



The impact of e-learning system adoption on the practical skills of accounting students in Jordan

 **Thaer Faisal
Abdelrahim
Qushtom^{1*}**

¹Accounting Sciences Department, Faculty of Economics and Administrative Sciences, Zarqa University, Az -Zarqa, Jordan.


^{*}Email: tqushtom@zu.edu.jo


^{2,3,4}Zarqa University, Jordan.

²Email: oballout@zu.edu.jo

³Email: aharb@zu.edu.jo

⁴Email: oshagqour@zu.edu.jo

 **Osama Mohammed
Khaleel Ballout²**

 **Ayman Saleh
Mustafa Harb³**

 **Omar Fareed
Shagqour⁴**



(+ Corresponding author)

ABSTRACT

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The study aimed to explore the effectiveness of the e-learning system in teaching scientific and humanities disciplines and its suitability to provide accounting students (specifically) in Jordanian universities with the practical skills necessary for the labor market. The qualitative approach was adopted for collecting, analyzing and testing data. The researchers designed an electronic questionnaire that was distributed to 3000 accounting students in 30 Jordanian universities for data collection. Only 762 questionnaires were retrieved and analyzed which formed the sample for the study. The descriptive analysis and linear regression test were used to analyze data and test hypotheses. The results showed that accounting students in Jordanian universities think that the e-learning system is ineffective in fulfilling the teaching requirements for humanities and scientific disciplines with the necessary skills to practice the profession after graduation. The adoption of e-learning systems in the teaching process of accounting majors leads to a decline in the practical skills of accounting students. The study recommended that Jordanian universities conduct a permanent and continuous evaluation of e-learning systems to ensure their effectiveness and efficiency in achieving the desired goals. Furthermore, Jordanian universities have to build effective review, evaluation and testing mechanisms for students' skills through e-learning to ensure the required practical skills.

Contribution or Originality: This study highlights the impact of using e-learning system on the practical skills of specific people (accounting students) in a specific field (the accounting profession) which plays a significant role in the success or failure of entities in the future.

1. INTRODUCTION

The field of accounting plays a major role in the success or failure of entities (Sebayang & Muda, 2020). Therefore, it must be ensured that accounting practitioners have the necessary practical skills to handle financial transactions in a proper and innovative manner (Papadopoulou & Papadopoulou, 2020). Otherwise, accountants who lack practical skills impede their performance (Lisá, Hannelová, & Newman, 2019). The public perception of the importance and effectiveness of the accounting field may be improved by providing accountants with the

necessary practical skills. Similarly, the process of preparing and qualifying accountants is the responsibility of universities (Rebele & Pierre, 2019) to ensure the practical efficiency of the outputs of the educational systems in accounting departments. Before the COVID-19 pandemic, the dominant feature of educational systems was face-to-face education worldwide. Therefore, it was possible to ensure that accounting students acquired the necessary practical skills through face-to-face examination and supervision (Schmulian & Coetzee, 2019). However, testing the practical skills of accounting students has become a challenging issue with the outbreak of the COVID-19 pandemic and the transformation of education to e-learning systems worldwide (Alsoud & Harasis, 2021; Mertasari, Paraniti, & Mahardika, 2023; Rahman, Yaacob, Samad, Mohamad, & Sabri, 2023). Therefore, e-learning is successful in preparing accounting graduates with practical skills that meet the needs of markets and increase demand for accountants' services.

1.1. Problem Statement

Educational systems have switched from face-to-face education to online learning which has an adverse effect on the educational systems (Gibran, 2022) especially in the practical disciplines (Alsoud & Harasis, 2021) due to the COVID-19 pandemic. Accordingly, accounting is the backbone of the financial systems of entities in educational systems.

1.2. Questions of Study

In light of the widespread use of e-learning systems during the COVID-19 pandemic worldwide and the adoption of this system for teaching all humanities and scientific disciplines, a set of important questions have to be answered which can be summarized as follows:

1. Is the e-learning system effective for teaching all humanities and scientific disciplines?
2. Is the e-learning system suitable for providing accounting students with the necessary practical skills to carry out accounting duties for entities?
3. Does the adoption of e-learning systems lead to a decrease in the practical skills of accounting graduates?

1.3. Aims of the Study

The current study aims to explore the effectiveness of using the e-learning system to provide accounting students in Jordanian universities with the necessary practical skills for handling financial transactions properly and creatively. In addition, discovering the effect of the e-learning system on the practical skills of accounting students would help in identifying the weaknesses in this educational system.

1.4. Importance of Study

The importance of the current study is represented by determining the levels of practical skills for accounting students in Jordan who received their education through the e-learning system. When using the e-learning system in teaching disciplines, decision-makers might be able to identify deficiencies that depend on practical skills. Consequently, effective solutions might be developed to increase the effectiveness of the e-learning system in the future.

2. LITERATURE REVIEW

Many researchers have studied their various aspects and their effects on the entire educational process. Aldulaimi, Abdeldayem, Keir, and Al-Sanjary (2021) found that the adoption of e-learning systems helps reduce distances and enables students in remote places to overcome difficulties. According to Al-Momani (2020) and El Gourari, Raoufi, Skouri, and Ouatik (2021), the adoption of e-learning in technological development improves

students' skills in their disciplines and in using modern technology. Furthermore, Al-Fraihat, Joy, Masa'deh, and Sinclair (2020) concluded that e-learning would be the dominant system in the future due to its low costs, its ability to cover large areas and its ability to accommodate large numbers of students. Furthermore, Salloum, Alhamad, Al-Emran, Abdel Monem, and Shaalan (2019) found that e-learning increased the demand for education especially among employees and workers who do not have time to go to institutes and universities. According to Aldulaimi et al. (2021), e-learning systems facilitate communication between teachers and students. In addition, Bylieva, Lobatyuk, Tolpygin, and Rubtsova (2020) deduced that e-learning in developing countries lacks many ingredients for success such as trust between students and teachers. Talib and Mahasneh (2020) concluded that the adoption of e-learning in schools, institutes and universities in developing countries led to increasing cheat rates among students. According to Gherhes, Stoian, Fărcas, and Stanici (2021), face-to-face education differs from e-learning by using body language and rhetorical skills. Chavarría-Bolaños, Gómez-Fernández, Dittel-Jiménez, and Montero-Aguilar (2020) also found that the adoption of the e-learning system might be suitable for theoretical disciplines while it is not suitable for scientific and practical disciplines due to their need for direct practical application.

The current study's aim is to explore many aspects and effects of e-learning on education and students.

3. THEORETICAL FRAMEWORK

The adoption of e-learning systems globally came as a result of the COVID-19 pandemic. Consequently, practical disciplines that rely on direct review of students' skills have lost an important element of their structure (Gherhes et al., 2021). Similarly, the e-learning system appears to have some weaknesses concerning practical disciplines. According to situated learning theory, learning depends on a certain context where the learning quality comes from multi-interactions between people, processes, places, culture and objects that exist and relate to each other within a specific context (Besar, 2018).

Accounting is the backbone of business and it should be continuously ensured that those who practice the profession of accounting possess the practical skills necessary to perform their tasks. However, unexpected changes in shifting accounting education from face-to-face to e-learning have deprived lecturers of direct supervision of students' practical skills.

3.1. Hypotheses of Study

According to the prior discussion, the current study presents the following hypotheses:

H.1. *The e-learning system is ineffective for teaching all humanities and scientific disciplines.*

H.2. *The e-learning system is not suitable for providing accounting students with the necessary practical skills to carry out accounting duties.*

H.3. *There is a negative relationship between the e-learning system and the practical skills of accounting students.*

3.2. Model of Study

Figure 1 shows the model of the current study.

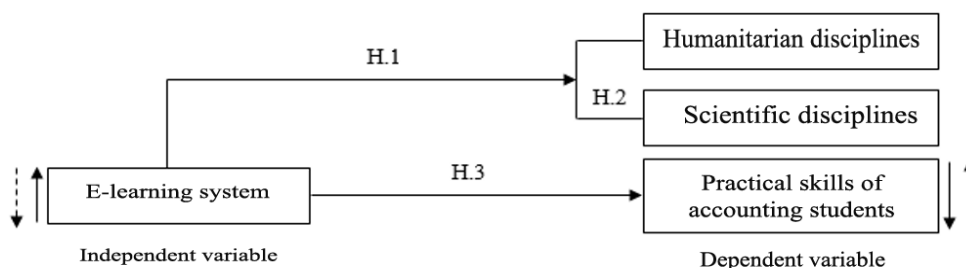


Figure 1. Model of study.

4. METHODOLOGY OF STUDY

The quantitative approach was used to collect, test and analyze data to achieve the aims of the current study.

4.1. Data Collection Method

A questionnaire comprising four sections was developed to gather the necessary data. The first section consisting of three questions focused on collecting demographic information from the respondents. The second section consisting of 13 questions explores the effectiveness of e-learning in meeting the teaching requirements for humanities and scientific disciplines. The third section consists of 10 questions investigated the suitability of e-learning for equipping accounting students with the necessary skills for the accounting profession. Finally, the last section of the questionnaire consisting of 10 questions examined the role of e-learning in enhancing the practical skills of accounting students. All questions (except for the demographic ones) were measured using a five-point Likert scale ranging from (1) strongly agree, (2) agree, (3) neutral, (4) disagree and (5) strongly disagree.

4.2. Population, Sample and Targeted Respondents

The population of the present study consisted of all accounting students in Jordan (17,000 students). A questionnaire was electronically distributed to a sample of 3,000 accounting students enrolled in 30 universities across Jordan to collect data. A total of 762 questionnaires were received and analyzed representing the study sample.

5. DATA ANALYSIS

The reliability of the questionnaire was tested through Cronbach alpha measures and the normality of questionnaire distribution was tested through Skewness and Kurtosis measures before testing the research hypotheses. The reliability and normality of the questionnaire were accepted.

Linear regression and descriptive analysis were used to test the research hypotheses of the current study. In this context, the descriptive analysis results were used to explore the efficiency of e-learning systems in teaching all humanities and scientific disciplines. Furthermore, the results were used to explore the suitability of e-learning systems for providing accounting students with the necessary practical skills. In addition, the linear regression test was used to test the relationships between the e-learning system and the practical skills of accounting students.

5.1. Descriptive Results

To test the first and second hypotheses of the current study, descriptive analysis was conducted using various statistics such as the mean, minimum, median and maximum. The descriptive results are presented in Table 1.

Table 1. Descriptive statistics of variables

Part 1. Effectiveness of the e-learning system in teaching all humanities and scientific disciplines (Valid N = 762)				
Variable	Mean	Std. dev.	Min.	Max.
Availability of the necessary technological infrastructure for e-learning systems in universities.	4.071	0.673	2	5
Availability of the technological infrastructure necessary for e-learning system for students.	4.047	0.680	2	5
Availability of the necessary technological skills for lecturers.	4.051	0.683	2	5
Availability of the necessary technological skills for students.	4.035	0.718	2	5
The ability to teach theoretical subjects through e-learning system.	4.063	0.691	2	5
The ability to teach practical subjects through e-learning system.	4.102	0.709	2	5
Interaction between lecturers and students during theoretical lectures.	4.091	0.729	2	5
Interaction between lecturers and students during practical lectures.	4.088	0.741	2	5
The ability to ask questions during theoretical lectures through e-learning system.	4.073	0.674	2	5
The ability to get answers to questions during theoretical lectures through e-learning system.	4.017	0.680	2	5

Part 1. Effectiveness of the e-learning system in teaching all humanities and scientific disciplines (Valid N = 762)				
Variable	Mean	Std. dev.	Min.	Max.
The ability to ask questions during practical lectures through e-learning system.	4.081	0.684	2	5
The ability to get answers to questions during practical lectures through the e-learning system.	4.037	0.717	2	5
The ability to obtain a comprehensive understanding of the topics studied through e-learning system.	4.085	0.690	2	5
Part 2. Suitability of the e-learning system to provide accounting students with the necessary theoretical and practical skills (Valid N = 762)				
Variable	Mean	Std. dev.	Min.	Max.
The possibility of acquiring the necessary accounting skills from lecturers through e-learning system.	4.012	0.709	2	5
The possibility of lecturers reviewing students' accounting skills through e-learning system.	4.082	0.720	2	5
The possibility of lecturers examining students' accounting skills through e-learning system.	4.093	0.740	2	5
The possibility of developing students' theoretical accounting skills during the academic years through e-learning system.	4.037	0.673	2	5
The possibility of developing students' practical accounting skills during the academic years through e-learning system.	4.047	0.680	2	5
The possibility of sharing theoretical accounting skills with others through e-learning system.	4.051	0.683	2	5
The possibility of sharing practical accounting skills with others through e-learning system.	4.035	0.718	2	5
The ability to interact with others during the theoretical subjects in accounting through e-learning system.	4.073	0.691	2	5
The ability to interact with others during the practical subjects in accounting through e-learning system.	4.101	0.707	2	5
The possibility of ensuring that all necessary accounting skills are acquired through e-learning system before graduation.	4.088	0.729	2	5
Part 3. The role of e-learning in refining the practical skills for accounting students (Valid N = 762).				
Variable	Mean	Std. dev.	Min.	Max.
Accounting students can acquire the skills of analyzing financial transactions as effectively as in face-to-face educational systems through e-learning system.	4.052	0.740	2	5
Accounting students can acquire the skills of recording financial transactions as effectively as in face-to-face educational systems through e-learning system.	4.063	0.673	2	5
Accounting students can acquire the skills of posting financial transactions as effectively as in face-to-face educational systems through e-learning system.	4.027	0.680	2	5
Accounting students can acquire the skills of preparing trial balances as effectively as in face-to-face educational systems through e-learning system.	4.041	0.683	2	5
Accounting students can acquire the skills of preparing financial statements as effectively as in face-to-face educational systems through e-learning system.	4.038	0.711	2	5
Accounting students can acquire the skills of analyzing financial statements as effectively as in face-to-face educational systems through e-learning system.	4.037	0.715	2	5
Accounting students can acquire the skills of practicing cost accounting as effectively as in face-to-face educational systems through e-learning system.	4.102	0.709	2	5
Accounting students can acquire the skills of practicing managerial accounting as effectively as in face-to-face educational systems through e-learning system.	4.016	0.673	2	5
Accounting students can acquire the skills of practicing auditing as effectively as in face-to-face educational systems through e-learning system.	4.054	0.687	2	5
Accounting students can acquire the skills of practicing tax accounting as effectively as face-to-face educational systems through e-learning system.	4.035	0.700	2	5

5.2. Linear Regression Analysis

The current study used a linear regression analysis in order to test the third hypothesis which explores the relationship between the e-learning system and the practical skills of accounting students.

The following equation represents the regression model that was performed to test the hypothesized relationship:

$$Pra_Ski = a0 + a1 Effe_Elear + a2 Suit_Elear + ei$$

Where

Pra_Ski = Practical skills of accounting students.

Suit_Elear = Suitability of e-learning.

ei = The error term.

Effe_Elear = Effectiveness of e-learning

a0, a1, a2 = The constants of the equation.

Table 2. The relationship between the practical skills of accounting students in Jordanian Universities and the e-learning system (N = 762).

Pra_Ski	
Variables	Coefficient estimate
Independent variables	
Constant	-0.072 (0.023)
Average_Elear_Suit	-0.979** (0.001)
R Square	0.958
Adj. R square	0.958
F-value	17413.450
Sig. level	0.001

Note: P-value (Sig. Level) is reported in parentheses.
 ** Indicates p value is significant at level 0.01.
 (Pra_Ski) = Practical skills. - (Average_Elear_Suit) = Average of E-learning effectiveness and E-learning Suitability

The results of testing the regression model that tests the relationship between the dependent variable (practical skills of accounting students) and the independent variable (e-learning system) are shown in Table 2.

6. RESULTS

Based on the descriptive results presented in Table 1, the mean values of e-learning effectiveness in fulfilling the teaching requirements for humanities and scientific disciplines as well as the suitability of e-learning in providing necessary accounting skills ranged from 4.012 to 4.102. These findings indicate that the majority of accounting students in Jordanian universities perceive the e-learning system as ineffective for meeting the teaching requirements of humanities and scientific disciplines. Moreover, the standard deviation for these variables which ranged from 0.673 to 0.741 suggested that only a few students deviated from the overall consensus. The first and second hypotheses of the current study can be accepted based on these results. The linear regression results presented in Table 2 indicate that the adoption of the e-learning system has a significant negative relationship with the practical skills of accounting students at a significance level of 0.01. This finding suggests that the complete integration of the e-learning system into the accounting curriculum is associated with a decrease in the practical skills of accounting students. Additionally, the results reveal an R-squared value of 0.958 indicating that the model accounts for 95% of the population. Therefore, the third hypothesis of the current study is also accepted.

6.1. Discussion and Conclusion

The descriptive result showed that accounting students in Jordanian universities agreed that the e-learning system is ineffective for teaching scientific and humanities disciplines and is not suitable to provide accounting students with the practical skills necessary to practice the accounting profession due to the lack of complete and appropriate technological infrastructure. In this regard, Chavarría-Bolaños et al. (2020) found that one of the main determinants of using the e-learning system is the presence of a strong internet capable of eliminating the time and space gaps between students and lecturers. In addition, Gherhes et al. (2021) found that the success of using the e-learning system depends on educational institutions having internet servers that can efficiently handle the

transmitted data. [Alsoud and Harasis \(2021\)](#) deduced that the students' ability to interact with the distance learning system depends on the availability of the necessary technological resources. Another reason for the aforementioned results is the lack of necessary skills (for lecturers or students) to use the technological means available in the e-learning system which hinders the use of many features in this system. In this context, [Alshdifat \(2022\)](#) and [Hadullo, Oboko, and Omwenga \(2018\)](#) discovered that adopting the e-learning system depends on developing the skills of lecturers and students in using the required technology. Additionally, [Encarnacion, Galang, and Hallar \(2021\)](#) explained that the limited experience of lecturers in using technology hinders their ability to effectively communicate information to students. Furthermore, [Koutsouba, Koutsouba, and Giossos \(2021\)](#) concluded that the difference in technological skills among students affects their competitiveness for their academic degrees. Moreover, the researchers believe that the lack of direct interaction between students and lecturers in the e-learning system is another reason for the descriptive results of the current study. Similarly, [Stone and Springer \(2019\)](#) found that the presence of lecturers and students increases the opportunities for interaction and open discussion to exchange opinions and viewpoints among them. In the same context, [Baber \(2021\)](#) concluded that increasing interaction and open discussion between students and lecturers encourages students to engage in different discussions and interact with others. On the other hand, [Gherhes et al. \(2021\)](#) indicated that e-learning encourages shy students to express their views boldly.

In addition, the lack of body language and eye contact between students and lecturers in the e-learning system is also anticipated to be an important reason for the current study results as it increases the chances of students' mental distraction. [Ramsook and Thomas \(2019\)](#) indicated that body language has a major impact on how long memories are retained by people. Similarly, [Gherhes et al. \(2021\)](#) explained that the face-to-face educational system contains many features that help students' ideas remain in their minds such as body language. In the same context, [Haataja, Salonen, Laine, Toivanen, and Hannula \(2021\)](#) explained that eye contact between people helps to translate many of their behaviors which may give different indications about the nature of their mental and psychological state. Furthermore, [Perumal \(2022\)](#) found that cheating rates in e-learning and distance learning are higher than in face-to-face education due to the lack of direct supervision of students during exams. [Rodríguez, Guerrero-Roldán, Baneres, and Noguera \(2021\)](#) concluded that the chances of cheating in the e-learning system are greater than those in face-to-face education due to the possibility of hacking information and exams through the internet.

Regarding the regression analysis results, the researchers believe that, besides the reasons mentioned earlier, the negative relationship between e-learning and the practical skills of accounting students is due to the limited opportunity for students to ask questions about unclear accounting topics, especially when the class size is large. In addition, the researchers expect that the emergence of some technical problems during lectures through the e-learning system, either for lecturers or students will lead students to lose the path of full comprehension of accounting topics and operations. Furthermore, the researchers believe that another reason for this result is the fact that the skills of interactive explanation methods for lecturers in the face-to-face educational system are better and more effective than those in the e-learning system. Researchers expect that the e-learning system does not enable lecturers to formulate comprehensive questions that measure the extent to which students acquire comprehensive practical accounting skills during exams. In this context, [Giray \(2021\)](#) found that the more students take part in the e-learning lectures, the fewer opportunities there are for students to ask questions and get answers. In addition, [Sakkir, Dollah, and Ahmad \(2021\)](#) concluded that one of the main reasons for the low academic achievement of students in the e-learning system is that they sometimes face technological problems during lectures and exams. Finally, [Simamora \(2020\)](#) deduced that the explanation abilities of many lecturers in the face-to-face educational system are better than those in the e-learning system.

6.2. Implications of the Study

The findings of the current study suggest that the adoption of the e-learning system as a substitute for the traditional face-to-face educational system in Jordanian universities is currently ineffective for teaching various disciplines. Moreover, the results indicate that implementing the e-learning system in accounting education within Jordanian universities has a negative impact on accounting students' practical skills. These implications can be attributed to the sudden transition from face-to-face education to e-learning without adequate preparation for a transitional period that ensures the provision of necessary technological infrastructure, essential skills and an appropriate learning environment.

6.3. Recommendations of Study

Based on the above-mentioned results, the study recommends Jordanian universities evaluate the e-learning systems regularly to ensure their effectiveness and efficiency in order to achieve the desired goals. The study also recommends creating effective review, evaluation and testing mechanisms for the skills of students in various disciplines who receive their education through e-learning to ensure that they acquire the required practical skills. Finally, the study recommends that future researchers carry out similar studies targeting other practical disciplines to ensure the effectiveness of the e-learning system in the educational process.

6.4. Limitations of the Study

It is important for the reader to acknowledge the limitations of the current study which focused solely on accounting students at Jordanian universities. Therefore, generalizing the findings to accounting students in other countries is not feasible. Additionally, the study was conducted in 2022 during the early stages of transitioning to the e-learning system which encountered several challenges. Consequently, the results of the current study may not align with future studies involving the same population if advancements and enhancements are made to e-learning systems.

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Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.

Competing Interests: The authors declare that they have no competing interests.

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