



Research Article

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Received: 7 June 2023 / Accepted: 23 August 2023 / Published: 5 September 2023

## The Impact of E-Learning on the Learning Motivation of Jordanian University Students

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DOI: <https://doi.org/10.36941/jesr-2023-0139>

### Abstract

The main objective of this study was to assess the effects of e-learning on the motivation and academic success of Jordanian university students from different disciplines, especially during the COVID-19 pandemic era. The research further delved into understanding the role of e-learning tools, strategies, and teacher-student interactions in influencing these outcomes. The study explored the effects of e-learning on students' motivation across various disciplines. It sought to discern how e-learning strategies and teacher-student interactions affect students' enthusiasm and academic success. A questionnaire was electronically disseminated to 244 students from multiple Jordanian university faculties. Results indicated that e-learning positively influenced students' motivation. The convenience and easy access to resources were reasons students preferred e-learning. It also offered them self-learning avenues, enabling them to develop crucial skills and expand their viewpoints. The diverse educational techniques in e-learning further boosted their eagerness to learn. The study also found that e-learning supported consistent lesson engagement and boosted academic performance. The flexibility of studying at preferred locations elevated their overall results. Effective teacher-student communication emerged as pivotal for e-learning's success. Interactions with instructors during this phase had a favorable effect on their motivation and academic results. The study identified the compelling delivery of content and captivating teaching techniques as primary motivators. Consequently, a key recommendation is to emphasize creating and using interactive e-learning resources and activities, including multimedia, interactive tests, gamification, and group tasks. Such interactive methods can maintain student engagement, support autonomous learning, and nurture a communal spirit in the digital learning space.

**Keywords:** E-learning, Learning motivation, Academic achievement, Teacher-student communication, Interactive learning

## 1. Introduction

The real renaissance of any country does not come without a clear educational renaissance. A good education is a strong investment and a major reason for the prosperity of any country, especially at present. Moreover, given the scientific and technological development in various fields of life due to the technological revolution that occurred during the twenty-first century, all countries are keen to develop the education sector and use various methods (Ryu, 2014). Due to technological development, countries have begun to think of ways to exploit it in the educational sector through several methods and multiple programs, including the combination of face-to-face education and e-learning (Abu Musa and Al-Sous, 2010). With the spread of the coronavirus in the country and the disruption that occurred because of it, the need to make optimal use of modern technology in education appeared, which led to a wider spread of e-learning than before (Afifi, 2004).

Due to the significant development in technologies and modern means of communication, e-learning has become widely popular and has given rise to new methods with great effectiveness (Voogt et al., 2013; Al-Berjawi, 2014). E-learning offers many advantages over traditional educational methods, including the freedom to learn at a time and place that suit the individual, the ability to self-learn, and the promotion of critical thinking and innovation. As a result, e-learning is considered an effective educational method that has witnessed great development in many countries and disciplines.

E-learning is a purposeful and effective means of obtaining knowledge and information, and its importance has been further highlighted during the COVID-19 pandemic when it became a necessary tool to complete disrupted education (Al-Alimi, 2021). However, despite its many benefits, e-learning faces obstacles such as the financial cost of setting up educational platforms and designing lessons, the lack of sufficient skills among educators, and the need for continuous training on modern technologies (Bali moune-Lutz, 2003; Daugherty & Funke, 2007). In addition, proper infrastructure foundations are necessary for all parties to effectively engage in the educational process (Barrow et al., 2009).

The impact of e-learning on the learning motivation of Jordanian university students has become an increasingly relevant and significant topic in recent years. As technological advancements continue to shape the educational landscape, the integration of e-learning platforms and tools has gained prominence. E-learning refers to the use of electronic technologies to facilitate learning and knowledge acquisition, providing students with flexible access to educational resources and interactive learning experiences.

Studies have indicated that e-learning has a positive influence on the learning motivation of Jordanian university students. Al-Fraihat et al. (2019) found that e-learning platforms enhance student motivation by offering engaging and interactive learning materials, personalized learning experiences, and opportunities for active participation. These features contribute to increased student motivation as they promote self-directed learning, autonomy, and a sense of ownership over the learning process.

Moreover, the convenience and flexibility of e-learning have been identified as key factors in enhancing student motivation. As Jordanian university students often face time constraints and other commitments, e-learning provides them with the flexibility to access course materials and engage in learning activities at their own pace and convenience (Al-Sharhan et al., 2020). This accessibility allows students to take control of their learning, leading to increased motivation and engagement.

Additionally, the integration of multimedia and interactive elements in e-learning courses has been shown to positively influence student motivation. Virtual simulations, multimedia presentations, and gamified learning experiences enhance student engagement and motivation by making the learning process more enjoyable and interactive (Bawaneh, 2020). These elements stimulate students' curiosity and foster a positive learning environment, ultimately motivating them to actively participate in the learning process.

In conclusion, the impact of e-learning on the learning motivation of Jordanian university

students is a growing area of interest. E-learning platforms offer various features and benefits that enhance student motivation, such as personalized learning experiences, flexibility, and interactive multimedia content. By understanding and leveraging these trends, educators and institutions can harness the potential of e-learning to promote and sustain students' motivation, ultimately enhancing their overall learning outcomes.

## 2. The Problem Statement

Considering the difficult circumstances that the world went through during the Corona pandemic, which affected various sectors of life, the most important of which is the education sector, it was necessary to find an alternative plan of action to continue various activities. From this perspective, the Ministry of Higher Education transformed the form of education from face-to-face to e-learning. The primary aim of this step was to prioritize the health and safety of students and workers in the educational sector while ensuring that students could continue their lessons and education without interruption.

Given the significant shift to e-learning because of the pandemic, it is crucial to examine the impact of this educational approach on the motivation of Jordanian university students from various academic disciplines. Understanding how e-learning influences students' motivation is essential for educators and policymakers to effectively support and enhance the learning experience in the current educational landscape. By investigating the relationship between e-learning and motivation, this study aims to shed light on the specific factors and mechanisms through which e-learning affects the motivation of Jordanian university students.

By examining the impact of e-learning on motivation within the Jordanian context, this study will provide valuable insights into the effectiveness and implications of this educational approach in a challenging and unprecedented time.

## 3. The Objectives

1. The study intends to address the following objectives:
2. To assess the availability of e-learning resources for students at Jordanian universities.
3. To evaluate the impact of e-learning on students' motivation towards learning in Jordanian universities, particularly considering the COVID-19 pandemic.
4. To determine the extent of the benefits of e-learning for both teachers and students and how it can be optimized.

## 4. The Study Questions

The study questions are defined in the following questions:

1. What are the effects of diversity in the use of e-learning methods on the motivation of students in Jordanian universities from various disciplines?
2. Have students' academic achievements increased through e-learning, and has their performance improved?
3. What is the extent of the impact of communication between teachers and their students during e-learning and the impact of the e-learning environment on students' motivation towards learning?

## 5. The Study Scope and Limitations

The scope and limitations of the study.

1. Geographic Scope: The study focuses on Jordanian university students.
2. E-Learning Platforms: Various types of e-learning platforms and tools used in Jordanian

universities will be considered.

3. Academic Disciplines: Students from various academic disciplines will be included in the study.

The Limitations as follows:

1. Objective Limits: The study specifically investigates the impact of e-learning on the learning motivation of Jordanian university students.
2. Spatial Boundaries: The research is limited to Jordanian universities.
3. Temporal Limits: Data collection was conducted during the first semester of the 2022–2023 academic year.
4. Human Limits: The study includes only Jordanian university students as participants.

### 5.1 *The significance of the study*

- **Enhancing Educational Practices:** The findings of this research will provide valuable insights for educators, policymakers, and institutions in Jordan to enhance their educational practices. Understanding how e-learning influences learning motivation can guide the development and improvement of e-learning strategies, pedagogical approaches, and instructional design in Jordanian universities (Al-Fraihat et al., 2019).
- **Student Engagement and Success:** By examining the impact of e-learning on learning motivation, the study aims to identify factors and mechanisms that promote student engagement and success. These insights can inform the design of effective e-learning interventions and support systems tailored to the needs of Jordanian university students, ultimately leading to improved learning outcomes (Bawaneh, 2020).
- **Policy and Decision-Making:** The research outcomes can serve as evidence-based guidance for policymakers in Jordan's higher education sector. Policymakers can utilize the findings to develop policies that promote and support the effective integration of e-learning, ensuring its alignment with the needs and aspirations of Jordanian university students (Al-Sharhan et al., 2020).
- **Addressing Challenges and Opportunities:** The study's findings can shed light on the specific challenges and opportunities associated with e-learning in Jordanian universities. This understanding can help institutions identify and address barriers to effective e-learning implementation, such as infrastructure limitations or faculty development needs, while harnessing the full potential of e-learning to enhance student learning experiences (Al-Fraihat et al., 2019).
- **Building a Knowledge Base:** This study contributes to the existing body of knowledge on e-learning and learning motivation in the Jordanian context. It adds to the limited literature specific to Jordanian university students, providing insights and empirical evidence that can stimulate further research and scholarship in this area (Afifi, 2004).
- The study, "The Impact of E-Learning on the Learning Motivation of Jordanian University Students," offers crucial insights into how e-learning influences motivation within Jordan's higher education framework. Its findings present several pivotal implications and advantages for the domain.

### 5.2 *The definition of key terms*

To better align the discussion with the study, here are some key definitions that are directly related to the research paper titled "The Impact of E-Learning on the Learning Motivation of Jordanian University Students."

1. **E-Learning:** E-learning, or electronic learning, refers to the utilization of digital tools and media to create, deliver, and facilitate learning anytime and anywhere. E-learning

encompasses a wide range of applications and processes, including web-based learning, virtual classrooms, and digital collaboration (Ally, 2004).

2. **Learning Motivation:** Learning motivation is the desire, drive, or need that energizes learning behaviors. It refers to the reasons or goals that underlie achievement or goal-oriented behaviors (Pintrich & Schunk, 2002).
3. **Jordanian University Students:** This term refers to students currently enrolled in a higher education institution in the Hashemite Kingdom of Jordan. The context and variables surrounding these students may be unique due to cultural, political, and socio-economic factors.
4. **Motivation** is the direction through which each stimulus and the response to it are linked to achieving a specific learning or purpose, and it is also a term that expresses the individual's desire to learn and benefit from the existing resources.
5. **Elements of E-learning:** E-learning hinges on several core components, including the internet, a teacher, and suitable educational content. The internet serves as a conduit facilitating communication and interaction among teachers, students, and the learning material, thus ensuring effective content delivery and comprehension in a virtual space. A teacher's guidance and educational materials, serving as the cornerstone of the lessons, are also essential in this paradigm (Al-Dulaimi, 2010).

## 6. Theoretical Framework

### 6.1 Background and overview

The concept of e-learning was first introduced in the 19th century, originating in Germany through the innovative ideas of Charles Toussaint and Gustav Langenscheidt. They planned and designed a school for distance learning based on correspondence, marking the beginning of this educational revolution. By 1874, the United States had begun developing teaching curricula by correspondence, which led to the global expansion of distance learning. The use of computer networks in e-learning started in the United States in the 1980s, leading to the wide-spread adoption of computer technology for educational purposes and in the work environment (Afifi, 2004).

In the face of the explosion of knowledge and rapid technological revolution, educational institutions worldwide are urged to promote the integration of technology into university and school education and to strive towards the eradication of technological illiteracy, which has become a developmental requirement in the current era (Singh et al., 2016; Ryu, 2014).

The primary objectives of distance learning include providing opportunities to study and continue learning for individuals unable to attend traditional education due to various circumstances. Distance learning allows these individuals to learn at their own pace, time, and place. It also improves intellectual, cultural, and scientific levels in society, provides new educational resources, helps reduce individual differences among learners, and aids working individuals wishing to continue their education without interrupting their work schedules (Barrow et al., 2009).

However, e-learning faces many challenges. Both human and material elements and infrastructure must be in place to realize the full benefits of e-learning (Barrow et al., 2009). The absence of these requirements can create a psychological barrier towards this type of learning, resulting in a reluctance to use it (Al-Fraihat et al., 2020).

E-learning has also become an increasingly popular method of delivering education due to its many advantages, such as flexibility, convenience, and cost-effectiveness (Al-Fraihat et al., 2020; Dziuban et al., 2018; Voogt et al., 2013). The COVID-19 pandemic has further accelerated the adoption of e-learning worldwide, including in Jordanian universities (Al-Alimi, 2021; Al-Balas & Al-Balas, 2020).

One of the main factors affecting the effectiveness of e-learning is motivation. Motivation is a critical component of the learning process as it drives learners to engage actively and persistently in

learning activities (Deci & Ryan, 2008; Pintrich & Schunk, 2002). E-learning can affect students' motivation through several mechanisms, such as personalized learning, self-directed learning, and gamification (Chen et al., 2017; Kim et al., 2017; Lee, 2018).

The Self-Determination Theory (SDT) provides a framework for understanding how motivation works in the context of e-learning. According to SDT, relatedness, competence, and autonomy are the three fundamental psychological needs that influence motivation (Deci & Ryan, 2008). Autonomy refers to the sense of control and choice in learning activities; competence refers to the sense of mastery and progress in learning; and relatedness refers to the sense of connection and belongingness with teachers and peers in the learning environment.

In the context of e-learning, autonomy can be enhanced by providing learners with choices and control over their learning activities (Chen et al., 2017). Competence can be promoted by providing learners with feedback on their progress and performance (Dziuban et al., 2018). Relatedness can be fostered by creating a supportive and collaborative learning environment that encourages interaction and socialization among learners (Lee, 2018).

Several studies have investigated the impact of e-learning on students' motivation towards learning in Jordanian universities. For example, Al-Balas and Al-Balas (2020) found that e-learning has a positive effect on students' motivation and satisfaction with the learning experience. Similarly, Al-Fraihat et al. (2020) found that e-learning can enhance students' engagement and motivation, particularly when the learning materials are designed to be interactive and engaging.

In summary, the theoretical framework for this study is based on the Self-Determination Theory, which posits that motivation is influenced by the needs for autonomy, competence, and relatedness. E-learning can affect students' motivation through personalized learning, self-directed learning, and gamification. The impact of e-learning on students' motivation in Jordanian universities has been studied, and the findings suggest that e-learning can enhance students' motivation and engagement.

## 6.2 The present state of E-learning in the Hashemite Kingdom of Jordan:

The Hashemite Kingdom of Jordan has experienced significant growth in e-learning in recent years, particularly in response to the COVID-19 pandemic (Al-Alimi, 2021). Jordanian universities have increasingly adopted e-learning as a means of delivering education, offering students greater flexibility and accessibility to educational materials (Al-Balas & Al-Balas, 2020). Although e-learning has been well received by students, challenges remain in ensuring the availability of adequate resources and training for educators to effectively deliver e-learning (Al-Fraihat et al., 2020; Balamoune-Lutz, 2003). Furthermore, there is a need for greater investment in infrastructure to support e-learning in Jordanian universities, particularly in remote and underserved areas (Barrow et al., 2009). Despite these challenges, the current situation of e-learning in the Hashemite Kingdom of Jordan is one of growth and increasing adoption, with the potential to transform the delivery of education in the country.

## 7. Literature Review

Al-Emran, Mezhuyev, and Kamaludin (2020) conducted a mixed-methods study to explore the impact of peer feedback on the learning motivation of Jordanian university students in online collaborative learning environments. The study included 60 university students who were enrolled in an online collaborative learning course. Data were collected using a questionnaire to measure student motivation and engagement, and interviews were conducted to gather qualitative data. The results of the study showed that peer feedback had a positive impact on student motivation and engagement in online collaborative learning environments. Students reported that peer feedback improved their understanding of course material, enhanced their critical thinking skills, and increased their motivation to participate in online discussions. Based on their findings, Al-Emran et al. (2020)

recommended that educational institutions should encourage peer feedback as a means to enhance student motivation and engagement in online collaborative learning environments.

Zhou and Wang (2020) conducted a cross-sectional survey to examine the impact of social media on the learning motivation of Jordanian university students in online courses. The study included 150 university students who were enrolled in online courses. Data were collected using a questionnaire to measure student motivation, engagement, and social media use. The results of the study showed that social media use had a positive impact on student motivation and engagement in online courses. Students who used social media for educational purposes reported higher levels of motivation and engagement compared to those who did not use social media for educational purposes. Based on their findings, Zhou and Wang (2020) recommended that educational institutions should encourage the use of social media for educational purposes and provide guidance to students on how to effectively use social media to enhance their learning experience.

Al-Harbi (2020) conducted a study on the effect of E-learning on the motivation of university students in Saudi Arabia. The researcher found a positive correlation between the use of E-learning platforms and increased student motivation. Al-Harbi also found that well-structured online materials significantly enhanced student engagement.

Ibrahim and Al-Khasawneh's (2020) study in Jordan explored the perspective of university students on the shift to E-learning due to the COVID-19 pandemic. The findings indicated that students generally appreciated the flexibility offered by online learning but also reported technical difficulties and challenges in maintaining self-discipline.

Alqurashi (2021) conducted a quasi-experimental study to investigate the impact of synchronous vs. asynchronous e-learning methods on the learning motivation of Jordanian university students. The study included 120 university students who were randomly assigned to either a synchronous or asynchronous e-learning course. Data were collected using a questionnaire to measure student motivation. The results of the study showed that students in the synchronous e-learning group had higher motivation levels compared to those in the asynchronous e-learning group. The synchronous e-learning group also reported higher engagement and interaction with the instructor and other students. Based on the findings, Alqurashi (2021) recommended that educational institutions consider using synchronous e-learning methods to enhance student motivation and engagement in online courses, especially during the COVID-19 pandemic.

Al-Alimi (2021) examined teachers' attitudes towards distance learning and its influence on student motivation. The study revealed that teachers' attitudes towards distance learning significantly impacted students' learning motivation.

Al-Samarraie and Saeed (2021) conducted a study on the impact of E-learning platforms on the learning motivation of undergraduate students in Iraq. The results indicated that the interactive features of these platforms significantly enhanced the students' motivation to learn.

Al-Tarawneh (2021) studied the effectiveness of E-learning platforms in enhancing the academic performance of university students in Jordan. The study found a positive impact on the students' grades, attributing the improvement to the availability and accessibility of learning resources online.

In a comprehensive review, Singh and Thurman (2021) assessed the effects of E-learning on the motivation of university students worldwide. Their analysis found that well-designed E-learning environments significantly improve student motivation, particularly when they foster interaction and feedback.

Alzubi (2022) conducted a quasi-experimental study to investigate the impact of personalized learning on the learning motivation of Jordanian university students in online courses. The study included 100 university students who were randomly assigned to either a personalized or non-personalized online course. Data were collected using a questionnaire to measure student motivation and engagement. The results of the study showed that personalized learning had a positive impact on student motivation and engagement in online courses. The personalized learning group reported higher levels of motivation, engagement, and satisfaction with the course content and instructional design. Based on the findings, Alzubi (2022) recommended that educational institutions use

personalized learning strategies, such as adaptive learning technologies and individualized feedback, to enhance student motivation and engagement in online courses.

Al-Busaidi and Al-Shihi (2022) examined the attitudes and perceptions of Omani university students towards E-learning. The results indicated a positive perception of E-learning, with students appreciating its convenience and flexibility. However, the study also pointed out the need for better internet infrastructure and technical support.

Abdulghani et al. (2022) explored the readiness of medical students in Saudi Arabia to engage in E-learning. The study found that while students were willing to embrace online learning, they faced challenges related to a lack of technical skills and concerns over the lack of face-to-face interaction.

Baniabdelrahman's (2022) study on Jordanian university students examined their readiness to adopt E-learning during the COVID-19 pandemic. The findings showed that while students had positive attitudes towards online learning, there were issues related to internet access and the quality of online instruction.

In Al-Muhanna's study (2023), the attitudes of university students and their interaction with distance education were examined. Using a descriptive survey method, the study found that students, including a sample of 335 students from various Saudi and other Arabic universities, engaged considerably with distance education.

Lastly, Al-Qarni and Fallatah (2023) investigated the application of e-learning strategies via digital platforms during the COVID-19 pandemic from teachers' perspectives. The results indicated a low level of e-learning strategy implementation from the teachers' standpoint. Recommendations included providing training courses for teachers and students and establishing expert teams to bolster this domain.

Aslan (2023) conducted a randomized controlled trial to examine the impact of gamification techniques on the learning motivation of Jordanian university students in e-learning environments. The study included 80 university students who were assigned to either a gamified or non-gamified e-learning course. Data were collected using a survey to measure student motivation and engagement. The results of the study showed that gamification techniques had a positive impact on student motivation and engagement in e-learning environments. The gamified group reported higher levels of motivation, engagement, and satisfaction with the course content and instructional design. Based on the findings, Aslan (2023) recommended that educational institutions consider incorporating gamification techniques into e-learning courses to enhance student motivation and engagement.

In conclusion, the studies reviewed herein suggest that E-learning has a significant impact on student motivation. Various factors, such as the structure of online materials, the interactive features of the E-learning platforms, and the role of the instructor, can enhance student motivation. However, technical difficulties, a lack of self-discipline, and the quality of online instruction also emerged as key challenges. Overall, it appears that while students appreciate the flexibility of E-learning, there are considerable challenges that need to be addressed to maximize its benefits. Upon comprehensive examination of previous research, it is evident that the majority indicate a positive impact of E-learning on student learning efficacy and achievement. E-learning represents a significant advancement, introducing a new paradigm that enhances students' learning motivation, facilitates skill acquisition, boosts interaction and communication, encourages concentration on utilization, and benefits from modern technological applications as a learning medium. These studies underscore the significance of E-learning as an advanced pedagogical method and an effective solution, particularly in challenging circumstances such as the COVID-19 pandemic. Consequently, E-learning has demonstrated its effective impact and multiple positive aspects in enhancing the learning experience.

## 8. Research Methodology

The present study falls within the realm of descriptive survey-correlational research. To meet the study objectives, which include the creation and electronic dissemination of a questionnaire to



instructors and students in Jordanian universities, a descriptive survey approach was adopted. In this section, we will talk about the methodology as follows:

### 9. Study Population and Sample

The study population comprised of students enrolled in various Jordanian universities, pursuing either bachelor's or diploma degrees across diverse academic disciplines. The total study population encompassed 244 students from assorted colleges. A cluster random method was utilized to select the study sample.

**Table 1:** Gender Distribution Across Diverse University Majors

Variable	Level	Number	Percentage
Gender	Male	122	%50
	Female	122	%50

The results in Table 1 indicate that half of the sample are males, and the other half are females from various university majors.

- **Study Instrument**

The instrument utilized in this study was an electronic questionnaire, encompassing 20 diverse items. Respondents were provided with five response options, ranging from "strongly agree" to "strongly disagree."

- **Instrument Validity**

To ensure validity, the questionnaire was presented to eight arbitrators affiliated with the Ministry of Higher Education. Their expertise was leveraged to ensure logical and linguistic validity of the items. As a result, four items were modified for clarity, and the instrument was digitized to facilitate straightforward responses. A five-point Likert scale was employed, offering options from "strongly agree" to "strongly disagree."

- **Instrument Reliability**

Cronbach's Alpha coefficient was employed to ascertain the reliability of the questionnaire, by calculating the internal consistency coefficient, which stood at 0.82. These values indicate an acceptable level of reliability for the study instrument, as they surpass the minimum threshold for the reliability coefficient.

- **Statistical Methods**

Throughout the course of the study, the SPSS25 statistical program was leveraged for data analysis. Additionally, the arithmetic mean and percentage for each item and the total arithmetic mean for each axis of study were computed.

### 10. Results

In response to the first research question, "What are the impacts of the variety in e-learning methodologies on student motivation across different disciplines in Jordanian universities?" The study scrutinized the responses of the sample concerning the effects of diversified e-learning approaches on student motivation. The responses for each item were evaluated separately, with their respective percentages illustrated in Table 2.

**Table 2:** Percentile Distribution of Sample Responses Regarding the Impact of Diverse E-learning Approaches on Student Motivation

Question	Percentage	Rank
E-learning contributed to the understanding of scientific materials clearly and smoothly.	%62.8	6
E-learning uses a variety of methods and methods of teaching.	%73.7	5
E-learning contributes to giving students exploration opportunities in multiple important skills.	%74.9	4
E-learning provides students with the opportunity for self-learning.	%77	2
Students prefer e-learning because it enabled them to access educational material at any time and from anywhere.	%84.8	1
E-learning provides opportunities for students from various disciplines to learn new skills.	%75	3
Average overall ratios	%74.7	

As depicted in Table 2, students exhibited a preference for e-learning, attributing this to the convenience of accessing educational materials anytime, anywhere. As a result, the average score of 3.47 indicates that there is no longer a need for physical libraries or classrooms to obtain educational resources. A significant 77% of students underscored that e-learning promotes self-learning opportunities, enhancing their capacity to acquire new essential skills and broadening their perspectives on sourcing information from reliable outlets. With an average score of 3.06, 74.9% of the students agreed with this. Moreover, 73.7% of students acknowledged the positive impact of the variety of educational methods used in e-learning on their learning motivation. The total average score for this dimension stood at 3.056, a high value indicating the positive impacts and advantages of e-learning for students.

The second research question asks, "Has e-learning enhanced students' academic achievement and improved their performance?"

To answer the question, the response of the sample monitored the increase in the academic achievement of students while they followed the e-learning, according to the percentages for each question separately, as shown in Table 3:

**Table 3:** Question, Percentage, and Rank Distribution Analysis

Question	Percentage	Rank
Training students to use e-learning and dealing with it is easy to use by students.	%82.7	3
Students feel comfortable while receiving electronic lessons.	%68	8
E-learning makes it easier for students to follow their lessons under difficult circumstances, such as weather conditions in the winter season.	%88.1	1
E-learning helps students improve their academic achievement because of their greater self-reliance in searching for information.	%80	5
One of the student's motivations for E-learning is the ease of dealing with it and obtaining information.	%75.1	6
E-learning allows the student to study the specialization he/she wants in any university or college, regardless of its location and distance from it.	%87	2
Increasing communication skills among students through their interaction in electronic classrooms.	%71	7
Students accept E-learning because it is financially more economical than traditional education.	%82.2	4

Table 3 presents the percentage distribution of the sample's responses regarding the enhancement of students' academic achievement and performance improvement through e-learning. According to the data, a notable 88.1% of respondents agreed that e-learning has facilitated lesson-following, particularly under challenging circumstances, and this has consequently led to improvements in their

academic achievement. This advancement positively affects students' learning motivation, as corroborated by 87% of the sample. These respondents emphasized one of the most compelling incentives for students' preference for e-learning: the freedom to study wherever they prefer, which further enhances their academic performance. The least pronounced percentage at this stage, 68% of respondents, expressed their comfort in engaging with online lessons.

Addressing the third research question, "What is the extent of the impact of communication between teachers and their students during e-learning on students' motivation towards learning, and what effect does the e-learning environment have on them?"

To respond to this query, we surveyed the sample's feedback regarding the influence of the E-learning environment and teacher-student communication on their motivation to learn. The ensuing table illustrates the corresponding percentages:

**Table 4:** Question, Percentage, and Rank Distribution Analysis

Question	Percentage	Rank
Continuous communication between students and their teachers during E-learning contributes to its success.	%81	2
Smooth transition from face-to-face education to E-learning.	%64	5
Teachers have sufficient skills to deliver educational content effectively.	%77.4	3
Many students accepted education after it became electronic, thanks to the advantages it provided to students.	%87	1
Students interact with the E-learning system continuously.	%70	4

Table (4) delineates the proportions of the sample's responses regarding the influence of the e-learning environment and teacher-student communication on student motivation to learn.

A noteworthy observation from the table above is that the sample affirmed that their engagement with teachers during the e-learning phase had a salutary effect on their learning motivation, which, in turn, demonstrated encouraging results in enhancing their academic performance. According to their academic outcomes, which had an average score of 3.31, as many as 81% of students claimed that interaction with instructors plays a significant role in the success of e-learning. A majority, 87% (with an average score of 3.56), accentuated the merits of e-learning and its role in fostering student learning motivation, thereby attracting considerable student participation. Furthermore, instructors possessing adequate skills to deliver educational content engagingly were recognized as a key factor in augmenting student learning motivation, as corroborated by 77.4% of the sample. In the end, the overall mean score for this axis was calculated to be 3.104, which shows and confirms that teacher-student communication has a big impact on improving the e-learning process and making sure its goals are met best, as shown by the sample.

## 11. Discussion

In answering the first research question about the impacts of diversity in e-learning methods on student motivation, the present study found an average score of 74.4%, as per Table 2. This score indicates the significant effect of diversified e-learning approaches on student motivation in Jordanian universities. In a similar vein, a study by Abuhassna and Yahaya (2022) reported increased student engagement and motivation in e-learning environments, underscoring the critical need for a more diverse range of pedagogical methods in e-learning. Our findings align with this precedent and further emphasize the need to increase the current average by employing more innovative and efficient teaching methods (Johnson, 2007; Al-Qarni & Fallatah, 2023).

For the second research question relating to the enhancement of students' academic achievement and performance improvement through e-learning, the current study found a high overall average score. These findings align well with those of Ali and Nordin (2022), who documented

a positive correlation between e-learning and academic success. Further, our results support the study by Baker and Yacef (2022), which highlighted the potential of personalized learning to improve student performance. In agreement with these studies, we conclude that e-learning has improved students' academic achievement, facilitating students receiving education in any place and under any circumstances (Voogt et al., 2013; Al-Muhanna, 2023; Johnson, 2007).

In addressing the third question about the influence of teacher-student communication during e-learning on student motivation, we found that continuous interaction between the teacher and student positively impacts students' motivation. An impressive 81% of the sample agreed that communication with instructors significantly contributed to the success of e-learning, thereby amplifying student motivation. In parallel, Al-Jarrah and Al-Azzam's (2023) investigation uncovered the pivotal role of e-learning in promoting self-directed learning, while Khatab, Kabbani, and Aljarrah (2023) found that students engaged more deeply with course content in e-learning environments, thereby enhancing their motivation. Our results are consistent with these studies, emphasizing the importance of effective teacher-student communication and a supportive e-learning environment in fostering student motivation (Al-Barbari, 2012).

## 12. Study Conclusion

The study examined the impacts of diverse e-learning methodologies on student motivation, academic achievement, and teacher-student communication in Jordanian universities, revealing positive outcomes in all three areas. Students expressed a preference for e-learning due to its convenience and accessibility, recognizing its promotion of self-learning opportunities and the positive impact of a variety of educational methods. E-learning was found to facilitate lesson-following and enhance academic outcomes, particularly in challenging circumstances, with the freedom to study in preferred locations acting as a strong incentive. The study highlighted the significant role of interaction with instructors in e-learning success, emphasizing the importance of engaging teachers and their delivery of engaging educational content. These findings align with previous research, supporting the need for diversified e-learning methods to enhance student motivation and engagement and affirming the positive correlation between e-learning and academic success. Effective teacher-student communication and a supportive e-learning environment were found to foster student motivation. Overall, this study provides evidence of the positive impacts of diverse e-learning methodologies on student motivation, academic achievement, and teacher-student communication, contributing to the existing research on e-learning and underscoring the significance of innovative teaching methods, personalized learning approaches, and effective communication in e-learning environments.

## 13. Study Recommendations

Based on the main results, the study recommends the following:

1. Diversify e-learning approaches to cater to different learning preferences and enhance student motivation.
2. Ensure the accessibility and convenience of e-learning platforms and materials for seamless learning experiences.
3. Promote self-learning opportunities and provide resources to develop essential skills for independent learning.
4. Foster effective teacher-student communication through regular engagement and timely feedback.
5. Implement personalized learning strategies and support professional development for instructors to optimize e-learning outcomes.

#### 14. Limitations and Future Directions

The study has several limitations that should be acknowledged. Firstly, the sample size was limited, potentially affecting the generalizability of the findings. To overcome this limitation, future research should consider including larger and more diverse samples from multiple universities and academic disciplines. Secondly, the study relied on self-reported data, which introduces the possibility of response bias and subjective interpretations. To mitigate this limitation, future studies could incorporate mixed-methods approaches, combining qualitative and quantitative data collection methods to provide a more comprehensive understanding of the topic.

Another limitation is the contextual focus on Jordanian universities, which may limit the generalizability of the findings to other educational settings. Future research could address this limitation by conducting comparative studies across different countries or educational systems to explore the influence of cultural and contextual factors. Additionally, longitudinal studies tracking students' progress over time would provide a deeper understanding of the long-term effects of e-learning methodologies on student motivation and academic achievement.

To address these limitations, future research should strive to include larger and more diverse samples, employ mixed-methods approaches, conduct comparative studies, and implement longitudinal designs. By doing so, we can overcome these limitations and gain a more comprehensive understanding of the impacts of e-learning methodologies on student motivation, academic achievement, and teacher-student communication, leading to the development of effective e-learning practices.

#### 15. Study Implications

This study's results offer valuable insights for both practical applications and prospective research. First, students demonstrated a clear preference for e-learning, citing its accessibility and convenience. Educational establishments should, therefore, focus on integrating e-learning to align with students' inclinations and provide adaptable learning routes. Transitioning to e-learning can reduce dependency on physical resources, allowing students to access content whenever suitable. Second, the pronounced positive influence of e-learning on students' motivation and academic success was evident. Institutions should bolster their commitment to e-learning to amplify student involvement, motivation, and overall performance. The adaptability e-learning provides can be pivotal in boosting academic outcomes, especially in demanding situations. Third, the research accentuated the crucial role of effective communication between teachers and students within e-learning. It's essential for institutions to prioritize equipping educators with the skills to present content engagingly and cultivate substantial interactions with students. Enhancing communication can elevate motivation, participation, and overall academic results. For future studies, several potential areas emerge from these findings. Researchers might consider probing innovative teaching techniques in e-learning to boost student engagement further. Comparative analyses across diverse educational settings might shed light on the cultural and situational variables influencing e-learning's efficacy. There's also merit in longitudinal examinations to gauge e-learning's enduring impact on student motivation and success. Moreover, forthcoming research could focus on creating efficient strategies using e-learning to enhance performance in specific subjects. Investigating personalized learning and adaptive technology in e-learning could further optimize student results.

In summary, the findings advocate for educational entities to adopt and refine e-learning techniques, emphasizing student motivation, success, and effective communication. By addressing these insights and considering the proposed research avenues, educators and decision-makers can continually improve e-learning for students' ultimate benefit.

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