthermore, PU and PEOU were positively and considerably impacted by IQ. Undergraduate students' BI to use e-learning was greatly impacted by PEOU and PU. PEOU significantly affected PU within the framework of the educational system [4].

Additionally, in a paper comprehend how eLearning capabilities affect organizational

performance. It also discusses the challenges associated with implementing eLearning techniques for organizational learning and highlights some new developments in trends and technology that will affect how eLearning is conducted in businesses. It looks at the brief history of knowledge management and how learning, performance, and organizational learning are related to it. It also looks at various eLearning developments and technology. An extensive examination of the literature was conducted to look at works published between 2016 and 2020. The findings demonstrate that eLearning can have a wide range of effects on organizational performance. One of the most difficult challenges in implementing eLearning solutions in organizations is human factors. A number of new eLearning trends, such as gamification, open educational resources, and flipped classrooms, were investigated [5].

The moderating effect of technology anxiety on the relationship between the instructor's self-efficacy and the actual use of the e-learning system to aid in problem solving was empirically studied in the Alkhawaja study. In order to evaluate the theoretical framework, a survey was given to 468 instructors. The results showed that 285 valid and complete instruments could be analyzed using structural equation modeling (SEM). The direct correlation between self-efficacy and actual use was shown to be positive. Moreover, the association was controlled by the degree of technology concern. Teachers who were less anxious about technology used the e-learning system more frequently than those who were more anxious [6].

In Al-Husseini's study to investigate the relationships among innovation, knowledge sharing, and transformational leadership in higher education. 250 academic employees working at public universities in Iraq were surveyed for the study. Structural equation modeling was utilized in the development and testing of a model. Knowledge sharing, innovation, and transformational leadership were proven to have a favorable direct impact on each other. Furthermore, it was found that information exchange acts as a mediator between innovation and transformative leadership [7].

Hargitai presents the results of a study on the learning preferences and habits of a sample of business students as well as a semi-systematic literature analysis on the research subject. If the research's findings are integrated into the framework of knowledge management strategies for online learning in higher education, they may be useful when switching to completely online distance learning. The main quantitative study was finished prior to the lockdown, and the findings provide insightful information that may be turned into essential components of any plan intended to ensure a seamless and successful transition from traditional classroom instruction to online teaching and learning. Research has been done on the pre-epidemic learning habits, communication tool usage, and solution preferences of students that can be used in distance learning, with a focus on gender and educational attainment. The research correlates the findings with potential knowledge management tactics used in universities as part of a strategy that has both theoretical and practical ramifications [8].

Moreover, a study aimed to assess how students' behavioral intention to use m-learning is affected by knowledge management (KM) characteristics such as acquisition, sharing, application, and protection. This research uses an innovative hybrid analysis approach that combines structural equation modeling (SEM) and

artificial neural network (ANN) based on deep learning, in contrast to the prior m-learning empirical investigations that mostly focused on SEM analysis. According to the analysis of both IPMA and ANN, the most important predictor of behavioral intention is knowledge protection. Theoretically, from the standpoint of KM factors at the person level, the suggested model has offered sufficient explanations for what influences the behavioral desire to use m-learning. In practical terms, the findings will help practitioners and decision-makers in higher education establishments identify the elements that should take precedence over others and plan their strategies appropriately. From a methodological standpoint, this study establishes the deep ANN architecture's capacity to identify the non-linear interactions between the elements in the theoretical model [9].

In a project to investigate ways to enhance learning outcomes and draw students to use e-learning platforms in developing country universities. The goal of the study is to determine what variables affect how often students use e-learning platforms and to offer suggestions for improving the caliber of instruction and learning materials made available by these platforms. The paper reports on a survey conducted among 357 university students in Vietnam. The analysis's findings indicated that five factors—university support, students' computer proficiency, infrastructure, course design and content, and student collaboration—influenced the acceptability of e-learning [10].

Knowledge management, or KM, is becoming more and more important as a research topic since it helps a variety of companies, including universities, succeed. The ability to recognize the application of one's information in a practical setting is the primary indicator of knowledge internalization. With the potential to enhance students' knowledge acquisition, e-learning management systems (eLMS) offer lecturers—who are specialists in their respective fields—and students—who are inexperienced users—an online teaching and learning platform. Therefore, an empirical study was conducted to look at how knowledge internalization in eLMS affects students in Iraq. In order to accomplish these goals, a survey study design was used, and the sample consisted of 109 undergraduate students who were actively involved in eLMS activities and attended the College of Information Technology in Iraq. The results demonstrate that eLMS may efficiently transfer information from professors to students. Through the internalization process, eLMS also helps students improve their prior knowledge and encourages them to impart that knowledge to other students [11].

Despite the benefits of using e-learning, certain institutions of higher learning do not use it extensively, and there are still very few studies that offer a cohesive framework that encourages the adoption of e-learning practices in Jordanian universities. Therefore, it's critical to understand the variables that influence e-learning acceptance in these kinds of universities based on an assessment of Al-Zaytoonah University of Jordan's e-learning experience from the perspective of student satisfaction over the course of an academic year using an online survey. The e-learning system was updated a year prior to the study's implementation, and the new updates included adding more interactive content with students, such as voice and video chat, file and screen sharing, broadcasting lectures or classes, and interactive

games. This represents one of the study's many contributions. In addition to offering this experience to other educational institutions, it was vital to gauge how satisfied students were with the new changes. This could serve as an inspiration for them to develop new e-learning mechanisms, which have emerged as one of the most significant teaching strategies to be used in the present and the future [12].

Also, knowledge-sharing processes are not integrated into the daily routines of faculty and staff, and there is a huge duplication of effort. E.g., faculty are often involved in constantly re-creating existing teaching material instead of spending more time with students or on research [13].

Studying the factors that affect e-learning adoption is not a new research topic. Nevertheless, exploring the effect of knowledge acquisition and knowledge sharing on e-learning adoption is a relatively new research trend that has not been featured in the existing literature [14, 15].

The literature considers knowledge sharing a key factor for driving innovation as well as the organization's business performance, as both explicit and tacit knowledge sharing promote a novel, robust approach for business-knowledge process [16–18].

Faculty members believed there was still a long way to go with regard to (1) the unavailability of reliable software to preclude academic dishonesty; (2) some faculty being unable to assess their students in VLE, as it was their first experience; and (3) formative assessment not having been given enough attention. It is concluded that universities should have an exigency strategy for any sudden future lockdowns. This strategy includes, among other things, intensive e-teaching and e-testing training for faculty, high-tech invigilation and plagiarism software, reliable e-learning platforms with sufficient Internet bandwidth, and setting up an e-assessment council at the university level [19].

The outcomes revealed that knowledge sharing and quality in the universities have a positive influence on E-learning acceptance among the students. Innovativeness and trust were found not to significantly affect the E-learning system acceptance. By identifying the factors that influence the E-learning acceptance, it will be more useful to provide better services for E-learning. Other implications are also presented in the study [20].

It also contributes to research by exploring the indirect effects of the social influence of HR practices on organizational innovation performance by offering evidence on the mediating effect of social web knowledge sharing in the relationship between HR practices and organizational innovation performance in manufacturing SMEs [21].

The impact of subjective norms on KS attitude and KM process indicates the importance and basic determinant in organizational premises and improvement of skills of faculty management in HEIs. The partial mediation also reveals the importance of subjective norms in the development of faculty members' KM and KS attitude process [22].

Similarly, gender was not found to affect the relationship between PEOU and BI, and educational level did not moderate the relationship between PU or QWL and BI. In

light of these findings, implications for both theory and practice are discussed [23].

A confirmatory factor analysis was developed to determine the relation between the set of observed variables and latent variables or factors, defined under the E-Learning Tools Acceptance Model (eLTAM). Results confirm a strong relation between the Perceived Usefulness factor and the variables of Instructor Preparation and Autonomy in Learning, as well as between the Ease of Use factor and the Perceived Self-Efficacy Perception variable. It is concluded that the instructor preparation, learning autonomy, and perception of self-efficacy are the main factors affecting the adoption of e-learning tools for university students in the studied population [24].

3. Research methodology

In an effort to describe and evaluate the influence of knowledge management on e-learning systems in Jordanian public universities, a descriptive-analytical approach was used. It creates relationships between variables and provides some predictions. The researcher collected data from primary sources, examined the data, and tested theories to generate practical recommendations. Additionally, a questionnaire was used to collect information from the study participants.

3.1. Sample data

Convenience sampling served as the sample selection method for this investigation and was used to collect data. Convenience sampling is a form of nonprobability or nonrandom sampling in which study participants are selected based on specific practical criteria, such as being available at a specific time, living nearby, or being willing to participate. It is also known as haphazard sampling or accidental sampling. The survey collected data from all 10 public Jordanian universities, with a total sample of 610 students.

3.2. Data collection methods

The goals of the study will be achieved by using the quantitative analytical and predictive approach, which is deemed to be the most suitable for this inquiry. It is an approach based on several. The character of this research is both analytical and descriptive. The researcher used the following two types of sources to compile the information and data needed for the study:

(1) Books, relevant literature, scientific journals, published research, and university theses, in addition to information sources from the Internet and databases available online to access the latest studies on the research topic.
(2) Distributing a questionnaire—a survey—to the university students.

3.3. Data analysis

Quantitative research elements were used to test and prove the validity of the proposed hypotheses and their results, in addition to using several statistical methods, the arithmetic mean and standard deviation, and data analysis via SPSS.

3.4. Standard correction tool of the study

$$\frac{The\ upper\ limit\ of\ alternatives - The\ minimum\ number\ of\ alternatives}{Number\ of\ levels} = 5{-}1/3 = 1.33.$$

The result of this equation is the following **Table 1**.

Table 1. Levels of mean scores and their interpretation.

Level of mean score	Mean range
Low	Less than or equal to 2.33.
Medium	Greater than 2.33 and less than 3.67.
High	Greater than or equal to 3.67.

3.5. Reliability of the measuring tool

To evaluate the reliability of the research tool, the internal consistency coefficient was computed by applying Cronbach's alpha equation to the questionnaire items. **Table 2** shows the internal consistency coefficient results for the study instruments. Cronbach's alpha is a widely used method for evaluating the internal consistency of survey items. It evaluates how consistently the scale or tool items measure the same construct, indicating the precision and consistency of the measurements obtained.

Table 2. Cronbach's alpha coefficient for the dimension of the study tool.

Variable	No. of items	Cronbach's alpha coefficient (α)
Knowledge Management	10	0.886
Knowledge Acquisition	5	0.807
Knowledge sharing	5	0.852
E-Learning Systems	7	0.855

All item reliability ranges were higher than 0.60, according to **Table 2**'s Cronbach's alpha values, which suggests that the questionnaire's reliability was adequate.

3.6. The study population and sample

The researcher created a questionnaire using Google Forms and emailed it to the participants. 610 male and female students from Jordan's public universities made up the study community. The following **Table 3** displays the sample members' distribution by demographic factors (gender, age, academic year, educational level, and faculty):

Table 3. Demographic distribution of the study sample.

Personal information	The number	Percentage%
Female	420	68.9
Male	190	31.1
The age		
Less than 20	180	29.5
20–Less than 22 years	140	23.0
22–Less than 24 years	100	16.4
24 years and over	190	31.1

Table 3. *Cont.*

Personal information	The number	Percentage%
Academic Year		
First year	120	19.7
Second year	150	24.6
Third year	60	9.8
Fourth year	140	23.0
The fifth year and more	140	23.0
Educational level		
Bachelor's degree	400	65.6
Higher diploma	30	4.9
Master's degree	180	29.5
Faculty		
Scientific faculties	300	49.2
Humanities faculties	150	24.6
Medical faculties	160	26.2

The table shows the demographic distribution of the study sample; it shows that the percentage of females was 68.9% with 420 participants, while the number of males was 190 with a percentage of 31.1%. In terms of age groups, the largest group was those aged 24 years and above with a percentage of 31.1%, followed by the category of less than 20 years with a percentage of 29.5%, then the age group from 20 to less than 22 years with a percentage of 23%, and finally the category from 22 to less than 24 years with a percentage of 16.4%. As for the academic year, second-year students constituted the highest percentage at 24.6%, followed by fourth-year students with a percentage of 23%, and fifth-year students and above with a percentage of 23% as well, while first-year students constituted 19.7%, and third-year students constituted 9.8%. Finally, regarding the educational level, the majority of the sample held a bachelor's degree (65.6%), followed by a master's degree (29.5%), and finally a higher diploma (4.9%).

4. Results of descriptive statistics related to independent variables

4.1. First: Knowledge acquisition dimension

Table 4 shows the arithmetic mean and standard deviation of students' evaluations on how well the university's e-learning system facilitates knowledge acquisition. Based on the arithmetic means, which ranged from 1.97 to 2.23, students' agreement with the system's capacity to produce and learn knowledge was moderate to low. The statements "E-learning system in university facilitates the process of acquiring knowledge," and "E-learning system in university assists me to acquire the knowledge that suits my needs," had the highest and lowest means, respectively, at 2.23 and 1.359, and 1.97 and 1.197, respectively. These findings show that different students have different opinions on how much the system affects knowledge facilitation.

Table 4. Descriptive statistics for the knowledge acquisition dimension.

Paragraph	AVG.	S.D	Rank	Degree
E-learning system in university facilitates the process of acquiring knowledge.	2.23	1.359	1	Low
E-learning system in university allows me to generate new knowledge based on my existing knowledge.	2.21	1.331	2	Low
E-learning system in university enables me to acquire knowledge through various resources such as e-books, video lectures and chat platforms.	2.05	1.371	3	Low
E-learning system in university assists me in acquiring the knowledge that suits my needs.	1.97	1.197	5	Low
E-learning system assist our university in better knowledge acquisition.	1.98	1.297	4	Low
The total arithmetic mean of the dimension	2.088	1.311	-	Low

4.2. Second: Knowledge sharing dimension

Table 5 shows the arithmetic means and standard deviations of students' evaluations of the effectiveness of the university's e-learning system in supporting collaboration and knowledge sharing. The means ranged from 2.07 to 2.41, indicating moderate to low agreement among students about the effectiveness of the system in promoting discussions and participation. The highest mean was for the statement "E-learning system in university enables me to share different types of resources with my class instructor and classmates by uploading and sharing files and links for educational materials, videos and audios, and presentation." with a mean of 2.23 and a standard deviation of 1.383, while the lowest mean was for the statement "E-learning system in university facilitates the process of knowledge sharing in anytime anywhere settings." with a mean of 2.07 and a standard deviation of 1.389. These results reflect the need to improve the e-learning system to promote collaboration and knowledge sharing between students and teachers.

Table 5. Descriptive statistics for the knowledge-sharing dimension.

Paragraph	AVG.	S.D	Rank	Degree
E-learning system in university facilitates the process of knowledge sharing in anytime anywhere settings.	2.07	1.389	5	Low
E-learning system in university supports discussions with my instructor and classmates.	2.23	1.383	4	Low
Sharing my knowledge through e-learning system in university strengthens the relationship with my instructor and classmates.	2.28	1.280	3	Low
E-learning system in university enables me to share different types of resources with my class instructor and classmates by uploading and sharing files and links for educational materials, videos and audios, and presentations.	2.41	1.487	1	Medium
E-learning system in university facilitates collaboration among students in sharing ideas and in projects or assignments.	2.31	1.373	2	Low
The total arithmetic mean of the dimension	2.26	1.38	-	Low

4.3. Results of descriptive statistics related to the dependent variable e-learning systems

Table 6 shows the arithmetic means and standard deviations of students' evaluations of the impact of the university's e-learning system on their educational experience. The means ranged from 2.11 to 2.46, indicating moderate to low agreement among students regarding the effectiveness of the system in improving learning and the educational process. The highest mean was for the statement "Using the e-learning system in university will save my time." with a mean of 2.46 and a standard deviation of 1.397, while the lowest mean was for the statement "Using the e-learning system in university will enhance my learning efficiency such as improving my studies and study activities." with a mean of 2.11 and a standard deviation of 1.380. These results

reflect the students' need to improve the university's e-learning experience to increase its effectiveness and efficiency.

Table 6. Descriptive statistics for the dependent variable e-learning systems.

Paragraph	AVG.	S.D	Rank	Degree
Using the e-learning system in university will enhance my learning efficiency such as improving my studies and study activities.	2.11	1.380	7	Low
Using the e-learning system in university will enhance my educational achievement.	2.23	1.309	5	Low
Using the e-learning system in university will enable me to accomplish tasks more quickly.	2.33	1.423	3	Low
Using the e-learning system in university will improve my academic performance.	2.41	1.296	2	Medium
Using the e-learning system in university will save my time.	2.46	1.397	1	Medium
E-learning system in university is convenient and user-friendly.	2.26	1.328	4	Low
E-learning system in university is easy to access.	2.18	1.397	6	Low
The total arithmetic mean of the dimension	2.28	1.36	-	Low

4.4. The results related to the hypotheses of the study

The results related to the first hypothesis, which states: "Knowledge management has a positive impact on e-learning systems at a significance level of ($\alpha \leq 0.05$)".

The model summary table (**Table 7**) shows that the correlation coefficient (R) between knowledge and the e-learning system is 0.875, indicating a strong positive relationship between the two variables. The R^2 is 0.765, which means that 76.5% of the variance in the e-learning system is explained by knowledge.

Table 7. Results of regression analysis of the impact of knowledge management on e-learning systems.

Predictor	B	SE	β	*t*	*p*
Constant	0.284	0.157	-	1.808	0.076
Knowledge Management	0.920	0.066	0.875	13.861	< 0.001

Note: Model Summary: $R = 0.875$, $R^2 = 0.765$, $F(1, 608) = 192.136$, $p < 0.001$.

In the ANOVA table, the results show that the F value is 192.136 with a significance level (Sig.) less than 0.001, which indicates that the statistical model is strongly significant, indicating that the independent variable (knowledge) significantly affects the dependent variable (e-learning system).

As for the coefficients table, the fixed unstandardized coefficients are 0.284, while the knowledge coefficient was 0.920. The standardized beta coefficient is 0.875, indicating that each unit increase in knowledge leads to an increase of 0.920 in the effectiveness of the e-learning system. The *t*-test result was 13.861 with a significance level of less than 0.001, which confirms the importance of the impact of knowledge in enhancing the effectiveness of the e-learning system.

Based on the above data, we can conclude that hypothesis H1 is accepted. This indicates that there is a positive impact of knowledge management on e-learning systems, which reflects the importance of knowledge management in enhancing the effectiveness of these systems.

The results related to the second hypothesis, which states: "Knowledge acquisition has a positive impact on the usefulness of e-learning systems at a significance level of $\alpha \leq 0.05$".

The model summary table (**Table 8**) shows that the correlation coefficient (*R*) between knowledge acquisition and the usefulness of e-learning systems is 0.749, indicating a strong positive relationship between the two variables. The R^2 is 0.561, which means that 56.1% of the variance in the usefulness of e-learning systems is explained by knowledge acquisition.

Table 8. Results of regression analysis of the impact of knowledge acquisition on e-learning systems.

Predictor	B	SE	β	*t*	*p*
Constant	0.702	0.201	-	3.491	0.001
Knowledge Acquisition	0.757	0.087	0.749	8.680	< 0.001

Note: Model Summary: $R = 0.749$, $R^2 = 0.561$, $F(1, 608) = 75.347$, $p < 0.001$.

In the ANOVA table, the results show that the F value is 75.347 with a significance level (Sig.) less than 0.001, which indicates that the statistical model is strongly significant, indicating that the independent variable (knowledge acquisition) significantly affects the dependent variable (e-learning systems).

As for the coefficients table, the fixed unstandardized coefficients are 0.702, while the knowledge acquisition coefficient was 0.757. The standardized beta coefficient is 0.749, indicating that each unit increase in knowledge acquisition leads to an increase of 0.757 in the usefulness of e-learning systems. The *t*-test result was 8.680 with a significance level of less than 0.001, which confirms the importance of the impact of knowledge acquisition in enhancing the effectiveness of e-learning systems.

Based on the above data, we can conclude that hypothesis H2 is accepted, indicating that there is a positive effect of knowledge acquisition on the usefulness of e-learning systems, reflecting the importance of knowledge acquisition in enhancing the effectiveness of these systems.

The results related to the third hypothesis, which states: "Knowledge sharing has a positive impact on the usefulness of e-learning systems at a significance level of $\alpha \leq 0.05$".

The model summary table (**Table 9**) shows that the correlation coefficient (*R*) between knowledge sharing and the usefulness of e-learning systems is 0.839, indicating a strong positive relationship between the two variables. The R^2 is 0.704, which means that 70.4% of the variance in the usefulness of e-learning systems is explained by knowledge sharing.

Table 9. Results of regression analysis of the impact of knowledge sharing on e-learning systems.

Predictor	B	SE	β	*t*	*p*
Constant	0.561	0.161	—	3.474	0.001
Knowledge Sharing	0.762	0.064	0.839	11.837	< 0.001

Note: Model Summary: $R = 0.839$, $R^2 = 0.704$, $F(1, 608) = 140.126$, $p < 0.001$.

In the ANOVA table, the results show that the F value is 140.126 with a significance level (Sig.) less than 0.001, which indicates that the statistical model is strongly significant, indicating that the independent variable (knowledge sharing)

significantly affects the dependent variable (usefulness of e-learning systems).

As for the coefficients table, the fixed unstandardized coefficients are 0.561, while the knowledge-sharing coefficient is 0.762. The standardized beta coefficient is 0.839, indicating that each unit increase in knowledge sharing leads to an increase of 0.762 in the usefulness of e-learning systems. The *t*-score was 11.837 with a significance level of less than 0.001, which confirms the importance of the impact of knowledge sharing in enhancing the effectiveness of e-learning systems.

Based on the above data, we can conclude that hypothesis H3 is accepted, indicating that there is a positive effect of knowledge sharing on the usefulness of e-learning systems, reflecting the importance of knowledge sharing in enhancing the effectiveness of these systems.

5. Conclusion

The results of the analysis indicate that there are significant positive effects of knowledge management, knowledge acquisition, and knowledge sharing on the usefulness of e-learning systems in universities. Through the results extracted from the statistical analysis, it became clear that these variables contribute significantly to enhancing the effectiveness of e-learning systems, which reflects the importance of developing effective knowledge management strategies within university learning environments.

We can summarize the main results in the following points:

- Knowledge management: It showed a positive impact on e-learning systems, with an average response of 2.23 and a standard deviation of 1.383, indicating that most participants believe that knowledge management facilitates the educational process.
- Knowledge acquisition: It had clear positive effects on the usefulness of e-learning systems, with an average response of 2.33 and a standard deviation of 1.423, indicating that the use of e-learning systems can enhance students' ability to access knowledge.
- Knowledge sharing: It showed great importance in enhancing the usefulness of e-learning systems, with an average response of 2.41 and a standard deviation of 1.487, indicating that students see value in sharing knowledge through these systems.
- Time saving: The results showed that the use of e-learning systems may save time, with an average of 2.46 and a standard deviation of 1.397, which enhances the effectiveness of the educational process.
- Ease of use: The results indicated that e-learning systems are suitable and easy to use, with an average of 2.26 and a standard deviation of 1.328, which emphasizes the importance of designing appropriate user interfaces.

Recommendations

1) Enhance the literature review: Include recent studies and critically analyze prior research.

2) Justify convenience sampling: Discuss potential biases and alternative approaches.
3) Provide a critical interpretation of findings: Address possible confounding factors.
4) Improve practical implementation strategies: Expand recommendations in the discussion section.
5) Strengthen the Conclusion: Include future research directions, such as AI in KM.
6) Conduct language and grammar review: Enhance readability through thorough proofreading.

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References

1. Abdekhoda M, Pourrasmi A, Ranjbaran F. The effect of knowledge acquisition and knowledge sharing on the use of E-learning. Journal of Information Science. 2023; 51(3).
2. AL-Sous N, Almajali D, Al-Radaideh AT, et al. Integrated e-learning for knowledge management and its impact on innovation performance among Jordanian manufacturing sector companies. International Journal of Data and Network Science. 2023; 7(1): 495–504. doi: 10.5267/j.ijdns.2022.8.009
3. Alnemrat A, Aldamen H, Al-Deaibes M, et al. E-learning in a Jordanian higher education institution. Frontiers in Psychology. 2023; 14: 1136142. doi: 10.3389/fpsyg.2023.1136142
4. Jameel AS, Karem MA, Aldulaimi SH, et al. The acceptance of e-learning service in a higher education context. In: Proceedings of the International Conference on Emerging Technologies and Intelligent Systems: ICETIS 2021; 5–6 April 2021; Online. pp. 255–264.
5. Alsharhan A, Salloum S, Shaalan K. The Impact of eLearning as a Knowledge Management Tool in Organizational Performance. Advances in Science, Technology and Engineering Systems Journal. 2021; 6(1): 928–936. doi: 10.25046/aj0601102
6. Alkhawaja MI, Halim MSA, Afthanorhan A. Technology Anxiety and its Impact on E-Learning System Actual Use in Jordan Public Universities during the Coronavirus Disease Pandemic. European Journal of Educational Research. 2021; 10(4): 1639–1647. doi: 10.12973/eu-jer.10.4.1639
7. Al-Husseini S, El Beltagi I, Moizer J. Transformational leadership and innovation: the mediating role of knowledge sharing amongst higher education faculty. International Journal of Leadership in Education. 2019; 24(5): 670–693. doi: 10.1080/13603124.2019.1588381
8. Hargitai DM, Pinzaru F, Veres Z. Integrating Business Students' E-Learning Preferences into Knowledge Management of Universities after the COVID-19 Pandemic. Sustainability. 2021; 13(5): 2478. doi: 10.3390/su13052478
9. Al-Emran M, Abbasi GA, Mezhuyev V. Evaluating the impact of knowledge management factors on m-learning adoption: A deep learning-based hybrid SEM-ANN approach. In: Recent Advances in Technology Acceptance Models and Theories. Springer International Publishing; 2021.
10. Pham QT, Tran TP. The acceptance of e-learning systems and the learning outcome of students at universities in Vietnam. Knowledge Management & E-Learning: An International Journal. 2020; 12(1): 63–84. doi: 10.34105/j.

kmel.2020.12.004
11. Muhisn ZAA, Ahmad M, Omar M, et al. Knowledge internalization in e-learning management system. TELKOMNIKA (Telecommunication Computing Electronics and Control). 2020; 18(3): 1361. doi: 10.12928/telkomnika.v18i3.14817
12. Abduljawad M, Ahmad A, Jaber KM, et al. Evaluating and adopting e-learning systems in Al-Zaytoonah University of Jordan. International Journal of Advanced Soft Computing and Applications. 2020; 12(3): 82–99.
13. Agarwal N, Marouf L. Initiating knowledge management in colleges and universities: A template. International Journal of Knowledge Content and Technology. 2014; 4(2): 67–95. doi: 10.5865/IJKCT.2014.4.2.067
14. Ahmadi AA, Ahmadi F. Knowledge management in Iranian university (Case Study Shushtar University). Interdisciplinary Journal of Contemporary Research in Business. 2012; 4(5): 653–667.
15. Al-Emran M, Teo T. Do knowledge acquisition and knowledge sharing really affect e-learning adoption? An empirical study. Education and Information Technologies. 2019; 25(3): 1983–1998. doi: 10.1007/s10639-019-10062-w
16. Glaser EM. Knowledge Transfer and Institutional Change. Professional Psychology. 1973; 4(4): 434–444. doi: 10.1037/h0021445
17. International Data Corporation. McKinsey, Global Institute Analysis. International Data Corporation; 2024.
18. Oyemomi O, Neaga L, Alkhuraiji A. How knowledge sharing and business process contribute to organizational performance: Using the fsQCA approach. Journal of Business Research. 2016; 69(11): 5222–5227. doi: 10.1016/j.jbusres.2016.04.116
19. Sa'di RA, Abdelraziq A, Sharadgah TA. E-Assessment at Jordan's Universities in the Time of the COVID-19 Lockdown: Challenges and Solutions. Arab World English Journal. 2021; (1): 37–54. doi: 10.24093/awej/covid.3
20. Salloum SA, Al-Emran M, Shaalan K, et al. Factors affecting the E-learning acceptance: A case study from UAE. Education and Information Technologies. 2018; 24(1): 509–530. doi: 10.1007/s10639-018-9786-3
21. Soto-Acosta P, Popa S, Palacios-Marqués D. Social web knowledge sharing and innovation performance in knowledge-intensive manufacturing SMEs. The Journal of Technology Transfer. 2016; 42(2): 425–440. doi: 10.1007/s10961-016-9498-z
22. Syed A, Gul N, Khan HH, et al. The impact of knowledge management processes on knowledge sharing attitude: The role of subjective norms. Journal of Asian Finance, Economics and Business. 2021; 8: 1017–1030.
23. Tarhini A, Hone K, Liu X. The effects of individual differences on e-learning users' behaviour in developing countries: A structural equation model. Computers in Human Behavior. 2014; 41: 153–163. doi: 10.1016/j.chb.2014.09.020
24. Valencia-Arias A, Chalela-Naffah S, Bermúdez-Hernández J. A proposed model of e-learning tools acceptance among university students in developing countries. Education and Information Technologies. 2018; 24(2): 1057–1071. doi: 10.1007/s10639-018-9815-2