ISSN: 2230-9926

Available online at http://www.journalijdr.com

IJDR

International Journal of Development Research
Vol. 15, Issue, 02, pp. 67817-67824, February, 2025
https://doi.org/10.37118/ijdr.29270.02.2025

RESEARCH ARTICLE **OPEN ACCESS**

STRATEGY TO ACTIVATE UNIVERSITY E-LEARNING IN LIGHT OF TRENDS IN CONTEMPORARY UNIVERSITIES

***Faez Mugahed and Mansour Al-Abdi**

Department of Educational and Psychological Sciences, College of Applied and Human Sciences, Amran University, Amran, Yemen

ARTICLE INFO

Article History:

Received 03rd December, 2024
Received in revised form
21st December, 2024
Accepted 24th January, 2025
Published online 28th February, 2025

Key Words:

Augmented Reality,
Virtual Reality, Micro learning.

****Corresponding author: Faez Mugahed,***

ABSTRACT

The study analyzes e-learning environments at Amran University in the context of trends in contemporary universities. Using a descriptive analytical approach and a questionnaire as the study tool, it was applied to 28 university experts. The key findings are as follows: there is a 63% gap in the e-learning environment at Amran University, with 8 elements of strength and opportunities identified and 12 elements of weakness and threats, with an arithmetic average greater than 2.5. Notable elements include the existence of a computer center at the university (S11), a decrease in incentives and allowances for employees (W12), a trend towards developing a legislative and legal framework supporting e-learning (O9), and the interruption of salaries for university employees (T6). Based on these results, the study proposes a strategy to enhance e-learning at the university, focusing on four strategic issues: integrating information and communication technology into education, professional development of faculty members, fostering a culture of e-learning and leadership, and providing the technical infrastructure for the university.

Citation*: *Faez Mugahed and Mansour Al-Abdi. 2025. *"*Strategy to activate university e-learning in light of trends in contemporary universities*".* *International Journal of Development Research*, 15, (02), 67817-67824

INTRODUCTION

Technological developments have sparked a knowledge and technical revolution across all areas of life. Universities have been at the forefront of this revolution, as they are the epicenters of knowledge production and technological advancements. This has intensified competition among universities. Consequently, e-learning has emerged as a vital strategy for universities to address the challenges of competition. The e-learning market has witnessed steady growth over the past decade. Economic reports indicate that the value of the global e-learning market reached 399.3 billion US dollars in 2022 (Selbyville, 2022). Additionally, the size of the e-learning market is expected to increase by 309 million US dollars, with a compound annual growth rate of 20.24% between 2023-2028 (Technavio, 2024). E-learning creates a new dimension to education, as it is possible to acquire knowledge remotely, and it is also well aligned with the idea of sustainable development. Studies have confirmed that e-learning will be the undisputed effective education of the future (Schulz, 2023). E-learning technology is a digital technology that integrates computer and communications technology to process information using multimedia, and to transfer and store it comprehensively. This technology provides a good interaction environment between the learner, the computer, and websites (Zhang & Liu, 2024). Despite the rapid shifts towards e-learning over the past decade, activating e-learning in universities requires developing strategies on several fronts, including infrastructure, strategy and leadership, faculty and student skills, content, curricula, assessment, and legal frameworks (European Commission, 2020). From the above, this study considers a reconsideration of the university's plans and strategies, benefiting from the best modern trends in e-learning in contemporary universities. It proposes developing a strategy to activate e-learning at Amran University, based on an analysis of its internal and external environments, and in light of its trends in contemporary universities.

Problem: According to the Speedtest Global Broadband Index report for 2024, Yemen ranks 153rd globally for fixed broadband. The average download speed is 8.93 Mbps, and the average upload speed is 4.16 Mbps. Unfortunately, there is no available data for mobile broadband speeds in Yemen. It's clear that there's a significant need for improvement in internet infrastructure. and we think this might impact e-learning initiatives in the country (Speedtest, 2024). Yemen's exclusion from the broadband policy document means that Yemen has not yet begun planning for it (Gelvanovska *et al*., 2023), which actually affects the plans and strategies of universities in Yemen to activate university e-learning. The failure of the e-learning experience in Yemeni universities is due to not giving importance and priority to investing in technology (Al-Ahnoumi& Al-Shami, 2021). The study by Shaker & Al-Saadi (2023) indicated the weakness of the digital transformation of universities. The problem is evident at the level of Amran University, in the weakness of the university's technical infrastructure, as shown by the study by Mugahed, *et al*. (2024), and the existence of a number of requirements for the

university to activate e-learning (Maghriba *et al*., 2020). From the above, the problem of the study is evident in the following main question: What is the proposed strategy to activate e-learning at Amran University in light of its trends in contemporary universities? The following questions branch out from it:

RQ#1: What are the strengths (SW) and weaknesses(WT) of activating e-learning at Amran University?
RQ#2: What are the opportunities (OP) and threats to activating (T) e-learning at Amran University?
RQ#3: What is the gap in activating e-learning at Amran University?
RQ#4: What are the priorities of the environmental elements of e-learning at Amran University?
RQ#5: What are the strategic objectives for activating e-learning at Amran University?

Objectives: The study objectives are united as follows;

1. Revealing the strengths and weaknesses of activating e-learning.
2. Revealing the opportunities and threats facing the activation of e-learning.
3. Determining the gap facing the activation of e-learning.
4. Determining the priorities of the elements in the internal and external environment to activate e-learning.
5. Determining the strategic objectives for activating e-learning.

Importance: The importance of the study can be summarized as follows;

1. Scientific importance: Spreading the culture of e-learning and highlighting its importance at all educational and societal levels in Yemen, revealing the most important trends in activating e-learning at contemporary universities, and contributing to providing researchers and scientific libraries with a study on university e-learning and its trends in contemporary universities.
2. Practical importance: Revealing the strengths and weaknesses in the internal environment, and the opportunities and challenges in the external environment facing the activation of e-learning at Amran University, and presenting a proposed strategy to activate e-learning at the university.

Limits: The study was limited to the following limits;

1. Objective limits: University e-learning and its trends in contemporary universities.
2. Spatial boundaries: Amran University, Yemen.
3. Human boundaries: A sample of experts at Amran University.
4. Time boundaries: The study was implemented during the first semester of 2024/2025 AD.

Theoretical Framework: The theoretical framework of the study consisted of two axes as follows:

E-learning: E-learning is one of the most important strategies that support educational systems. It has become a fundamental necessity for developing these systems, enhancing their performance efficiency, and improving the quality of their outputs.E-learning is a popular form of education and has played an important role in both traditional education and professional development, providing flexibility and accessibility to a wide range of learners and students (Pribilová & Beňo, 2024). The concept of e-learning refers to the integration of digital technology tools to facilitate online and blended learning systems, the distribution of materials, methods, and distance learning (Shahzad, *et al*., 2024). "E-learning is defined as a type of educational system that combines the use of institutionalized learning and technological resources" (Frimpong *et al*., 2024, p. 9).As known "E-learning is the process of sharing knowledge through various channels such as e-books, CDs, webinars, and more, as discussed briefly above" (Bibi *et al*., 2024, p. 1694). E-learning sources can be the Internet, networks, computers, web-based learning, virtual classrooms, online tutorials, satellite TV, mobile phones, audio and video, CD and DVD media, and other devices (Schulz, 2023). From the above, it is clear that the concept of e-learning refers to a type of education that relies on the Internet, utilizing all electronic means and media in the learning process to create an enjoyable and attractive learning environment.

Trends in e-learning in contemporary universities: There are many trends in e-learning in contemporary universities, the most important of which are: (Maqbool *et al*., 2024), (Imran *et al*., 2024; Pujara, 2024).

- ***Artificial Intelligence (AI):*** Artificial intelligence is a pivotal trend that is reshaping the future of university e-learning. AI technologies include intelligent tutoring systems, automated speech recognition, text-to-speech systems, adaptive learning algorithms, predictive analytics, chatbots, and generative AI platforms like ChatGPT for learning.
- ***Games and educational experiences (GEEs):*** Gamification is a transformative trend in e-learning at universities, integrating game elements into education to increase engagement and interaction among students. Games include aspects that encourage students to achieve, making learning fun and engaging.
- ***Interactive Learning (IL):*** Interactive learning emphasizes the value of collaborative environments where students can share ideas, ask questions, and solve problems collectively, fostering a sense of community. E-learning platforms create more engaging and supportive learning experiences.
- ***Micro learning (ML):*** M-learning content is delivered through video-based lessons, interactive films, and tests, providing flexible and accessible personalized learning experiences.
- ***Adaptive Learning (AL):*** Future approaches to e-learning are moving towards adaptive learning experiences, where adaptive technology plays a pivotal role. Adaptive learning designs classes, assignments, projects, and homework to suit each learner.
- ***Mobile Learning (M-Learning):*** The proliferation of smartphones and mobile devices has made mobile learning a pivotal trend in online education, Andthis trend allows real-time interaction with students.
- ***Virtual Reality (VR) and Augmented Reality(AR):*** Virtual reality and augmented reality are emerging technologies that have revolutionized e-learning, taking learning to a new level, allowing learners to enter virtual worlds, from history lessons to surgical training.
- ***Learning Management Systems (LMS):*** Several recent studies have shown that universities have adopted learning management systems toplan and implement lessons, and to assist students, professors, and staff in collecting basic data and other analytical variables.
- ***Content Management Systems (CMS):*** Many universities use content management systems to create and store digital information, manage courses and curricula, and organize them online, And these systems allow university professors to plan and organize lectures, provide freedom to choose content appropriate to students' abilities and levels, enhance collaboration, participation, and a sense of ownership among students.

The above adopts the modern trends of e-learning and their advanced integration of emerging technologies such as artificial intelligence, virtual and augmented reality, interactive education, and other more customized and adaptive models, which the university can consider as ideal support tools in e-learning and education.

Methodology and Procedures: The current study followed a structured methodology and set of procedures, which included the following steps:

Methods: The study used the descriptive analytical method and (SWOT) analysis to study and analyze the internal and external

environment for activating e-learning at Amran University in light of e-learning trends in contemporary universities.

Community and Sample: The study community consisted of a group of experts specialized in e-learning at Amran University. A sample was selected through a purposive sampling method by targeting a group of experts and communicating with them via their phones and emails. The sample amounted to 28 experts, as shown in Table 1. Table 1 shows the proportion of the sample members between the categories according to the study variables, indicating that the group consists of experts with experience, specialization, and knowledge of the study topic.

Tool: An electronic questionnaire was designed using Google Drive application forms as a tool for collecting data and information according to the study objectives, after the researchers reviewed the relevant literature and previous studies. The tool, in its final form, consisted of 46 phrases distributed over four dimensions representing strengths and weaknesses in the internal environment, and opportunities and threats in the external environment of e-learning at the university. The phrases were structured so that the sample members would determine the degree of availability (presence), the degree of importance (impact), and the degree of urgency (need) according to the five-point Likert scale (lowest, low, medium, high, highest). The researchers verified the validity and reliability of the tool as follows:

Validity of the tool: To ensure the validity of the tool, Pearson's correlation coefficient (r) was used, where the values of the coefficients were as shown in Table 2:

significant. This indicates the strength of the internal coherence of the scale and confirms that the tool (questionnaire) has high formative validity and internal consistency. Therefore, its results can be trusted, and its validity to measure what it was prepared to measure is confirmed.

Tool stability: To ensure the stability of the tool, the Cronbach's Alpha coefficient was used, where the values of the coefficients were as shown in Table 3. Table 3 shows that the values of the Cronbach's alpha coefficients for the questionnaire fall between 0.87 - 0.97, which are high and statistically acceptable stability values, indicating that the questionnaire has a high degree of stability.

Statistical treatments: The data were processed statistically using the statistical package of the SPSS program, by using arithmetic averages and standard deviations to determine the weights of availability, importance, and urgency, the Cronbach's alpha coefficient to determine the stability rate of the tool, and the Pearson correlation coefficient to calculate the structural validity of the tool. The researcher also used the relative weight method for the five-point Likert scale, as follows. The relative weight was calculated by extracting the range between the highest and lowest value, then dividing the range by the result, and finally adjusting the category by one plus the category length.

DISCUSSIONS

Answer RQ#1: What are the strengths and weaknesses of activating e-learning at Amran University in light of its trends in contemporary

Table 1. The sample size and characteristics

Specialization			Academic Degree			Years of Experience		
Cat	N	%	Cat	N	%	Cat	N	%
Hum	16	57.1	Asst	12	42.9	10-1	10	35.7
App	12	42.9	Assoc	11	39.3	20-11	11	39.3
Tot	28	100	Prof	5	17.9	30-21	7	25.0
			Tot	28	100	Tot	28	100

Table 2. Correlation Coefficient Matrix

Axis I: Internal environment				Theme II: External environment			
(SW)		(WT)		(OP)		(T)	
No.	r	No.	r	No.	r	No.	r
1	0.849**	1	0.800**	1	0.723**	1	0.553**
2	0.541**	2	0.888**	2	0.753**	2	0.507**
3	0.559**	3	0.900**	3	0.579**	3	0.695**
4	0.777**	4	0.949**	4	0.771**	4	0.700**
5	0.611**	5	0.877**	5	0.896**	5	0.902**
6	0.863**	6	0.944**	6	0.873**	6	0.891**
7	0.734**	7	0.701**	7	0.691**	7	0.868**
8	0.800**	8	0.759**	8	0.820**	8	0.540**
9	0.644**	9	0.874**	9	0.691**	9	0.585**
10	0.706**	10	0.882**	10	0.686**	10	0.627**
11	0.823**	11	0.947**			11	0.725**
12	0.767**	12	0.860**			12	0.577**

**Correlation is significant at the 0.01 level (2-tailed).

Table 3. Values of the Cronbach's Alpha Coefficient for the Stability of the Tool

Coefficient/Dimensions	(SW)	(WT)	(OP)	(T)	Tot
N	12	12	10	12	46
Cronbach's Alpha	0.91	0.97	0.91	0.87	0.86

Table 4. Verbal Connotation (VC), Weight (W), and Relative Weight (RW)

VC	LOW	L	M	H	HIG
W	1	2	3	4	5
RW	1.80 – 1	2.60 -1.81	3.40 - 2.61	4.20 - 3.41	5 - 4.21

From Table 2, it is clear that the results of all correlation coefficients of each paragraph with the paragraphs of the dimension to which it belongs are high. The results of validity ranged between 0.54 and 0.94, with a significance level of 0.00 for each statement, which is smaller than the significance level of 0.01, meaning that it is

universities? Arithmetic means and standard deviations were used to determine the degree of availability of strengths and weaknesses in the internal environment to activate e-learning at Amran University. The results were as follows:

Table 5. Means and Standard Deviations for the Strengths

NO.	para	$\bar{X}$	S.D	R
S1	The university leadership recognizes the importance of the transition towards e-learning at the university.	2.14	1.00	8
S2	Scientific department heads use social media and channels in management and follow-up.	2.43	1.03	4
S3	Faculty use social media and channels in the administration and follow-up of education.	2.50	1.20	3
S4	Faculty's use of electronic media in university education.	1.85	1.01	10
S5	Faculty's use of electronic techniques and devices in university education.	1.64	0.78	12
S6	The presence of some of the university's specialists in the field of programming and maintenance of electronic devices.	2.25	1.20	7
S7	Availability of some appropriate rooms to serve as the university's e-learning laboratories.	1.96	0.99	9
S8	Participation of some faculty members in websites and online research and educational forums.	2.28	1.05	6
S9	The university uses some electronic systems in the management and facilitation of students' affairs.	2.61	1.16	1
S10	The existence of a website for the university, its colleges, and affiliated centers.	2.60	1.44	2
S11	The university's Computer and Information Technology Centre provides rehabilitation and training services.	2.42	1.42	5
S12	Availability of Internet networks (Wi-Fi) at the university presidency and some colleges.	1.82	0.98	11
	$\bar{X}$SW	2.21	0.79	

Table 6. ***Means and Standard Deviations for the weaknesses***

NO.	para	$\bar{X}$	S.D	R
W1	The absence of strategic plans to activate e-learning at the university.	3.78	1.19	11
W2	Weak organizational culture encouraging e-learning within the university.	4.10	1.16	8
W3	The absence of e-learning units in the university's organizational structures and colleges.	4.35	1.09	3
W4	Weak technical infrastructure for e-learning at the university.	4.25	1.14	6
W5	Weak financial capacity of the university to cover the expenses of activating e-learning.	4.28	1.27	5
W6	Lack of computerized courses for university education.	4.21	1.13	7
W7	Faculty's lack of experience in the preparation of computerized courses.	3.78	1.03	12
W8	Faculty's inexperience in e-learning programs and applications.	3.96	0.99	10
W9	Poor ability of students to deal with electronic educational programs and applications.	4.00	1.08	9
W10	Lack of training opportunities for teaching staff in the field of e-learning.	4.53	1.07	2
W11	The university's e-learning laboratories are not available.	4.32	1.15	4
W12	Low incentives and university workers' allowance	4.64	1.06	1
	$\bar{X}$WT	4.18	0.95	

Table 7. Means and Standard Deviations for the Opportunities

NO.	para	$\bar{X}$	S.D	R
O1	The great proliferation and diversity of telecommunications and Internet networks.	2.67	1.38	6
O2	The widespread spread of smartphones and mobile devices.	3.82	1.15	1
O3	Free access to knowledge under the digital and knowledge revolution.	3.46	1.34	2
O4	Increased orientation towards e-education in university education.	2.60	1.31	4
O5	Diversity of technologies and tools and their role in activating e-learning.	2.39	1.19	5
O6	The increasing prevalence of electronic educational programs and applications.	2.85	1.35	7
O7	The increasing prevalence of online educational platforms and forums.	2.96	1.47	3
O8	Availability of online ICT training centers.	2.32	1.36	8
O9	Orientation towards the development of the legislative and legal framework supportive of e-education.	1.89	1.13	9
O10	Expanding collaboration with the private sector to invest in university e-education.	1.82	1.05	10
	$\bar{X}$OP	3.96	0.54	

By extrapolating the results of Table 5, it becomes clear that the degree of availability of weaknesses in the internal environment for activating e-learning at Amran University came with an arithmetic mean (M = 2.21) and standard deviation (SD = 0.79) with an acceptable estimate. There are eight strengths in the internal environment for activating e-learning at Amran University whose average degree of availability was greater than 2, ranging between 2.14 and 2.61. Therefore, they fall within the scope of the internal environment elements that have a positive impact on activating e-learning at Amran University, and they can be relied upon in building the proposed strategy. However, there are four phrases of strengths whose degree of availability did not reach the averages with the required positive impact: phrases S4, S5, S7, and S12. Thus, they cannot be relied upon as strengths when building the proposed strategy. The failure to obtain the required arithmetic averages as strengths may indicate that they have turned into weaknesses. The proposed strategy must address and improve these areas to convert them into strengths that can be relied upon in activating e-learning at the university. By reading the results of Table 6, it is clear that all experts unanimously agree on the negative impact of the dimension of weaknesses with all its phrases. The degree of availability of the dimension of weaknesses in the internal environment for activating e-learning at Amran University obtained an arithmetic mean (M = 4.18) and standard deviation (SD = 0.95) with a high rating.

All points had an average degree of availability greater than 2, ranging between 3.78 and 4.64, with ratings between high and highest. Thus, they fall within the scope of the elements of the internal environment that have a negative impact on activating e-learning at Amran University. The proposed strategy must focus on bridging this gap, addressing the issues, improving these areas, and transforming them into strengths to activate e-learning at the university.

Answer RQ#2: To answer the second question, which states: What are the opportunities and threats facing the activation of e-learning at Amran University in light of its trends in contemporary universities? Arithmetic means and standard deviations were used to determine the degree of availability of opportunities and threats in the external environment to activate e-learning at Amran University. By extrapolating the results of Table 7, it becomes clear that the degree of availability of opportunity elements in the external environment to activate e-learning at Amran University came with an arithmetic mean (M = 3.96) and standard deviation (SD = 0.54) with a high rating. There are eight phrases that the experts concluded represent opportunities in the external environment to activate e-learning at Amran University. The degree of their availability obtained an average greater than 2, with averages ranging between 2.32 and 3.82, and ratings between acceptable and high. These phrases represent the sum of the elements of the external environment that have a positive

impact on activating e-learning at the university and can be relied upon in building the proposed strategy. However, there are two opportunities (phrases O9 and O10) that fall outside the scope of the required positive impact in activating e-learning at the university. Therefore, they cannot be relied upon when building the proposed strategy as opportunities, and it is not possible to benefit from maximizing them in the required manner. Their failure to have a positive impact indicates that they have turned into threats, which the proposed strategy must address to enhance their presence with a high positive impact.

By extrapolating the results of the previous equations, it becomes clear that the effectiveness is weak and the gap is widening in activating e-learning at Amran University. The effectiveness reached 37%, while the gap reached 63%, which requires urgent intervention and intensive efforts by the university to bridge this gap and reach the point of activating e-learning at the university in a way that achieves its goals.

Answer RQ#4: To answer the fourth question, which states: What is the priority of environmental elements for activating e-learning at Amran University in light of its trends in contemporary universities?

Table 8. Means and Standard Deviations for the Threats

NO.	para	$\bar{X}$	S.D	R
T1	Weak Internet coverage of the university's surrounding areas.	4.03	1.03	6
T2	Low speed of fixed and mobile broadband nationwide.	3.89	0.95	7
T3	Poor political stability and its impact on university enrollment.	4.21	1.42	5
T4	Yemen's weak economic growth and its impact on university education spending.	4.28	1.43	4
T5	Lack of financial allocations for university education in the general budget for education.	4.67	1.05	2
T6	The disruption of university staff's salaries and wages as a result of conflicts and interventions.	4.71	1.04	1
T7	Poor ability of families to cover children's e-education.	4.67	1.05	3
T8	The widening gender gap in ICT use.	3.85	1.23	8
T9	Fear of exposure to privacy when applying e-learning.	3.14	1.60	12
T10	Means and contents of e-learning are incompatible with society's culture and traditions.	3.60	1.34	11
T11	Poor compatibility between e-education and social and family obligations.	3.71	1.21	9
T12	Lack of credibility in the results of examinations and evaluations in e-learning.	3.67	1.12	10
	$\bar{X}T$	4.04	0.77	

Table 9. *The Means.*

Axis	$\bar{X}SW$	$\bar{X}WT$	$\bar{X}OP$	$\bar{X}T$
$\bar{X}$	2.21	4.18	2.68	4.04

Table 10. The priority factor (PF) of the internal environment elements (strengths and weaknesses)

SW	$\bar{X}i$	$\bar{X}u$	PF	R	WT	$\bar{X}i$	$\bar{X}u$	PF	R
S11	4.35	4.1	12.8	1	W12	4.53	4.35	13.41	1
S10	4.25	3.92	12.42	2	W5	4.32	4.35	12.99	2
S8	4.21	3.82	12.24	3	W1	4.17	4.21	12.55	3
S9	4.07	4.03	12.17	4	W10	4.17	4.07	12.41	4
S6	4.07	3.96	12.1	5	W7	4.14	3.96	12.24	5
S12	4.07	3.96	12.1	6	W11	4.14	3.96	12.24	6
					W4	4.03	4.14	12.2	7
					W8	4	4.03	12.03	8
					W9	4.07	3.89	12.03	9

By extrapolating the results of Table 8, it becomes clear that the experts' consensus is that all threats in the external environment—totaling twelve—have a significant negative impact on activating e-learning at Amran University. The availability level for the dimension came with an arithmetic mean (M = 4.04) and standard deviation (SD = 0.77) with a high estimate. All twelve points had an average availability level greater than 2, ranging between 3.14 and 4.71, with estimates between average and high. Therefore, they fall within the scope of the external environment elements that have a negative impact on activating e-learning at the university. Interventions are required to confront and address these threats, reduce their severity, or transform them into opportunities if possible. Accordingly, they must be taken into account when building the analysis matrix and relied upon when constructing the proposed strategy.

Answer RQ#3: To answer the third question, which states: What is the extent of the gap in activating e-learning at Amran University in light of its trends in contemporary universities? The arithmetic averages of strengths, weaknesses, opportunities, and threats were used, after which the gap was extracted using the following arithmetic equation:

$$\text{Gap} = \frac{100-\text{Eff}}{100}, \text{Effectiveness(Eff)} = \frac{\bar{X}SW+\bar{X}OP}{(\bar{X}SW+\bar{X}OP)+(\bar{X}WT+\bar{X}T)} \times 100.$$

$$\text{Eff} = \frac{2.68+2.21}{(2.68+2.21)+(4.04+4.18)} \times 100 = \frac{4.89}{(4.89)+(8.22)} \times 100 = = \frac{4.89}{13.11} \times 100 = 0.37 \times 100 = 37, \text{Gap} = \frac{100-37}{100} = 0.63$$

The arithmetic mean, priority factor, and priority were used for the internal and external environment elements. The priority factor (PF) was extracted using the following mathematical equation: PF =(2 × $\bar{X}i$) + $\bar{X}u$.where the statement is accepted if its PF≥12. i.e., the statement becomes important and urgent if its arithmetic mean is greater than or equal to 4. According to the previous equation; PF = 2 × 4 + 4 =12.

• *Determining the priority of the internal environment elements (strengths and weaknesses), the results were as follows:*

By extrapolating the results of Table No. 10, it becomes clear that the six elements (S11, S10, S8, S9, S6, S12) of the strengths have a priority score greater than 12, indicating they are strengths of high importance and great urgency. Additionally, nine elements of the weaknesses (W12, W5, W1, W10, W7, W11, W4, W8, W9) have a priority score greater than 12, indicating they are weaknesses of high importance and great urgency. These points can serve as the basis for the proposed strategy to activate e-learning at the university.

• *Determining the priority of the elements of the external environment (opportunities andthreats), the results were as shown in Table 11:*

Table 11 shows that the five elements (O9, O2, O3, O1, O8) of opportunities received the highest priority score greater than 12, as they are opportunities of high importance and great urgency. Similarly, five elements of threats (T6, T5, T3, T7, T4) received a

priority score greater than 12, indicating they are threats of high importance and great urgency. These opportunities and threats can serve as the basis for the proposed strategy to activate e-learning at the university.

Answer RQ#5: To answer the fifth question, which states: What are the strategic objectives for activating e-learning at Amran University in light of its trends in contemporary universities? The SWOT matrix was used for the elements of the internal and external environment. The results were as shown in Table 12:

Table 11. The priority factor (PF) of the elements of the external environment (opportunities andthreats).

OP	X̄i	X̄u	PF	R	T	X̄i	X̄u	PF	R
O9	4.07	4.03	12.17	1	T6	4.6	4.57	13.77	1
O2	4.21	3.82	12.24	2	T5	4.53	4.46	13.52	2
O3	4.14	3.96	12.24	3	T3	4.25	4.35	12.85	3
O1	4.07	4.03	12.17	4	T7	4.28	4.21	12.77	4
O8	4.03	4.14	12.2	5	T4	4.17	4.28	12.62	5

Table 12. *SWOT matrix for the elements of the internal and external environment*

internal environment external environment	Strengths (SW): *S11: The University's Computer and Information Technology Centre provides rehabilitation and training services.* *S10: Having a website for the university, colleges, and affiliated centers.* *S8: Participation of some faculty members in websites and electronic research and educational forums.* *S9: The university uses some electronic systems in the management and facilitation of students' affairs.* *S6: Some of the university's specialists in programming and maintenance of electronic devices.* *S12: Availability of Wi-Fi at the university presidency and some colleges.*	Weaknesses (WT): *W12: Low incentives and allowance pay for university workers.* *W5: Limited financial capacity of the university to cover e-learning activation expenses.* *W1: Lack of strategic plans to activate e-learning at the university.* *W10: Lack of training opportunities for teaching staff in e-learning.* *W7: Faculty's inexperience in computerized course preparation.* *W11: Unavailability of e-learning laboratories at the university.* *W4: Weak technical infrastructure for e-learning at the university.* *W8: Faculty's inexperience in e-learning programs and applications.*
Opportunities (OP): O9: Orientation towards the development of the legislative and legal framework in support of e-education. O2: Widespread use of smartphones and mobile devices. O3: Easy and free access to knowledge under the digital and cognitive revolution. O1: The great proliferation and diversity of telecommunications networks and the Internet. O8: Availability of information technology training centers online.	Strategic Objectives (SO): 1. Activate the use of ICT in teaching, learning, and evaluation (S8-9-11), (W7-8-9), (O2-3-8), (T3). 2. Professional development of the faculty, to achieve efficiency and effectiveness in the use of e-learning programs, applications, and techniques (S8-11), (W7-8-10-12), (O2-3-8), (T6). 3. Develop e-learning cultures and leadership, ensuring that visions and plans are developed in partnership with stakeholders to support the transition towards university e-learning, and create a more appropriate learning climate (S9-10), (W1-5-9-10), (O2-9), (T3-5-6-7). 4. Provision of ICT infrastructure in all general education schools and institutions of Yemen (S6-9-10-11-12), (W4-5-11), (O1-2), (T4-5).	
Threats (T): T6: University employees' salaries are cut as a result of conflicts and interventions. T5: Lack of financial allocations for university education in the general budget for education. T3: Weak political stability and its impact on university enrollment. T7: Poor ability of families to cover children's e-education expenses. T4: Yemen's weakened economic growth and its impact on university education spending.		

By examining Table 12, the most important elements in the internal and external environment for activating e-learning at Amran University are revealed, and how they were utilized in formulating the strategic objectives. Four strategic objectives were formulated, on which the proposed strategy for activating e-learning at Amran University is based.

SUMMARY OF RESULTS

The study concluded the following results:

1. There is a gap in the e-learning environment at Amran University by 63%.
2. There are 8 elements of strength and opportunities, and 12 elements of weakness and threat in the e-learning environment at the university, with arithmetic averages greater than 2.
3. There are 6 elements of strength, 9 elements of weakness, and 5 elements of opportunities and threats received a priority factor greater than 12.
4. Focus on four strategic issues represented in: activating the use of information and communication technology in education, professional development of faculty members, developing the culture of e-learning and leadership, and providing the technical infrastructure for the university.

Proposed Strategy

1. **Pillars of the Proposed Strategy:**The proposed strategy for activating e-learning at Amran University is based on the results of analyzing the e-learning environments at the university, the trends of e-learning at contemporary universities, and the philosophy and policy of Yemeni university education.

Proposed Strategic Objectives

The proposed strategy seeks to achieve the following strategic and detailed objectives:

The first strategic objective: *Activating the use of information and communication technology in teaching, learning, and evaluation.*

Detailed objectives and activities:

- Computerize educational courses by converting them into electronic files using a computer and benefiting from electronic programs and applications such as Publisher, PDF, PowerPoint, Word, audio, and video.
- Convert lectures into electronic forms based on electronic media, using applications such as Images, Colors, Canvas, Texts, Audio, Video, Games, Demonstrations.
- Use cloud computing and cloud storage to store and share data and programs over the network, using applications such as Google Drive, OneDrive, Dropbox, MEGA, MediaFire.
- Create synchronous and asynchronous virtual classes for e-learning by benefiting from free and paid tools and programs,

such as Google Classroom, Blackboard, Canvas, EasyClass, Edmodo, Schoology, Zoom, Skype.
- Manage, monitor, and evaluate the education process through the Learning Management System (LMS) and social media programs (SMM) in following up and responding to inquiries, such as Blackboard, Blockchain, Moodle, Google Classroom, Google Forms, Canvas, EasyClass, Edmodo, Schoology, YouTube, WhatsApp, Telegram, Instagram.
- Hold conferences, meetings, and lectures using the Content Management System (CMS) via video technologies such as Zoom, Google Meet, WordPress, Blogger, U Meeting, WebEx Meeting, Microsoft Teams, Skype Meeting.
- Conduct scientific experiments using virtual laboratories (VL) and benefit from programs and laboratories for implementing scientific experiments in science, physics, chemistry, and anatomy such as Software, Crocodile, praxilabs.
- Deliver practical tasks, assignments, and more using email and social media networks (SMM), such as Gmail, Hotmail, WhatsApp, Telegram, Instagram.

Second strategic objective: *Professional development of faculty members to achieve their efficiency andeffectiveness in using e-learning programs, applications, and technologies.*

Detailed objectives and activities

- Raising the capabilities and skills of faculty members in using computers and smart devices.
- Raising the capabilities of faculty members in using programs, applications, and electronic media.
- Raising the capabilities and skills of faculty members in designing computerized educational courses.
- Raising the capabilities of faculty members in creating and designing educational content.
- Encouraging faculty members to create electronic educational and research channels, websites, and platforms.
- Providing the material needs of faculty members to implement e-learning at the university.
- Providing equal and fair training opportunities for faculty members in the field of e-learning.

Third strategic objective: *Developing e-learning cultures and leadership at the university, enabling them to develop visions and plans in partnership with stakeholders to activate and lead e-learning, and create amore appropriate educational climate.*

Detailed objectives and activities:

- Raising the efficiency of university and college leadership and their skills in planning the process of activating e-learning at the university.
- Developing the necessary policies, legislation, and laws to regulate the process of transitioning to e-learning at the university.
- Organizing activities and events that support change and spread the culture of transitioning to e-learning at the university and its local community.
- Paying attention to the electronic portals of the ministry, the university, and colleges, and linking students and faculty members to specific electronic procedures implemented through them.
- Establishing partnerships with companies, developers, technicians, and local and international organizations that support e-learning and its development.
- Signing cooperation and partnership agreements with private institutions to support, finance, and invest in e-learning at the university.

Fourth strategic objective: *Providing, updating, and maintaining the technical infrastructure at theuniversity and colleges on a regular and continuous basis.*

Detailed objectives and activities

- Providing modern and advanced networks for communications and the Internet, and maintaining them at the university and colleges that have not completed their technological infrastructure.
- Providing alternatives to public electricity sources at the university by providing solar energy sources and other alternative and environmentally friendly energy sources.
- Providing devices, programs, and applications for activating e-learning at the university and colleges, and updating and maintaining them on a regular and continuous basis.
- Equipping the laboratories for e-learning at the university and colleges with furniture, tools, and material supplies that help implement the transition to e-learning.
- Creating e-learning units in the organizational structures of the university and colleges by benefiting from the best local and international structures, experiences, and practices.

Recommendations

In light of the results of the study, the researchers recommend the following;

- Reconsider the design of courses and educational content at the university in accordance with technological developments and e-learning requirements, in line with the labor market and the culture, customs, and traditions of society.
- Pay attention to the infrastructure of technology, ensuring that all areas surrounding the university are covered by internet networks and increasing the speed of fixed and mobile broadband internet, which enables beneficiaries to upload and download files and applications in record time.
- Provide equal and fair opportunities for training and qualification for faculty members, ensuring their ability to master the ethics and skills of e-learning, while taking into account the appropriate time and timing for training during official working hours so as not to disrupt the educational process.
- Provide all types of support to the university leadership and e-learning management, enabling them to plan and implement the culture of transition to e-learning at the university, and to develop supporting and facilitating legal legislation for it.
- Study the impact of the transition to e-learning in university education on students' academic performance.

REFERENCES

Al-Ahnoumi A, & Al-Shami M. 2021. Hallenges of implementing e-learning environments in Yemeni universities in light of contemporary developments from the point of view of faculty members. *Al-Bayda University Journal,* 3(2), 413-432. https://doi.org/10.56807/buj.v3i2.162

Bibi Y., Dahleb F., & Abukhait R. 2024. E-Learning, an Emerging Trend in Education, The Concept, Importance, Benefits and Drawbacks. *International Journal of Research Publication and Reviews, 5*(2), 1694-1699. https://doi.org/10.55248/gengpi.5.0224.0513

European Commission. 2020. *Education and Training Monitor 2020.* Brussels: Publications Office of the European Union. https://doi.org/10.2766/917974

Frimpong R., Appiah V., Odoi-Lartey B., & Ebenezer K. 2024. E-Learning Model to Improve Students' Performance. *Innovative Systems Design and Engineering, 14*(1), pp. 9-15. https://doi.org/10.7176/ISDE/14-1-02

Gelvanovska N., Rogy M., & Rossotto C. 2023. *Publication: Broadband Networks in the Middle East and North Africa : Accelerating High-Speed Internet Access.* Washington: World Bank.

Imran M., Almusharraf N., Saim A., & Ismail M. 2024. Personalization of E-Learning: Future Trends, Opportunities, and Challenges. *International Journal of Interactive Mobile Technologies, 18*(10), 4-18. https://doi.org/10.3991/ijim.v18i10.47053

Maghriba F., Mugahed F., Al-Hadabi A., Al-Abdi M., Al-Sudi M., & Karshom A. 2020. E-learning requirements in Yemeni universities to confront the Corona pandemic from the point of view of professors and students at Amran University. *Journal of the Arabian Peninsula Center for Educational and Human Research, 1*(6), 1-25. https://doi.org/10.56793/pcra2213661

Maqbool M., Asif M., Imran M., Bibi S., & Almusharraf N. 2024. Emerging E-learning trends: A study of faculty perceptions and impact of collaborative techniques using fuzzy interface system. *Social Sciences & Humanities Open, 10*. https://doi.org/10.1016/j.ssaho.2024.101035

Mugahed F., Al-Abdi M., & Al-Makhdi S. 2024. Electronic marketing of university services in light of its trends in contemporary universities. *Scientific Journal of King Faisal University: Humanities and Administrative Sciences, 25*(1), 82-90. https://doi.org/10.37575/h/mng/230040

Peck, D. 2025, 1 3. *Top eLearning Trends: The Ultimate Guide in 2025*. Retrieved 1 5, 2025, from Devlin Peck: https://www.devlinpeck.com/content/elearning-trends

Pribilová K., & Beňo M. (2024). New Trends in E-learning and New Approaches to the Development of E-learning Educational Materials. *R&E-SOURCE*. 193-206. https://doi.org/10.53349/resource.2024.is1.a1255

Pujara, P. 2024, 5 16. Top Trends in eLearning Shaping the Future of Learning. Retrieved 11 7, 2024, from Elearning. Adobe: https://elearning.adobe.com/2024/05/top-trends-in-elearning-shaping-the-future-of-learning/

Schulz, M. 2023. E-Learning as a Development Tool. *Sustainability, 15*(20), 15012. https://doi.org/10.3390/su152015012

Selbyville, D. 2022, 9 1. *E-learning Market Trends 2023 - 2032, Global Report.* Retrieved 11 5, 2024, from Global Market Insights: https://www.gminsights.com/ar/industry-analysis/elearning-market-size

Shahzad R., Aslam M., Al-Otaibi S., Javed M., Khan A., Bahaj S., & Saba T. 2024. Multi-agent system for students cognitive assessment in E-learning environment. *IEEE Access, 12*, 15458-15467. https://doi.org/10.1109/ACCESS.2024.3356613

Shaker A., & Al-Saadi M. 2023. Digital transformation as a guarantee of the quality of education in Yemeni universities: (its reality, repercussions and mechanisms). *Journal of Humanities and Social Sciences, University of Aden, 4*(1), 48-60. https://doi.org/10.47372/ejua-hs.2023.1.233

SPEEDTEST. (2024, 11 1). *Yemen Median Country Speeds Updated*. Retrieved 12 20, 2024, from Speedtest: https://www.speedtest.net/global-index/yemen

TECHNAVIO. (2024, 5 1). *E-learning Market Analysis North America, Europe, APAC, South America, Middle East and Africa - US, China, India, Canada, UK - Size and Forecast 2024-2028*. Retrieved 11 7, 2024, from Technavio: https://www.technavio.com/report/e-learning-market-industry-analysis

Zhang Y., & Liu C. 2024. Unlocking the Potential of Artificial Intelligence in Fashion Design and E-Commerce Applications: The Case of Midjourney. *Journal of Theoretical and Applied Electronic Commerce Research,(19),*654-670. https://doi.org/10.3390/jtaer19010035

****