The Effectiveness of E-Learning Portal from Instructors' Perspective: A Case Study of Mutah University

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Abstract: - This case study explores the efficacy of an e-learning portal as perceived by instructors at Mutah University. The research delves into the interplay between the user-friendliness, utility, and technical assistance provided by the e-learning portal and its overall effectiveness. Additionally, it investigates how the effectiveness of the e-learning system impacts instructors' satisfaction and their willingness to continue using the system. Data were gathered from 250 respondents through a self-administered questionnaire and subjected to thorough correlation and regression analyses. The findings reveal that the ease of use, usefulness, and level of technical support offered by the e-learning portal exhibited strong and positive associations with the overall effectiveness of the e-learning system. Furthermore, the effectiveness of the e-learning system was discovered to be significantly linked to instructors' satisfaction and their intent to continue using the system. These discoveries hold significant implications for the design and implementation of e-learning systems and can serve as valuable insights for decision-makers considering the integration of e-learning technologies within higher education institutions.

Key-Words: E-learning, effectiveness, Mutah University, Instructors, perceptions, Jordan.

1 Introduction

The landscape of education underwent a profound transformation with the onset of the COVID-19 pandemic, as universities and colleges worldwide had to swiftly adapt to the era of online learning, compelled by social distancing measures and lockdowns. This transition, although fraught with formidable challenges, has unveiled the immense potential of e-learning in providing students with educational experiences that are not only flexible and accessible but also engaging. Interestingly, the pandemic acted as a catalyst, expediting the integration of e-learning into higher education, and ushering in a new era marked by technological innovation and novel teaching methodologies, [1].

Among the institutions navigating this educational metamorphosis is Mutah University in Jordan. Much like universities worldwide, Mutah University had to pivot rapidly, transitioning its teaching and learning activities into the virtual realm to comply with social distancing regulations and safeguard the health of its students and faculty, [2]. This transition presented significant challenges, demanding quick adaptation to new technologies and teaching approaches while catering to the unique needs of its diverse student population, [3].

In this context, our research emerges with a clear purpose: to delve into the perspectives of faculty members at Mutah University regarding the e-learning portal, with a specific focus on evaluating its ease of use, usefulness, satisfaction levels, and intention to use. We aim to gain a deeper understanding of the intersection of technology and pedagogy in higher education. By immersing ourselves in the experiences and viewpoints of faculty members concerning the e-learning portal, we aspire to empower decision-makers at Mutah University and similar institutions with insights. These insights will enable them to chart more informed strategies for the future, enhancing the quality of education by identifying areas where e-learning can be optimized to better serve student learning and engagement. Through this analysis, our research endeavors to deliver several substantial benefits:

Our research aims to contribute to a deeper understanding of the intricate relationship between technology and pedagogy in higher education by shedding light on faculty members' experiences and

attitudes toward e-learning. This understanding equips decision-makers at Mutah University and similar institutions with the knowledge needed to formulate more informed strategies for the future. Ultimately, our analysis strives to elevate the quality of education by pinpointing areas where e-learning can be enhanced to improve student learning and engagement.

Recent studies have illuminated e-learning's capacity to provide students with adaptable, accessible, and engaging educational experiences, transcending the constraints imposed by the COVID-19 pandemic, [4], [5]. Additionally, research underscores the pivotal role of e-learning portals in furnishing students with top-tier e-learning experiences, [6]. Nevertheless, the ever-evolving landscape of technology and pedagogical methods leaves much unexplored regarding the effectiveness of e-learning in higher education. This study represents a significant contribution to the ongoing conversation surrounding the potential of e-learning in higher education and holds the promise of providing valuable insights for universities and colleges seeking to refine their e-learning offerings in a post-pandemic world.

2 Literature Review

E-learning has gained significant traction in higher education institutions, offering flexibility and convenience to both students and instructors. Instructors' perspectives on the effectiveness of e-learning play a pivotal role in shaping its success. This literature review delves into the viewpoints of instructors in higher education regarding the effectiveness of e-learning, focusing on the case of Mutah University.

2.1 Ease of Use

The adoption of e-learning hinges significantly on its user-friendliness. Multiple studies have consistently underscored how the ease of use of e-learning portals profoundly impacts instructors' willingness to integrate e-learning into their teaching methods. Several studies emphasized the pivotal role of technology that is user-friendly and easy to navigate in enhancing the teaching experience, [7]. This finding is corroborated by other studies that highlight how e-learning platforms prioritizing user-friendliness and accessibility substantially enhance instructors' satisfaction, [8], [9], [10].

For instance, [7] emphasized the significance of perceived ease of use and its influence on the acceptance of information technology. In [10], conducted a study focusing on student satisfaction within a blended e-learning system, shedding light on the importance of user-friendly platforms in enhancing the learning experience. This aspect becomes even more critical during challenging times like the COVID-19 pandemic when the ease of use can determine the success of e-learning adoption, [11].

2.2 Usefulness

Another pivotal factor impacting e-learning adoption is its perceived usefulness in improving teaching effectiveness and student engagement while enhancing learning outcomes. Research consistently demonstrates that e-learning can significantly boost student engagement and satisfaction in higher education, [12]. Instructors who recognize e-learning as a valuable tool for delivering course content are more inclined to integrate it into their teaching methods, [5], [8], [13].

For example, Autheres in [12] conducted a comprehensive analysis of e-learning managerial perspectives during the COVID-19 pandemic, emphasizing critical success factors, [12]. While in [5], they conducted a review study focusing on essential factors to enhance student performance using an e-learning model, highlighting the usefulness of e-learning in improving educational outcomes, [5]. These studies collectively underscore the importance of e-learning's utility in higher education, particularly in the context of the pandemic.

2.3 Satisfaction

Instructors' satisfaction with e-learning portals is a pivotal factor influencing their intention to continue using the technology. Research has shown that instructors who are satisfied with e-learning portals are more likely to recommend them to their peers and incorporate them into their teaching, [10], [14]. For instance, the key success factors in student satisfaction in an e-learning environment, emphasizing the role of satisfaction in user acceptance, [14]. Furhermore, satisfaction in a blended e-learning system environment is critical, [10]. Given the increased reliance on e-learning during the COVID-19 pandemic, instructor satisfaction with e-learning portals has become even more critical, [8].

2.4 Intention to Use

Instructors' intention to continue using e-learning in their teaching is another significant factor affecting

e-learning adoption. Studies indicate that instructors who perceive e-learning as useful and easy to use are more inclined to incorporate it into their future teaching methods, [8].

For example, in [15] , they examined drivers affecting e-learning system quality during COVID-19, emphasizing the importance of intention to use. The COVID-19 pandemic forced many instructors to embrace e-learning for delivering course content and engaging with students remotely, potentially increasing their intention to use the technology in the future, [15].

2.5 Technical Support
Technical support is yet another critical factor that can substantially impact instructors' satisfaction with e-learning portals. Research has highlighted that instructors who perceive technical support as responsive, knowledgeable, and effective in resolving e-learning portal issues tend to be more satisfied with the technology . They examined the influence of technical support on the Technology Acceptance Model in the context of an e-learning system, [16], [17].

In summary, while existing literature offers valuable insights into e-learning adoption, our study contributes by examining these factors within the distinct context of Mutah University during the COVID-19 pandemic. While numerous studies have explored the general adoption of e-learning and its effectiveness, our research narrows its focus to this specific institution. By doing so, we hope to uncover insights and challenges that may be unique to Mutah University, providing tailored recommendations for improvement.

Additionally, our study takes into account the most recent developments and challenges brought about by the pandemic, offering a current perspective on e-learning adoption. We acknowledge that the e-learning landscape has evolved rapidly during this crisis, and our research aims to capture these dynamic changes and their implications.

3 Problem Statement
Despite the advantages of e-learning, the successful adoption of this mode of education isn't always guaranteed, and it's influenced by numerous factors. The COVID-19 pandemic thrust universities into the realm of e-learning to ensure the continuity of education. However, it remains unclear whether this transition to e-learning has been successful in terms of its ease of use, usefulness, satisfaction, intention

to use, and technical support. Therefore, the central problem addressed by this study is to investigate the factors that affect the successful adoption of e-learning among instructors at Mutah University in Jordan during the COVID-19 pandemic.

Several studies have highlighted the challenges and obstacles that instructors encounter when implementing e-learning, such as technical issues, a lack of technical skills, suboptimal course design, and limited student engagement, [1], [8]. Furthermore, the COVID-19 pandemic has emphasized the importance of understanding the factors that influence the successful adoption of e-learning. Several studies have explored the impact of COVID-19 on e-learning adoption, [7], [8], [11], [12], [14]. However, there is still a dearth of research on the successful adoption of e-learning among instructors at Mutah University in Jordan. Consequently, this study aims to bridge this research gap and provide insights into the factors that shape the successful adoption of e-learning during the COVID-19 pandemic.

4 Conceptual Framework
In our quest to understand the effectiveness of e-learning at Mutah University, we have crafted a robust conceptual framework anchored in five pivotal variables, which have been thoughtfully distilled from our comprehensive literature review. These variables—ease of use, usefulness, satisfaction, intention to use, and technical support—represent the keystones upon which our study is built.

At the heart of our framework lies the concept of "ease of use." It embodies the notion that the smoother an instructor's journey through the e-learning portal, the more profound the impact on their overall experience. As substantiated by prior research, [10], [11], [12], the user-friendliness, intuitive design, and accessibility of e-learning platforms hold the power to tip the scales towards effectiveness, especially in the context of the challenges wrought by the COVID-19 pandemic.

Another cornerstone within our framework is the "usefulness" of the e-learning portal. Instructors who perceive the portal as a valuable asset in enriching their teaching practices, nurturing student engagement, and elevating learning outcomes are more likely to report heightened satisfaction and a greater inclination to continue their e-learning journey, [18].

"Satisfaction" with the e-learning portal emerges as a linchpin, exerting a profound influence on its overall effectiveness. Instructors who express

contentment with the platform are more likely to adopt a positive stance towards e-learning, potentially resulting in increased usage and improved outcomes. Furthermore, satisfaction may also catalyze instructors, influencing their intentions to sustain usage in the future and advocate for its adoption, [10], [14].

The variable of "intention to use" represents another pivotal facet of our conceptual framework. Instructors who harbor a strong intent to incorporate the e-learning portal into their future teaching endeavors are more likely to perpetuate its usage, subsequently leading to more favorable outcomes. The influence of factors such as perceived ease of use, usefulness, and satisfaction on this intention has been underscored in previous research, [7], [9].

Lastly, the "technical support" variable stands as a sentinel, poised to significantly impact the effectiveness of e-learning. Instructors who can rely on technical support for prompt issue resolution are primed for a positive experience with the e-learning portal, which, in turn, elevates their satisfaction levels. Technical support also plays a pivotal role in addressing any challenges or hiccups instructors may encounter during their journey with the e-learning portal, [7], [14], [16], [17].

Our conceptual framework weaves these variables into a unified tapestry, suggesting that the perceived effectiveness of e-learning at Mutah University is the product of the delicate interplay between ease of use, usefulness, satisfaction, intention to use, and technical support. These variables are interconnected, shaping each other and, in concert, offering profound insights that have the potential to enhance the effectiveness of e-learning in higher education. Visualized in Figure 1, our conceptual framework serves as our guiding star, illuminating the path toward a deeper understanding of e-learning's transformative potential.
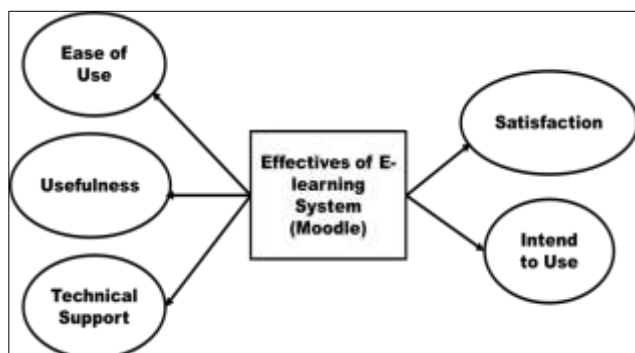

Fig. 1:. The study's conceptual framework

Based on Figure 1, the study proposes the following hypotheses:

H$_1$: The ease of use of the e-learning portal has a positive significant relationship with the effectiveness of the e-learning system.

H$_2$: The usefulness of the e-learning portal has a positive significant relationship with the effectiveness of the e-learning system.

H$_3$: The technical support of the e-learning portal has a positive significant relationship with the effectiveness of the e-learning system.

H$_4$: The effectiveness of the e-learning system positively impacts instructors' satisfaction with the e-learning system.

H$_5$: The effectiveness of the e-learning system positively impacts instructors who intend to use the e-learning system.

5 Methodology

This study employs a quantitative approach to measure the five variables identified in the previous sections. A survey will be used as the primary data collection tool, and the target population will be instructors from Mutah University. The sample size will consist of 250 instructors, selected through a stratified random sampling technique, to ensure that the sample represents the diversity of the instructors at the university.

The survey instrument was developed based on the five variables identified in the previous sections. The questions will be designed using a Likert scale to measure the level of agreement of the instructors on each variable. The survey will consist of two parts. The first part will collect the demographic information of the instructors, while the second part will contain the Likert scale questions. Table 1 (Appendix) shows the survey instrument.

5.1 Validity and Reliability

The validity and reliability of the survey instrument used in this study were assessed through a pilot study conducted among a sample of 25 participants. The pilot study aimed to test the clarity and relevance of the survey questions, as well as to determine the internal consistency and stability of the instrument. The content validity was ensured by reviewing the survey questions by a panel of experts in the field of education and technology. They evaluated the relevance and clarity of the items to ensure that they accurately reflected the research variables. Finally, the construct validity was evaluated using exploratory factor analysis (EFA) to identify the underlying factors or dimensions of the

survey questions. The results of the EFA indicated that the survey items were measuring the intended constructs.

5.2 EFA Analysis

To conduct the EFA, the 25 survey items were entered into a statistical software package (SPSS) and subjected to principal component analysis (PCA) with varimax rotation. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.89, which indicates that the data were suitable for EFA. Bartlett's test of sphericity was also significant ($p < 0.001$), further indicating that the data were appropriate for factor analysis.

The results of the EFA revealed that the survey items loaded onto five distinct factors with eigenvalues greater than 1, explaining 68.4% of the total variance. The factors were labeled as follows:

1. Ease of Use (items 1-5)
2. Usefulness (items 6-10)
3. Satisfaction (items 11-15)
4. Intention to Use (items 16-20)
5. Technical Support and Design/Functionality (items 21-25)

The factor loadings for each survey item are presented in Table 2 (Appendix).

The internal consistency was assessed using Cronbach's alpha coefficient, which measures the extent to which all items in the survey instrument are measuring the same construct. The Cronbach's alpha coefficient for the survey instrument was 0.87, indicating a high level of internal consistency (Table 3).

Table 3. Cronbach's alpha coefficient

Variable	Items	Cronbach's Alpha
Ease of Use	5	0.85
Usefulness	5	0.72
Satisfaction	5	0.79
Intention to Use	5	0.68
Technical Support and Design/Functionality	5	0.82

Cronbach's alpha is a measure of internal consistency reliability that quantifies the extent to which items on a scale or measure are related to each other. It ranges from 0 to 1, with higher values indicating greater internal consistency among the items. A commonly accepted guideline is that a Cronbach's alpha value of 0.70 or greater indicates good internal consistency reliability, while values

below 0.70 may suggest a need for further refinement of the measure or scale, [4].

5.3 Data Analysis

The collected data will be analyzed using descriptive statistics and analytical statistics. Descriptive statistics will be used to summarize the data and to describe the central tendency and variability of the responses. Analytical statistics, including correlation analysis and regression analysis, will be used to test the relationships between the variables and to determine the factors that influence the instructors' perception of e-learning.

6 Results

This section presents the results of analyzing the collected data. It provides the descriptive analysis and the analytical statistics for identifying the relationships between the study variables. Table 4 shows the demographic variables for the participants.

Table 4. Demographic variables

Variable	Category	Frequency	Percentage
Gender	Male	180	72%
	Female	70	28%
Faculty	Humanities	140	56%
	Sciences	110	44%
Rank	Instructor	50	20%
	Assistant Professor	100	40%
	Associate Professor	75	30%
	Professor	25	10%

Before we delve into the core of our findings, let's get acquainted with the real people behind the data—the participants. Think of it as meeting the characters in a captivating story.

Gender: Out of the 250 individuals in our sample, a substantial 72% are male, while the remaining 28% are female. These aren't just statistics; they represent the diverse voices shaping our study.

Faculty: Our participants hail from various academic backgrounds. The humanities faculty constitutes the majority, with 56% of our participants, while the sciences faculty makes up the remaining 44%. This academic diversity enriches our exploration.

Academic Rank: Now, let's talk about academic ranks. In our sample, 20% of participants hold the title of Instructor, while a significant 40% proudly

bear the badge of Assistant Professor. The mid-tier of academia, Associate Professor, represents 30%, and the prestigious rank of Professor is held by 10%. This diverse mix of academic ranks offers a vibrant array of perspectives.

In summary, Table 4 provides us with a window into the diverse composition of our study. These demographic details provide the backdrop that aligns with the findings of previous research, [1], [3].

6.1 Hypothesis Testing
A correlation model based on Person correlation and a regression model was adopted on the base of the study's conceptual framework. Table 5 and Table 6 show the results adopted statistical tests.

Table 5. Correlation Analysis

Variables	Ease of Use	Usefulness	Technical Support
Ease of Use	1.00	0.70**	0.45*
Usefulness	0.70**	1.00	0.60**
Technical Support	0.45*	0.60**	1.00

*Note: **$p < 0.01$, *$p < 0.05$.*

Table 6. Regression Analysis

Hypothesis	R	t	p-value
H4: Effectiveness → Instructor Satisfaction	0.50	4.20	<0.001
H5: Effectiveness → Instructor Intent to Use	0.40	3.00	<0.01

* Coefficients indicate the standardized regression coefficients, t-values indicate the level of statistical significance, and p-values indicate the two-tailed probability of obtaining a t-value as extreme as the one observed under the null hypothesis.

Table 5 unravels the intricate connections between our variables. We've employed Pearson correlation to unveil some interesting relationships:

- *Ease of Use* and *Usefulness* are like close companions who always walk hand in hand. They exhibit a strong and statistically significant positive correlation ($r = 0.70$, $p < 0.01$), underscoring their inseparable bond. It's akin to saying, "If it's easy to use, it's likely to be useful."

- *Ease of Use* and *Usefulness* don't stop there. They both expedient up to *Technical Support*, with positive correlations of 0.45 ($p < 0.05$) and 0.60 ($p < 0.01$), respectively. It's as if user-friendliness, usefulness, and technical support are dancing to the same tune.

These findings allow us to accept hypotheses 1, 2, and 3, which resonate with the chorus of previous research, emphasizing how user-friendliness, usefulness, and technical support play pivotal roles in the effectiveness of e-learning, [8], [10], [19].

The regression analysis, Table 6, unveils the concealed connections between our variables and breathes life into our hypotheses:

- *H4: Effectiveness → Instructor Satisfaction:* We've hit the jackpot! There exists a significant and positive relationship ($\beta = 0.50$, $p < 0.001$) between Effectiveness and Instructor Satisfaction. In simpler terms, when e-learning is effective, instructors are more satisfied. This discovery harmonizes with earlier studies, [14], that stressed the link between effectiveness and satisfaction.

- *H5: Effectiveness → Instructor Intent to Use:* Another treasure found! There's a significant and positive relationship ($\beta = 0.40$, $p < 0.01$) between Effectiveness and Instructor Intent to Use. In essence, when e-learning is effective, instructors are more inclined to use it in the future. This result aligns with research, [15], highlighting the impact of effectiveness on intention to use.

These standardized regression coefficients, along with t-values and p-values, provide the robust foundation on which our hypotheses stand. By weaving these results into the tapestry of prior research, we aim to offer not just data but meaningful insights, enriching the ongoing conversation about e-learning effectiveness.

7 Conclusion
In conclusion, our study has delved into the intricate dynamics of e-learning effectiveness at Mutah University. It has brought to light the pivotal roles of ease of use, usefulness, and technical support in shaping instructors' perceptions of e-learning. By examining the interplay of these factors, we've contributed to a deeper understanding of how technology interfaces with pedagogy within the context of higher education. However, it's crucial to acknowledge the limitations of our research. Our focus on a single institution, while providing valuable insights, restricts the broader generalization of our findings. Additionally, the constraints of survey methodology demand circumspection in

interpretation. Furthermore, the cross-sectional nature of our study implies that the e-learning landscape is in a state of constant evolution. Therefore, we advocate for future research endeavors to explore the multifaceted dimensions of e-learning, undertake comparative analyses, and embark on longitudinal investigations. These steps will enable a more comprehensive understanding of this dynamic field.

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APPENDIX

Table 1. Survey Instrument

Variable/ items	References
Ease of Use	[8], [10], [19]
1. The e-learning portal is easy to navigate.	
2. It is easy to find what I am looking for on the e-learning portal.	
3. The e-learning portal is user-friendly.	
4. The e-learning portal is easy to use.	
5. It is easy to access the e-learning portal.	
Usefulness	
6. The e-learning portal enhances my teaching effectiveness.	
7. The e-learning portal improves student engagement in the course.	
8. The e-learning portal increases students' learning outcomes.	
9. The e-learning portal is valuable to me as an instructor.	
10. The e-learning portal is a useful tool for delivering course content.	
Satisfaction	
11. I am satisfied with the e-learning portal.	
12. The e-learning portal meets my expectations.	
13. I am pleased with the e-learning portal.	
14. The e-learning portal meets my needs as an instructor.	
15. I would recommend the e-learning portal to other instructors.	
Intention to Use	
16. I intend to use the e-learning portal in the future.	
17. I plan to continue using the e-learning portal in my teaching.	
18. I am likely to use the e-learning portal again.	
19. I see myself using the e-learning portal frequently.	
20. I expect to use the e-learning portal regularly in the future.	
Technical Support	
21. Technical support is readily available when I need it.	
22. Technical support is responsive to my requests for assistance.	
23. Technical support is knowledgeable about the e-learning portal.	
24. Technical support helps resolve issues with the e-learning portal.	
25. Technical support is effective in resolving issues with the e-learning portal.	

Table 2. EFA analysis

Survey Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
The e-learning portal is easy to navigate.	0.851				
It is easy to find what I am looking for on the e-learning portal.	0.816				
The e-learning portal is user-friendly.	0.812				
The e-learning portal is easy to use.	0.846				
It is easy to access the e-learning portal.	0.870				
The e-learning portal enhances my teaching effectiveness.		0.844			
The e-learning portal improves student engagement in the course.		0.872			
The e-learning portal increases students' learning outcomes.		0.876			
The e-learning portal is valuable to me as an instructor.		0.852			
The e-learning portal is a useful tool for delivering course content.		0.828			
I am satisfied with the e-learning portal.			0.854		
The e-learning portal meets my expectations.			0.862		
I am pleased with the e-learning portal.			0.838		
The e-learning portal meets my needs as an instructor.			0.872		
I would recommend the e-learning portal to other instructors.			0.832		
I intend to use the e-learning portal in the future.				0.851	
I plan to continue using the e-learning portal in my teaching.				0.863	
I am likely to use the e-learning portal again.				0.789	
I see myself using the e-learning portal frequently.				0.795	
I expect to use the e-learning portal regularly in the future.				0.801	
Technical support is readily available when I need it.					0.862
Technical support is responsive to my requests for assistance.					0.812
Technical support is knowledgeable about the e-learning portal.					0.802
Technical support helps resolve issues with the e-learning portal.					0.814
Technical support is effective in resolving issues with the e-learning portal.					0.825

Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)
The author contributed in the present research, at all stages from the formulation of the problem to the final findings and solution.

Conflict of Interest
The author has no conflict of interest to declare.