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Challenges and Opportunities of E-Learning for Libyan Universities: A Case Study of Wadi Alshatti University

Alsanossi Ahmed [1,*] ID, Emsaieb Geepalla [2] ID, Rabia Masoud [3] ID

[1]Computer Science Dept., Faculty of Sciences. Wadi Alshatti University, Brack, Libya
[2]Biomedical Engineering Dept., Faculty of Engineering, Wadi Alshatti University, Brack, Alshatti, Libya
[3]Electrical and Electronic Engineering Dept., Faculty of Engineering, Wadi Alshatti University, Brack, Libya

ABSTRACT

The reconstruction and development projects for educational institutions have led to partial and, in some cases, complete closures at the beginning of the 2024/2025 academic year. Creating exceptional circumstances that hindered the continuation of traditional education. Consequently, Wadi Alshatti University found itself facing a significant challenge: implementing remote education as an alternative solution. Some colleges within Wadi Alshatti University adopted e-learning through virtual classrooms as a primary educational system during this period. E-learning provides educational services that transcend the constraints of time and space imposed by traditional education, enabling all students to engage in learning 24/7 through virtual classrooms. However, the transition from traditional learning to e-learning is a complex task, as it encompasses cultural, organizational, and technical aspects for both universities and students. This research discusses the outcomes of the e-learning experience at Wadi Alshatti University for the academic year (2024–2025), examining the challenges faced by this experience, the lessons learned, and highlighting its advantages and disadvantages.

تحديات وفرص التعلم الإلكتروني للجامعات الليبية: دراسة حالة جامعة وادي الشاطئ

السنوسي محمد احمد 1، امسيب مصباح جيب الله 2، ربيع احمودة مسعود 3

الكلمات المفتاحية

التعليم الالكتروني
الفصول الافتراضية
التعليم الجامعي

الملخص

لقد فرضت مشاريع الاعمار والتطوير للمؤسسات التعليمية الاغلاق الجزئي والاغلاق التام في بعض الحالات خلال بداية العام الدراسي 2024/2025م مما خلق ظروف استثنائية حالت دون استمرار الدراسة بالشكل التقليدي. ومن هنا وجدت جامعة وادي الشاطئ نفسها أمام تحدي كبير وهو تطبيق التعليم عن بُعد كحل بديل. واعتمدت بعض كليات جامعة وادي الشاطئ التعليم الالكتروني بواسطة الفصول الافتراضية كنظام تعليمي اساسي خلال هذه الفترة. حيث يوفر التعليم الإلكتروني خدمات تعليمية تتجاوز قيود الزمان والمكان التي كانت مفروضة في التعليم التقليدي وذلك من خلال الفصول الافتراضية التي لها القدرة على دعم وتبسيط التعلم لجميع الطلاب 24/7. لكن التحول من التعلم التقليدي إلى التعلم الإلكتروني مهمة معقدة لأنها تشمل الجوانب الثقافية والتنظيمية والفنية للجامعات والطلاب على حد سواء. يناقش هذا البحث نتائج تجربة استخدام التعليم الإلكتروني في جامعة وادي الشاطئ للعام الدراسي (2024–2025) وذلك للوقوف على التحديات التي تواجهها التجربة والدروس المستفادة واظهار الميزات والعيوب.

Introduction

Over the past decade, interest in e-learning has rapidly grown in Libya universities for several reasons [1]. First, the need for remote education increased during the past years (the COVID-19 pandemic period), as educational institutions faced complete closures and were unable to continue providing traditional education to students. E-learning was proposed as a means to overcome this challenge.

E-learning is a method of education that utilizes modern communication mechanisms, including computers and their networks, as well as multimedia such as audio, video, graphics, search mechanisms, and electronic libraries. It also encompasses internet portals, whether remote or in the intended classroom [2, 3]. The primary goal is to leverage technology in all its forms to deliver information to learners in the shortest time, with the least effort, and the greatest benefit [4]. Learning occurs through computers and various software, whether on closed networks, shared networks, or the internet [5]. This constitutes an educational system for delivering educational or training programs to learners or trainees at any time and in any place, using interactive information and communication technologies such as the internet, intranet,

radio, local or satellite television channels, CDs, telephones, email, computers, and remote conferencing [2]. This aims to provide an interactive, multi-source learning environment, either synchronously in the classroom or asynchronously from a distance, without being tied to a specific location, relying on self-directed learning and interaction between the learner and the instructor [6].

E-learning has several objectives, the most important of which can be summarized as follows :

- Increasing the effectiveness of teachers and the number of students in classes [2].
- Assisting teachers in preparing educational materials for students and compensating for the lack of experience among some [7].
- Providing the educational package in its electronic form for both teachers and students, with ease of centralized updates by the curriculum development administration [7].
- Compensating for the shortage of academic and training staff in certain educational sectors through virtual classrooms, Saving significant amounts of time for students and staff, as opposed to traditional methods[8].
- Promoting technology in society and expanding the concept of continuous education [3].
- Offering supportive services in the educational process، such as early registration [4].
- Transforming the traditional concept of education to keep pace with scientific advancements and the knowledge revolution [2].
- Expanding the scope of the educational process while considering individual differences among learners16]].
- Supporting the professional development of teachers and administrative leaders [10].
- Utilizing available knowledge resources on the internet and employing email services as a means of communication [9].
- Enhancing self-directed learning skills and encouraging continuous education [7].
- Providing opportunities for a larger number of community members to access education and training [1].
- Overcoming barriers of time and space, such as transportation difficulties or challenges in agreeing on a common time and reducing the long-term cost of education [9].
- Optimally utilizing human and material resources to address the issue of rare specializations, in addition, accumulating experiences: training materials prepared by one institution are available to those interested, thereby reducing educational costs [4].
- Shifting the philosophy of education from group-based learning to individualized learning [13].
- Time, curriculum, and exercises depend on the level and skills of the student rather than on the group's average .
- Taking into account individual differences [14].

Literature Review

E-learning has gained significant traction in higher education, particularly in the context of universities, where it offers innovative solutions to traditional educational challenges. This literature review explores the various dimensions of e-learning, its effectiveness, challenges, and implications for university students.

- The Rise of E-Learning in Higher Education

The proliferation of information and communication technologies (ICT) has transformed educational landscapes globally. E-learning, defined as the use of electronic technologies to access educational curricula outside of a traditional classroom, has become an integral component of higher education [17]. The COVID-19 pandemic further accelerated this trend, forcing institutions to adopt online learning as a primary mode of instruction [16].

- Effectiveness of E-Learning

Research indicates that e-learning can enhance educational outcomes when implemented effectively. According to a meta-analysis by Zhang et al. [10], e-learning can lead to higher student performance compared to traditional face-to-face instruction. This is attributed to the flexibility and accessibility that e-learning provides, allowing students to learn at their own pace and revisit materials as needed [20].

Moreover, e-learning fosters a more engaging learning environment through interactive tools such as discussion forums, quizzes, and multimedia resources [13]. These elements not only facilitate deeper learning but also promote collaboration among students, which is essential for developing critical thinking and problem-solving skills [18].

- Challenges of E-Learning

Despite its advantages, e-learning presents several challenges. One significant issue is the digital divide, where disparities in access to technology can hinder equitable learning opportunities [11]. Students from low-income backgrounds may struggle to participate fully in e-learning environments due to a lack of reliable internet access or suitable devices [15]. Additionally, the effectiveness of e-learning heavily depends on students' self-regulation and motivation. Research by Artino 2008, suggests that students who lack intrinsic motivation may find it difficult to engage with online materials, leading to lower academic performance [21]. Furthermore, the absence of face-to-face interaction can result in feelings of isolation among students, impacting their overall learning experience [14].

Implications for Teaching and Learning

The adoption of e-learning in universities necessitates a rethinking of pedagogical approaches. Educators must be trained to design and facilitate online courses effectively, emphasizing active learning strategies that leverage technology [19]. Additionally, institutions should provide support systems to help students navigate the challenges of online learning, including technical assistance and academic advising [12].

E-learning has the potential to transform university education by providing flexible, accessible, and engaging learning experiences. However, it also poses challenges that must be addressed to ensure equitable access and effective learning outcomes. As universities continue to integrate e-learning into their curricula, ongoing research and adaptation will be essential to maximize its benefits for all students.

Research problem

During a relatively short period, specifically at the beginning of the 2024/2025 academic year, reconstruction projects imposed significant changes in teaching methods across Libyan universities, particularly at Wadi Alshatti University, due to maintenance and development needs. The closure of university housing for repairs and upgrades led to a shift from traditional teaching methods to e-learning and distance education, affecting nearly 50% of the total student body.

While the advancement in the use of modern educational tools in universities has numerous advantages, this significant transformation has also been accompanied by various challenges. Thus, the problem of this research emerges: what are the strengths and weaknesses in the implementation of e-learning in Libyan universities? This study aims to evaluate the

experience of Wadi Alshatti University.

Research Methods

The descriptive analytical approach will be the methodology adopted in this research, as it is a method that facilitates a comprehensive and extensive analysis of the research problem. This approach allows for a deep understanding of the various dimensions of the issue at hand and provides a structured framework for examining the complexities involved.

Research Divisions

The research will be organized into several key sections:

1. Studying Previous Experiences: This section will focus on analysing past implementations of e-learning, drawing lessons from successes and challenges encountered in other contexts.

2. Identifying Requirements: Here, we will outline the essential requirements that Libyan universities must fulfil to successfully implement e-learning initiatives.

3. Analytical Review of Results: This part will provide an analytical reading of the outcomes of e-learning implementation at Wadi Alshatti University, assessing its effectiveness and impact on the educational process.

Research Tools

To gather data for this study, a comprehensive survey has be utilized to capture the opinions of faculty members and students, who are the two primary stakeholders in the educational process.

1. Faculty Members

A questionnaire was designed and distributed to gather feedback from faculty members at Wadi Alshatti University regarding the e-learning process. The objective is to determine the effectiveness of e-learning and the success of this experience, as well as to identify the main challenges and difficulties faced by faculty during this transition. Recommendations will also be formulated based on the findings. A total of 80 faculty members from three different colleges participated in this survey. Additionally, a survey will be conducted to assess faculty opinions on the overall effectiveness of e-learning. Another questionnaire will focus specifically on faculty views regarding the effectiveness of electronic assessments.

2. Students

Separate questionnaire was distributed to both undergraduate and graduate students at the university to gather their insights on the methods and tools used for electronic teaching and assessment. This aims to identify the most user-friendly, effective, and high-quality teaching methods. A total of 134 students from three different colleges and various scientific departments participated in this survey.Furthermore, the survey conducted to evaluate students' opinions on the effectiveness of electronic assessments.

Result and Analysis

Estimating the Effectiveness of E-Learning from the Perspective of Faculty Members

In this section, we will review the results of the survey conducted to evaluate the effectiveness of e-learning from the perspective of faculty members. The findings as shown in table 1, indicate that 67% of the participants reported having excellent and high internet speed. However, approximately 1% experienced issues with internet coverage, which could negatively impact the e-learning experience.

Additionally, the survey revealed that 93% of faculty members own personal computers, facilitating their ability to engage in

online teaching.

Table 1: Faculty members & Student internet access.

	Internet speed	percentage			
		Excellent	High	Medium	Low
1	Staff	22%	45%	32%	1%
2	Students	10%	42%	46%	2%

Notably, 86% of the participating faculty members had prior experience with e-learning, as shown in figure 1, suggesting that most are well-equipped to navigate these systems. Furthermore, 96% of them reported having a good background in using email, which is a crucial tool for academic communication.
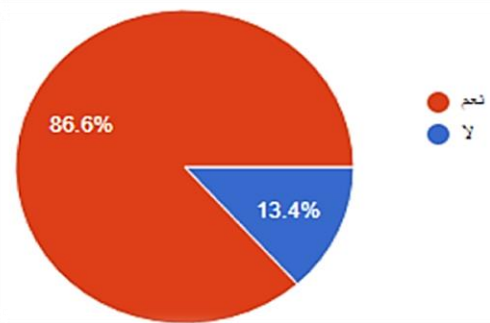

Fig. 1: The results of e-learning experience

Moreover, 53% of the participants preferred using virtual classrooms to interact with their students and disseminate course announcements, with about 84% having already utilized virtual classrooms in their teaching.

Regarding faculty satisfaction with students' understanding of lectures and their interaction via e-learning, around 43% expressed satisfaction. However, 50% of the participants were dissatisfied with the performance of the electronic service offices, indicating an urgent need for improvement in the technical support provided to faculty members.

Overall, 84% of participants expressed a desire to continue adopting e-learning even after the completion of development and maintenance projects, reflecting their openness to this mode of education.
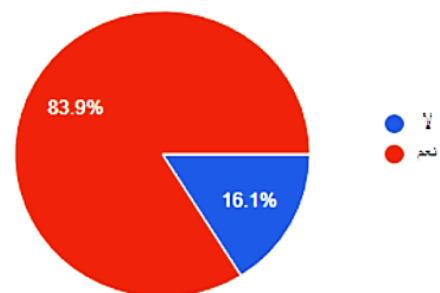

Fig. 2: The results of welling to continue adopting e-learning

Effectiveness of Electronic Assessment from the Perspective of Faculty Members

By examining the evaluation results of 67 faculty members from three colleges at Wadi Alshatti University, five methods of electronic assessment for students were analyzed: essay exams, portfolios, short automated quizzes, research projects, and online oral exams.

The results showed that the most preferred methods among faculty members, due to their ease of use, accuracy, and confidentiality, were portfolios and short automated quizzes. In contrast, oral exams and essay exams were the least favored methods among survey participants.

Estimating the Effectiveness of E-Learning from the Perspective of Perspective of Students

In this section, we will review the results of the survey conducted to evaluate the effectiveness of e-learning from the perspective of students. The findings indicate that 35% of the participants reported having excellent internet speed. However, approximately 20% experienced issues with internet coverage, which could negatively impact the e-learning experience. Additionally, the survey revealed that 47% of them own personal computers, and 86% have smart phone facilitating their ability to engage in online teaching.

Notably, 41% of the participating students had prior experience with e-learning, suggesting that most are well-equipped to navigate these systems. Furthermore, 95% of them reported having a good background in using email, which is a crucial tool for academic communication. Moreover, 45% of the participants preferred using virtual classrooms to interact with their lecturer and disseminate course announcements, with about 40% having already utilized virtual classrooms in their teaching. However, 27% suggested Telegram App as tool for e-learning.
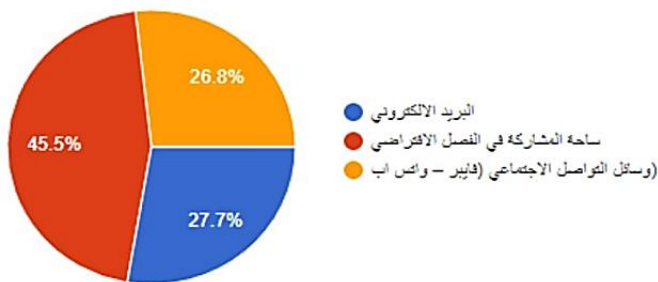

Fig. 3: Methods of e-learning adopting

Overall, 65% of participants expressed a desire to continue adopting e-learning even after the completion of development and maintenance projects, reflecting their openness to this mode of education.

Effectiveness of Electronic Assessment from the Perspective of Students

When reviewing the evaluation results from students participating in this survey, it is evident that their preferred methods were also portfolios and short quizzes, followed by research projects. Furthermore, comments added by students at the end of the survey indicated that some methods and tools were deemed unsuitable and ineffective, as they require students to be synchronous with the instructor, which many students find impossible due to the lack of fast internet access.

The findings suggest that while e-learning presents significant opportunities, it faces challenges related to internet infrastructure and technical support. Addressing these issues is crucial to ensure the maximum benefit from this modern educational system. Enhancing internet coverage and improving the efficiency of technical support services could lead to a more effective and satisfying e-learning experience for both faculty and students.

Conclusions

E-learning is considered a modern educational approach that is rapidly evolving alongside advancements in communication and information technologies. It represents a comprehensive educational system that leverages these technologies to deliver knowledge and skills to learners, thereby liberating the educational process from the constraints of time and place. However, education in an electronic environment has specific standards and criteria that depend on identifying the needs of learners and the requirements of the educational material before selecting the appropriate type of electronic educational medium.

From this perspective, this paper examines the strengths and weaknesses of the Wadi Alshatti University experience in implementing e-learning. The aim is to develop recommendations for enhancing and maximizing the benefits of e-learning. By analyzing the current practices and identifying areas for improvement, this study seeks to contribute to the ongoing discourse on effective e-learning strategies and their potential impact on educational outcomes.

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Questionnaire A, B: to Survey Students and Faculty Members' Opinions on the Effectiveness of E-Learning in General.

Question 1: What type of internet connection do you use?

Question 2: Do you have any issues with your internet subscription?

Question 3: Do you own a personal computer?

Question 4: Do you have previous experience in e-learning?

Question 5: Were you aware that you have an email provided by the university, and have you used it before?

Question 6: What is your preferred method of communication with Students / Lecturer?

Question 7: Which of the following methods do you use to post course announcements? (Email - Virtual Classroom - Social Media)

Question 8: Which of the following methods do you use to share course content and files? (Email - Virtual Classroom - Social Media)

Question 9: How satisfied are you with students' understanding and absorption of the lectures and their benefits?

Question 10: How satisfied are you with Lecturer / Students' interaction with faculty members?

Question 11: How satisfied are you with the methods of assessing electronically?

Question 12: How satisfied are you with the technical support provided by the e-services department?

Question 13: After the current circumstances, would you like to continue your lectures been delivered through e-learning along with traditional education?

Questionnaire C: to Survey Faculty Members' Opinions on the Effectiveness of Electronic Assessment

Question 1: Do you prefer to use essay exams for assessing students electronically from a distance?

Question 2: Do you prefer to use portfolios (assignments and tasks) for assessing students electronically from a distance?

Question 3: Do you prefer to use automated short exams (multiple choice) for assessing students electronically from a distance?

Question 4: Do you prefer to use research projects for assessing students electronically from a distance?

Question 5: Do you prefer to use online oral exams for assessing students electronically from a distance?

Questionnaire D: to Survey Students' Opinions on the Effectiveness of Electronic Assessment

Question 1: Do you prefer the course instructor to use essay exams for assessing students electronically from a distance?

Question 2: Do you prefer the course instructor to use portfolios (assignments and tasks) for assessing students electronically from a distance?

Question 3: Do you prefer the course instructor to use automated short exams (multiple choice) for assessing students electronically from a distance?

Question 4: Do you prefer the course instructor to use research projects for assessing students electronically from a distance?

Question 5: Do you prefer the course instructor to use online oral exams for assessing students electronically from a distance.