OBSTACLES TO EFFECTIVE USE OF E-LEARNING IN HIGHER EDUCATION FROM THE VIEWPOINT OF FACULTY MEMBERS

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ABSTRACT

E-learning has reached advanced levels in developed countries, but it is still in its early stages in developing countries, such as Palestine. There are still many obstacles to E-learning using. This study therefore aims to identify the most important obstacles to using E-learning in higher education in Palestine from the viewpoint of lecturers. Palestine Technical University "Kadoorie" was chosen to apply the study. The sample included 95 faculty members selected using convenient sample from all colleges of the university. Data was collected using an electronic questionnaire. The data was then analyzed using SPSS 25. The results reveal the following arrangement for the obstacles from the highest impact to the lowest: technological infrastructure-related obstacles, university-related obstacles, student-related obstacles, curriculum-related obstacles and lecturer-related obstacles. The results also show that there is a moderate positive correlation between the lecturer-related obstacles and the student-related obstacles with the curriculum-related obstacles. Moreover, there are no statistically significant differences in the obstacles due to the academic degree. However, the results show that there are differences due to gender, age, teaching experience, and college. Therefore, it can be concluded that there is a necessary need to take more activities related to the technological infrastructure and to develop strategies and incentives in order to reach the effective use of E-learning.

Keywords: E-learning, obstacles, higher education, barriers, hindrances.

INTRODUCTION

Because of developments in the field of technology, E-learning has emerged, providing an opportunity to improve the learning process. By using E-learning, the learner is able to perform the tasks that he chooses, to reach educational resources at any time, to receive the support he needs and many of the benefits that encouraged self-learning (Alhosban & Ismaile, 2018). With E-learning, communication between learners can be conducted easily and flexibly. This encourages ideas participation on learning materials (Ajegbomogun et al., 2017). Learning Management System (LMS) is one of the modern methods that universities around the world have begun to use in order to create a rich educational environment using the Internet, as well as making use of the means and services provided by this system to improve teaching methods and increase the quality of education (Al-Sharhan et al., 2020).

E-learning has many tools, one of which is the Learning Management System (LMS). LMS is considered as an online platform like many other platforms used by learners. Other similar online platforms include Blackboard, Moodle, Canvas, D2L Brightspace, etc (Vershitskaya et al., 2020).

E-learning platforms have been used as a supplementary and auxiliary method for the traditional method of learning during normal circumstances (Dai & Xia, 2020). However, it is the only means used to learn in crises. The most recent of these is the emerging crisis of the Coronavirus (Covid 19) and the fact that in many countries, governments have closed schools and universities. In order to continue learning in light of

this crisis and the commitment of students to their homes, many countries have turned to E-learning instead of the traditional method of learning (face to face in the classroom) (Affouneh et al., 2020).

With respect to higher education institutions, they must be in the front of innovative initiatives related to E-learning. Nevertheless, the reality is different from expectation. The reason for that is the presence of some obstacles that prevent the effective application of E-learning methods (Jokiaho et al., 2018). Based on the above, an attempt to exploit the benefits of E-learning to improve the learning process must be accompanied by identifying the obstacles that prevent the effective application of E-learning. This is particularly evident in the Middle East, where there is a delay in adopting the E-learning method (Al-Azawei et al., 2016). Even in Europe, Jokiaho et al. (2018) note that the lecturers are not taking advantage of the full potential of the LMS, but rather only uploading course outlines and some educational resources for students to read.

There are many studies around the world dealing with the subject of E-learning. For Palestine, there is some research related to E-learning in higher education. For example, Shraim (2010) tries to investigate the factors that affect the adoption of E-learning from the viewpoint of university lecturers. Abdalmenem et al. (2019) try to specify E-learning strategies and the views of senior management in some Palestinian universities on the relationship between those strategies and the efficiency of educational performance. On the other hand, Abu Aqeel (2014) and Al-Osaili (2012) discuss the reality of E-learning and the obstacles to using it. However, there is a dearth of research dealing with the barriers to using E-learning tools (Jokiaho et al., 2018). Therefore, this article attempts to contribute to fill that gap and clarify those obstacles from the point of view of faculty members. It is trying to answer the following questions:

1. What are the important obstacles in using E-learning from the faculty member's viewpoint in higher education institutions in Palestine?
2. What is the relationship between the different levels of obstacles to the effective use of E-learning?
3. Are there statistically significant differences regarding the obstacles facing the use of E-learning in higher education institutions in Palestine from the viewpoint of the lecturers due to their demographic information?

The aim of this study is to clarify the important obstacles in using E-learning from the faculty member viewpoint in higher education institutions in Palestine. To achieve this and answer the research questions, a comprehensive and in-depth research has been carried out in the literature related to the field of E-learning.

The remainder of this paper is organized as follows: The second section presents the literature review of the studies related to the obstacles of E-learning. The third section shows the research design and the used methodology. In section 4, the statistical data analysis is presented. Section 5 shows the research findings. Sections 6 and 7 contain the discussion and the conclusions. Finally, the limitations are in Section 8.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Electronic Learning (E-Learning)

The tremendous advancement in the technology and telecommunications sectors has greatly changed many aspects of life. Education is one of those areas that has been affected by this progress. Therefore, many modern methods have emerged to spread knowledge and acquire skills. From here, E-learning appeared (Hatmanto & Purwanti, 2019; AbdulRazak & Ali, 2019).

E-learning is using electronic media for the dissemination and receipt of education or training (Matar et al., 2011). Electronic media may be the Internet, intranet, extranet, audio and video tapes, satellites, interactive programs on CDs, as well as any other computer-based educational programs (Ajegbomogun et al., 2017). In literature, E-learning has many names based on its use. These include computer-based training (CBT), web-based training (WBT) and virtual education (Qureshi et al., 2012).

There are two types of E-learning: synchronous and asynchronous. In synchronous education, the lecture is conducted using the Internet and in the presence of all the participants, live and directly, at the same time. Whereas, asynchronous education is recorded and stored with dedicated web technologies. Then the student or the trainee can refer to it any time and place he wants. (Tarus et al., 2015).

E-Learning Benefits

E-learning has many benefits. It allows learning at all times and places without restrictions. It is also considered an economically beneficial method (AbdulRazak & Ali, 2019). It opens the way for everyone to learn throughout all years of life (Mohamadzadeh, et al., 2012).

The learner can access the information easily, and interaction is available between all parties (teachers and learners). In addition to the possibility of holding lectures from far places, which allows education to reach wide geographical areas. E-courses mean compatible content, at the right time and it can be used again. On the other hand, E-learning provides diversity in style where synchronous and asynchronous learning and the student also can rely on himself and learn with his comfort. E-learning also increases training and education opportunities for individuals and lowers the costs of learning. It is also useful for people who have work and family and want to learn, because by using it they can combine all of that. As for tracking student performance and progress, E-learning makes it easy for the educational institution to manage that (Tarus et al., 2015). It reduces the problem of the scarcity of faculty members. It takes into account the different capabilities of students, as some students want to focus on only specific parts of the curriculum, while some want to focus on the entire curriculum (AbdulRazak & Ali, 2019).

E-Learning Use and Obstacles in Higher Education

E-learning contributes to transforming higher education to become learner-dependent. It enables students to flexibly access their educational materials anytime and anywhere and choose the right fit for their needs. Moreover, it enhances the quality of teaching and learning (Kim & Park, 2018).

Nevertheless, for the effective implementation of E-learning, four basic criteria must be met. They are the availability of the necessary technology in the educational institution, the possibility of students' access to and benefit from that technology, the willingness and acceptance of the teachers to use the new technology, and the readiness of the educational institutions to provide adequate support for that process (Demaidi et al., 2019). Universities are still faced by various obstacles (economic, political, technical, and pedagogical) that hinder the effective use of E-learning. . Moreover, the lack of a strategic plan and consortia between universities also contribute to impeding the successful implementation of E-learning (Gullu et al., 2016).

E-Learning Use and Obstacles in Developing Countries

The United Nations Development Program (UNDP) classifies the countries of the world into different classifications according to the value of each country's development index. Countries with a low development index are then classified as developing countries. Reviewing the literature, you find that there are studies trying to find out the challenges that developing countries face in their attempt to use E-learning effectively, and each of them represents a specific case to understand this phenomenon. Nevertheless, since every developing country differs from the other in terms of culture, level of education, and economic situation, we need to analyze more, especially since there are countries that lack research in this area (Al-Azawei et al., 2016).

Although developing countries are witnessing prosperity and growth in E-learning, many obstacles prevent the widespread adoption of E-learning systems. These obstacles include infrastructure, cost, access to information, training, and resources (Kim & Park, 2018). Tarus et al. (2015) state that for successful E-learning in developing countries, it is necessary to provide the required infrastructure beside connectivity.

Zoroja et al. (2016) investigate using E-learning in developing countries, specifically Croatia. They find that numerous obstacles face E-learning implementation. They clarify that the reasons for these obstacles are the limited resources of professors and institutions. Rabiee et al. (2013) explore barriers that hinder using Internet technology for E-learning in Iran (a developing country). The results show that socio-cultural, structural, educational, economic, and legal factors are the most notable barriers to internet use in E-learning. As for the precedence of the factors, socio-cultural factors are the most influential obstacles to use of the Internet in E-learning. Table 1 shows main obstacles that hinder E-learning in some developing countries:

Table 1. Obstacles hindering E-learning in developing countries.

Research	Country	Investigated Obstacles	Impactful Obstacles
Zamani et al. (2016)	Iran	Personal obstacles, Attitudinal obstacles, Contextual obstacles	contextual barriers (lack of essential supports from the university)
Rahayu (2019)	Indonesia	Lecturer, Organization	Organization (lack of training, lack of organizational support), Lecturer (ability to manage or allocate time to integrate ICT/E-Learning platform in teaching and learning)
Qureshi et al. (2012)	Pakistan	Technical difficulties, Access to computer, English competency, need for face to face interaction, level of awareness, computer literacy, resistance to change, student assistance, privacy and security, computer proficiency and frequency to surf internet	Electricity failure and English proficiency
Quadri et al. (2017)	Saudi Arabia	Student, Instructor, Infrastructure and Technology, and Institutional Management	Infrastructure and Technology
Al-Azawei et al. (2016)	Iraq	External obstacles (educational institutions), Internal obstacles (intrinsic features of users)	External and Internal obstacles (all the surveyed obstacles)
Aljaraideh & Al Bataineh (2019)	Jordan	Online learning infrastructure, Effectiveness of online learning, Online learning enjoyment, Ability and confidence with online learning technology	Online learning infrastructure

E-Learning Use and Obstacles in Palestine

Palestine has a very important place in the economy and geography of the Middle East and North Africa. But because it is under Israeli occupation, all aspects of life there suffer from great difficulty, including education, which is nonetheless a top priority (Al Sabah, 2020).

Higher education in Palestine is relatively recent due to the occupation and its attempts to stop education. Intermediate colleges, which teach for two years and grant diplomas, started in 1950. Then universities were established since 1970, trying to provide an opportunity for Palestinian youth to pursue their university studies, as it is difficult for a large number of them to travel abroad (MoEHE, 2021). Statistics of the Palestinian higher education sector for the academic year 2019/2020 indicate that there are 52 licensed and accredited educational institutions distributed as follows: 16 traditional universities, 2 open education universities, 17 university colleges, and 17 intermediate community colleges. Registered students for the academic year 2019/2020 were 217,645 (133,765 female & 83,880 male) (MoHESR, 2020).

Recent years have witnessed a rapid growth of E-learning in Palestinian higher education institutions. All universities now provide various models for educational and administrative activities through the Internet. Palestinian universities have adopted blended E-learning on their own or with the support of international organizations. International support contributes many benefits to higher education through sharing knowledge and good practices, establishing the necessary infrastructure, designing E-learning materials, and developing combined programs (Shraim, 2018).

Developing countries as Palestine face unrivaled challenges. As a result, E-learning seems to provide applicable substitution to the traditional educational model in these countries (Issa & Jaaron, 2017). Kayed (2020) state that integrating E-learning into the Palestinian higher education is compulsory and rational. He justifies this by saying that in addition to all the benefits that E-learning provides to all, it brings more benefits in the case of higher education in Palestine. It is considered a practical solution to face the challenges and obstacles facing the educational process, such as travel limitations, despotic curfews, random checkpoints and repeated

closures. All the previous obstacles make the movement of students and lecturers between their universities and their places of residence difficult and limited, and thus work to disrupt the educational process.

Some studies discuss the obstacles facing E-learning in Palestine. Lassoued et al. (2020) explore obstacles to achieving quality in distance learning during COVID-19 in some Arab countries, including Palestine. They find that the lecturers and the students face many obstacles such as self-imposed obstacles, pedagogical, technical, and financial or organizational obstacles. Another study by Osaily & Raja (2018) that explores the challenges of implementing E-learning from the view of learners at Al-Quds Open University in Hebron in Palestine. The results reveal that the most important obstacles face learners are learner's poor level in English language, insufficiency of computers inside the lab, and density of the curriculum. However, Kayed (2020) clarifies that various obstacles so far face implementing E-learning in the Palestinian universities and institutions of higher education. From these obstacles:

- Many educators and learners are wary from E-learning and resist t this new learning method.
- Lack of suitable infrastructure, financial resources and human capital in Palestinian universities.
- Students in E-learning courses at some Palestinian universities do not have the benefits of face-to-face education or the benefits imputed to E-learning.
- The Palestinian educational culture that university education is suitable only for the 18 - 24 years old traditional students.
- Having sufficient and proper access to the Internet. The educational institutions suffer from frequent power cuts and this problem hinders the advance of E-learning-based educational system.

E-Learning Obstacles

Integrating E-learning with traditional education is not an easy process. There are many challenges and obstacles facing all sides of the educational process (teachers and learners). The obstacle here means any objection or barrier delaying work progress and thus reaching the goal (Almanthari et al., 2020).

For teachers, identifying obstacles and focusing on them is important because it may help them to develop the necessary skills needed in the teaching process and thus know how to overcome those obstacles that fall within their control (Mercader & Gairín, 2020).

By reviewing the literature related to obstacles to using E-learning, it is clear that there are several classifications used for this. For instance, Al-Azawei et al. (2016) categorize E-learning barriers into two categories. The first is external barriers which covers technical issues of E-learning (weak internet bandwidth, lack of financial support, insufficient training, inadequate technical support, insufficient related infrastructure, the lack of clarity of plans and policies, repeated power outages). The second is internal barriers that relate to the user's readiness to switch from the traditional method of education to modern methods (insufficient awareness, attention and motivation among teachers and learners, insufficient skills and expertise necessary for E-learning and dealing with technology).

Quadri et al. (2017) in their study of the obstacles that hinder the successful implementation of E-learning in Saudi Arabian Universities explain that there are four types of obstacles. They are student, instructor, infrastructure and technology, and institutional management.

Rahayu (2019), in his research, investigates the obstacles facing lecturers in Indonesian higher education institutions. The result is obstacles related to people and obstacles related to organization. In addition, the lack of organizational support is the main barrier to E-learning.

Stoffregen et al. (2016) classify obstacles in three categories in their study, which compares barriers to E-learning in some European countries. These classes are contextual, social and technical.

In addition, there is another study conducted by Mercader & Gairín (2020) to reveal the reasons why teachers in higher education institutions do not use digital technologies for teaching purposes. This study adopts the classification of obstacles to E-learning for four categories: personal, professional, institutional, and contextual. As a result, professional barriers are the most prevalent.

With regard to research specialized in the study of obstacles to the application of E-learning during crises comes the study of Almanthari et al. (2020). This study examines the obstacles that Indonesian high school mathematics teachers encounter during the Corona pandemic. They adopt the classification of barriers in four categories: teacher, student, curriculum and school. The result is that student-related barriers are the highest impact on the use of E-learning.

In this research, the adopted classification for E-learning obstacles is based on Almanthari et al. (2020). More accurately, obstacles related to lecturers (teachers), students, educational institution (university) and curriculum. Moreover, some research shows that among the main obstacles facing the use of E-learning are technological obstacles (Uprichard, 2020). So this obstacle is added to the current research.

Lecturer-related Obstacles

The instructor or lecturer is an important component of the E-learning system. In the E-learning system, ease and familiarity with the use are essential features. These features depend on the instructor and the means he uses (Naveed et al., 2017). It includes obstacles related to: the trust of the lecturer in E-learning, the desire for change, an understanding of the advantages and benefits of E-learning, the lecturer's sense and belief about technology, and the knowledge and experience he possesses (Almanthari et al., 2020; Naveed et al., 2017). While Naveed et al. (2017) consider that insufficient lecturer time to design electronic educational resources for the course is also a hindrance to implementing E-learning. Also, Sackstein et al. (2019) try to search for reasons that motivate lecturers to use or not to use a learning management system LMS (an E-learning application). They show that some of the things that hinder: insufficient training the lecturer received on how to use LMS, lack of technical support, low bandwidth, insufficient resources, overtime imposed by the use of LMS, students' refusal and resistance to LMS use and negative feedback from colleagues who use LMS.

Student-related Obstacles

The student or learner is considered an essential element in the E-learning system, especially as the primary goal of E-learning is to meet his needs (Naveed et al., 2017). In E-learning, the student faces many difficulties that constitute an obstacle to him and weaken his interest in learning. In addition to mental and physical difficulties, the student suffers because of his distance from the lecturer (Assareh & Bidokht, 2011). It includes obstacles related to motivating the student to use E-learning (Almanthari et al., 2020; Naveed et al., 2017). In addition, there are obstacles related to students' attitudes towards computers and the use of information technology. Moreover, a student must have a computer and internet at home as well as at his university, otherwise he will not be able to use E-learning. The student must also trust in the use of E-learning and have the necessary expertise to use E-learning (Assareh & Bidokht, 2011). While Naveed et al. (2017) and Qureshi et al. (2012) consider that students' lack of proficiency in the English language is a major obstacle for students to use E-learning. The above applies to students whose mother tongue is not English. The reason is that most E-learning applications are designed in English.

Educational Institution-related Obstacles (University-related Obstacles)

The implementation of E-learning obliges the educational institution or the university to provide many of the necessary infrastructure for it. The process requires many necessary hardware and software. For example, the university must have major and backup servers. It also needs modern software to enable lecturers and students to access the E-learning system and practice its various activities. We cannot ignore the need for programs to manage and track usage. Most importantly, the software and hardware need continuous updating (Assareh & Bidokht, 2011). Providing the necessary infrastructure to use E-learning is linked to the educational institution's policy and its willingness to provide the necessary technical support. Moreover, many studies show the importance of the educational institution providing the lecturers with sufficient time and support to prepare the educational material and books necessary for E-courses (Almanthari et al., 2020).

Gullu et al. (2016) explain that the lack of a clear vision and policy to develop E-learning hinders the adoption of E-learning in Turkish universities.

Curriculum-related Obstacles

Previous research shows that curriculum-related obstacles may be due to incompatibilities between the curriculum and technological applications. In addition, E-learning may contradict the university's student assessments in the educational process (Almanthari et al., 2020). While other researchers (Assareh & Bidokht, 2011) state that, there are certain criteria that must be met in the curriculum to be implemented through E-learning. They complete explaining that electronic content must be able to transmit knowledge and develop learners' social and cognitive skills. They also assert that practicing skills is inconsistent with E-learning except in special cases where intelligence can be exploited as it is in the case of learning languages and learning keyboard skills.

Technology and Infrastructure-related Obstacles

One of the obstacles facing learners in developing countries is the lack of technological infrastructure necessary for E-learning. Technological infrastructure means computers, computer networks, Internet connection in addition to computer labs in universities (Tarus et al., 2015). The success of E-learning is largely dependent on technology and infrastructure. Infrastructure facilitates access to the E-learning system. While technology allows the use of modern technologies from hardware and software to reach effective learning and teaching (Naveed et al., 2017). Uprichard (2020) explains in his research to explore the benefits and obstacles of E-learning that technological difficulties such as the lack of technical support and the lack of modernization of the devices and systems used are a major impediment to the use of E-learning. Gullu et al. (2016) find the same result in their research related to finding the main obstacles hindering the adoption of E-learning in major Turkish universities. They find that poor technological infrastructure and old E-learning systems are major obstacles in adopting E-learning. Tarus et al. (2015) state that the lack of the appropriate and the inexpensive internet bandwidth is hampering the implementation of E-learning in Kenyan public universities.

METHODOLOGY

The main purpose of this research is to explore the main obstacles that face the effective use of E-learning in higher education in Palestine. This research is descriptive. The descriptive research is useful as it provides an inclusive and detailed demonstration of phenomenon under study (Chawla & Sodhi, 2011). The method of data collection used in this study involved a survey.

Questionnaire Design

Questionnaire is one of the most paramount and effective methods to collect data (Kazi & Khalid, 2012). A self-designed questionnaire was designed to collect data related to the obstacles to the effective use of E-learning according to the beliefs of faculty members. The closed questions were adopted in the design of the questionnaire. The reason is that this method is considered good in obtaining the necessary information for the research, as it enables the respondents to answer quickly and accurately and thus reach the objectives required from the research (Qashou, 2021). The author designed an electronic questionnaire. It consisted of three sections. In the first section, the purpose of the research was explained and clarified. In this part, it was also emphasized that each faculty member should have actually used E-learning to complete the questionnaire. In the second section, questions related to the demographic information of the lecturers (gender, age, degree, teaching experience, college, devices used in E-learning, and the type of Internet connection used) were placed. As for the third section, phrases related to the teaching staff's beliefs about the obstacles to E-learning were included. Five dimensions of obstacles were identified, namely (the lecturer, the administrative and organizational factors of the university (university), the curriculum, the student, technology and infrastructure for E-learning). Within each dimension, some statements were carefully chosen to investigate specific factors related to this dimension. A five-point Likert Scale, with Strongly Agree (5), Agree (4), Not sure/Neutral (3), Disagree (2), and Strongly Disagree (1), was used to measure the items in this section. All the statements were negative and that was taken into account at the time of entering the

responses. All of these statements were selected from previous studies that investigate E-learning obstacles and challenges. Table 2 displays all the dimensions of obstacles and their sources. The questionnaire was carefully translated into Arabic language and revised with the help of a specialist in Arabic language, as it is the mother tongue of the lecturers.

Table 2. Measurement items and their sources.

Obstacle	Items	Source
Lecturer	7	Almanthari et al. (2020), Ugwoke, Edeh & Ezemma et al. (2019), Naveed et al. (2017), Tarus et al. (2015), Mohamadzadeh et al. (2012), Moscinska & Rutkowski (2011)
Student	6	Almanthari et al. (2020), Naveed et al. (2017), Mohamadzadeh et al. (2012)
Administrative and Organizational factors (University)	7	Almanthari et al. (2020), Ugwoke et al. (2019), Naveed et al. (2017), Moscinska & Rutkowski (2011)
Curriculum	5	Almanthari et al. (2020), Ugwoke et al. (2019), Mohamadzadeh et al. (2012)
Technology and Infrastructure	4	Ugwoke et al. (2019), Naveed et al. (2017), Tarus et al. (2015), Mohamadzadeh et al. (2012)

Study Sample

The study participants are lecturers at the Technical University of Palestine - Kadoorie from all degrees (professors, associate professors, assistant professors and lecturers). All of them work full or part time in the university. Moreover, they use E-learning to teach their courses. The number of targeted lecturers reached 263 lecturers.

Sampling Method

The sampling method used in this research is the purposive convenience sampling method. It is one of the most commonly used methods, as it is the least expensive and does not require a list of all the elements of the study population (Acharya et al., 2013). Klar & Leeper (2019) mention that it is more suitable for survey-experimental research than for research based on observation.

Inclusion and Exclusion Criteria

To achieve the purpose of this study, only faculty members from all colleges who are actually using E-learning were targeted, meaning they have tried it during any semester. Participation was also optional, as any faculty member received the link to the questionnaire on his email or his messenger and did not want to participate, whether he explicitly mentioned this or viewed the message and did not reply, he was not asked again.

Data Collection

Data was collected using a self-report online questionnaire in the month of July in 2020. The reason for using the electronic questionnaire is the Corona Virus pandemic, which forced everyone to stay at home and run distance education. The questionnaire was stored on Google Drive. Before sending the questionnaire link to the faculty members, the university administration for academic affairs was contacted for approval. After obtaining the approval, the academic representative circulated to all faculty members to facilitate this task and share the link in an official correspondence. Since all the Email addresses of the lecturers are on the university home page, then after five days, the link was sent in a special email to every faculty member on his university work email. Faculties' deans and heads of departments were also addressed to circulate it to the lecturers in their departments. It was also published in some Facebook groups of lecturers of some departments. The goal was to be seen by the largest number of lecturers. The distribution included the lecturers of all the colleges of the university (Engineering and Technology, Applied Sciences, Arts and

Educational Sciences, Palestine Technical College (Diploma), Business and Economics, and Agricultural Sciences and Technology) without exception. Finally, after two weeks, 95 correct responses were obtained. Therefore, the response rate is 36% and this is an acceptable rate. Gullu et al. (2016) report that the overall response rate, which reaches 20%, is a statistically acceptable and accurate measure. After collecting responses to Google Drive, they were downloaded as an Excel file and stored on a computer. All participants answered all sections of the questionnaire. The data file was then converted from Excel to SPSS for analysis.

Data Analysis

This research adopts the quantitative method. The data were statistically analyzed using SPSS version 25. Initially the Excel file for the responses was converted to an SPSS file, and then appropriate statistical methods were applied to reach the results after making sure that there is no missing data. The tests performed were descriptive (means and deviations) and inferential (T-test and One Way ANOVA). Moreover, Pearson correlation coefficient was used to examine the correlation between each paragraph and the dimension it belongs to. Pearson correlation coefficient was also used to measure the degree of correlation between the studied levels of obstacles with each other.

Reliability and Validity of the Data

To measure the internal consistency between the elements of each construct in the study, a reliability analysis was performed. By finding the reliability analysis, it is clear to us the degree of measurement of the elements used for the features themselves (Ugwoke et al., 2019). Therefore, the Cronbach Alpha test for all elements was calculated using SPSS. Table 3 shows all the details related to the resulting values of the Cronbach Alpha test.

Table 3. Cronbach's alpha coefficients of the questionnaire

Construct	Cronbach Alpha Coefficient
Lecturer-related obstacles	0.875
Student-related obstacles	0.823
Administrative and Organizational factors-related obstacles (University-related obstacles)	0.881
Curriculums-related obstacles	0.862
Technology and Infrastructure-related obstacles	0.941
Total	0.944

From Table 2 it is clear that the Cronbach alpha values are high for all dimensions, ranging between (0.941 and 0.823), while the total value is 0.944. This means that the questionnaire is highly reliable.

Questionnaire validity means that the questionnaire is able to measure what was set for it in order to achieve the goals of the study and answer its questions and hypotheses. With regard to the validity of the questionnaire, it was emphasized in two ways:

Content Validity: All phrases for all dimensions were carefully selected from previous research in the same field. This research has been validated and corrected by specialists in the field of E-learning. Language professionals have revised the terms and meanings. Thus, the questionnaire is subject to the validity of the content.

Internal consistency: It means that each paragraph of the questionnaire is consistent with the field to which the paragraph belongs (Abdalmenem et al., 2019). It was measured by calculating the Pearson correlation coefficient between each paragraph and the total value of the field. Table 4 shows the details:

Table 4. Correlation coefficients for measurement dimensions

Construct	Correlation Coefficient	Sig.
Lecturer-related Obstacles (LO)	0.803**	0.000
Student-related Obstacles (SO)	0.811**	0.000
Administrative and Organizational-related Obstacles (University-related Obstacles) (UO)	0.788**	0.000
Curriculum Obstacles Level (CO)	0.856**	0.000
Technology and Infrastructure-related Obstacles (TO)	0.733**	0.000

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

FINDINGS

Participants' Descriptive Statistics

It is obvious from Table 5 and Figure 1 that the majority of the study participants are males 65.3% and only 34.7% of them are females. Most of the respondents (66%) are within the age group of (35-45 years), then the age group (25-34 years) with 21% and then the age group over 55 years old by percentage 5.3%, and finally comes the age group (< 25 years) with 3.2% (see Figure 2). Investigating their degree shows that 56.8% of them hold a PhD, 32.6% hold a Master's degree, and the rest (10.5%) hold a Bachelor's degree (see Figure 3). As to teaching experience (see Figure 4), 33.7% of the participants with 1 to 5 years of experience, 20.0% with 11 to 15 years of experience, 17.9% with more than 20 years of experience, 14.7% with 6 to 10 years of experience and finally 13.7% their experience ranges between 16-20 years. For the college where the lecturers work, they are as follows: 24.2% from Business and Economics college, 20.0% from Palestine Technical college (Diploma), 18.9% from Applied Sciences college, 16.8% from Arts and Educational Sciences college, 14.7% from Engineering and Technology college and 5.3% from Agricultural Sciences and Technology college (Figure 5). Also from Table 5 and Figure 6, it appears that 89.5% of the participating lecturers use the laptop in E-learning, then 7.4% of them use the desktop computer and finally a small group of them (3.2%) uses the mobile. Furthermore, the majority of participants (76.8%) use landline connections for internet connection and the rest use Modems (17.9%) and mobile phones (5.3%) (see Figure 7).

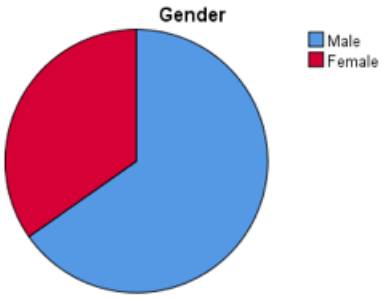

Figure 1. Gender distribution

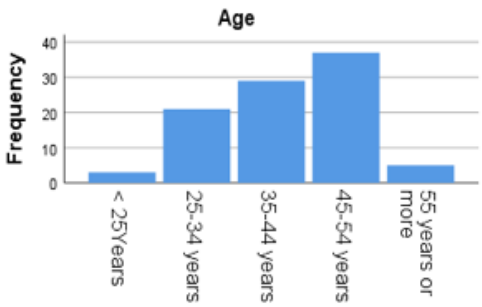

Figure 2. Age distribution

Table 5. Descriptive statistics for the sampled lecturers.

Variable	Classification	Frequency	Percent
Gender	Male	62	65.3%
	Female	33	34.7%
	Total	**95**	**100%**
Age	< 25Years	3	3.2%
	25-34 years	21	22.1%
	35-44 years	29	30.5%
	45-54 years	37	38.9%
	55 years or more	5	5.3%
	Total	**95**	**100%**
Degree	PhD	54	56.8%
	M.A.	31	32.6%
	Bachelor	10	10.5%
	Total	**95**	**100%**
Teaching Experience	1-5 years	32	33.7%
	6-10 years	14	14.7%
	11-15 years	19	20.0%
	16-20 years	13	13.7%
	>20 years	17	17.9%
	Total	**95**	**100%**
College	Engineering and Technology	14	14.7%
	Applied Sciences	18	18.9%
	Arts and Educational Sciences	16	16.8%
	Palestine Technical College (Diploma)	19	20.0%
	Business and Economics	23	24.2%
	Agricultural Sciences and Technology	5	5.3%
	Total	**95**	**100%**
Devices Used	Mobile	3	3.2%
	Laptop	85	89.5%
	Desktop	7	7.4%
	Total	**95**	**100%**
Internet Type	Mobile Phone	5	5.3%
	Landline Connection	73	76.8%
	Modem	17	17.9%
	Total	**95**	**100**

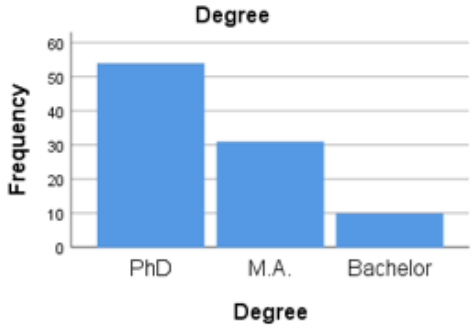

Figure 3. Degree distribution

Figure 4. Teaching experience distribution

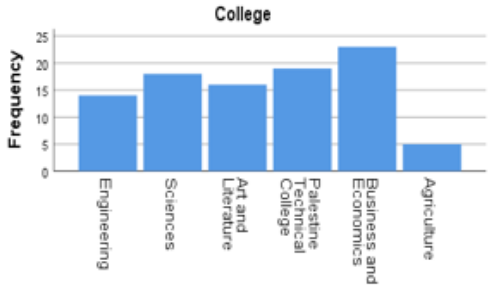

Figure 5. College distribution

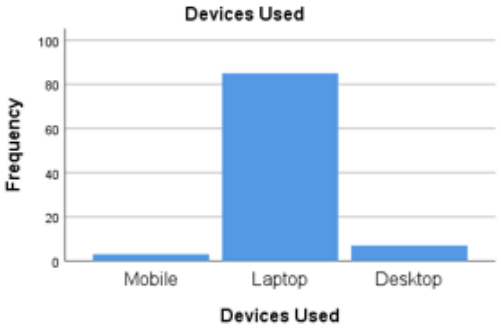

Figure 6. Devices used distribution

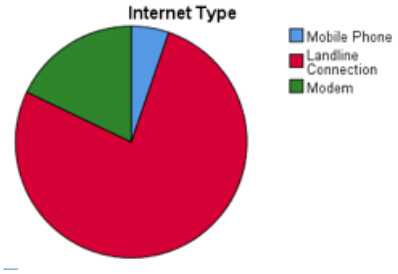

Figure 7. Internet type distribution

Obstacles' Descriptive Statistics

As mentioned earlier in literature section, E-learning obstacles in this study are classified into five levels. Specifically: lecturer, student, university, curriculum, and technology infrastructure. In addition, the following criterion was used to judge the degree of E-learning obstacles (from 3.41 - 5 high, 2.61 – 3.40 moderate, and 1-2.60 low). The descriptive statistics of these obstacles are offered in Table 6 and Table 7.

Table 6. Descriptive statistics of obstacles' constructs to using E-learning

Rank	Construct	N	Mean	Std. Deviation	Obstacle's degree
1	Technology and Infrastructure Obstacles Level Total (TOAVG)	95	3.88	0.879	High
2	University Obstacles Level Total (UOAVG)	95	3.20	0.883	Moderate
3	Student's Obstacles Level Total (SOAVG)	95	3.10	0.740	Moderate
4	Curriculum's Obstacles Level Total (COAVG)	95	2.97	0.917	Moderate
5	Lecturer's Obstacles Level Total (LOAVG)	95	2.51	0.876	Low

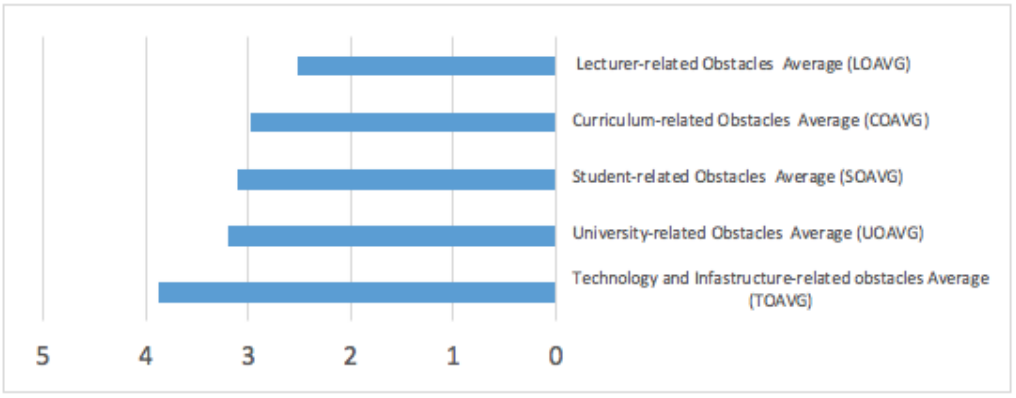

Figure 8. Means of the main constructs

The results in Table 6 and Figure 8 show that the most significant E-learning obstacles are the technology infrastructure-related obstacles (mean= 3.88). This means that lecturers believe that bad or limited technological infrastructure greatly hinders the effective use of E-learning. Moreover, university-related obstacles are at the second level of importance (mean= 3.20). As for the third most important obstacles, the student-related obstacles come (mean= 3.10). Concerning the obstacles of the curriculum, they are ranked fourth in importance (mean= 2.97). Finally, the lecturer-related obstacles are the least important (mean= 2.51).

Table 7. Descriptive statistics of the items of obstacles to using E-learning

Symbol	Statement	N	Mean	Std. Deviation	Obstacle's degree
LO1	I do not have sufficient knowledge and skill to use E-learning	95	2.16	1.085	Low
LO2	I am not confident in using E-learning	95	2.65	1.227	Moderate
LO3	I do not have experience in using E-learning.	95	2.43	1.164	Low
LO4	I feel dread and anxious about using E-learning technology	95	2.01	1.026	Low
LO5	I believe that the use of E-learning in teaching is not useful.	95	2.64	1.220	Moderate
LO6	I find that E-learning is dangerous because it requires me to sit for long periods in front of the computer, and this strains my eyes and exhausts my mind and body.	95	3.24	1.235	Moderate
LO7	The use of E-learning is not convenient for me.	95	2.44	1.137	Low

SO1	My students do not have sufficient knowledge and skill in the use of E-learning.	95	3.25	1.091	Moderate
SO2	My students do not have devices (i.e. laptop and tablet) for the use of E-learning.	95	3.21	1.061	Moderate
SO3	My students are not interested in using E-learning.	95	3.54	1.156	High
SO4	Students' lack of knowledge of the English language hinders them from using E-learning applications.	95	3.54	1.109	High
SO5	My students do not have internet connection.	95	2.62	.788	Moderate
SO6	My students are not able to access the E-learning system	95	2.44	.834	Low
UO1	Textbooks are not in line with E-learning use.	95	2.86	1.078	Moderate
UO2	My university does not provide technical support for E-learning use.	95	2.85	1.246	Moderate
UO3	The training provided by the university on how to use E-learning to teach courses is insufficient.	95	2.82	1.211	Moderate
UO4	Because of workload, I do not have enough time to prepare E-learning materials.	95	3.04	1.211	Moderate
UO5	The lack of financial incentives provided by the university for those who use E-learning.	95	3.78	1.093	High
UO6	The absence of non-financial incentives provided by the university for those who use E-learning.	95	3.38	1.141	Moderate
UO7	University regulations and the prevailing educational system do not support the use of E-learning.	95	3.67	1.106	High
CO1	Learning and teaching resources that are available on the E-learning system are not in accordance with the curriculum	95	3.02	1.148	Moderate
CO2	Student assessments required by the university are not consistent with the use of E-learning	95	3.46	1.137	High
CO3	The contents of my courses cannot be taught using E-learning.	95	2.73	1.096	Moderate
CO4	The contents of my courses are difficult to be taught using E-learning	95	2.81	1.151	Moderate
CO5	It is difficult for students to understand the contents of my courses through E-learning.	95	2.81	1.179	Moderate
TO1	The problems of poor electricity and power outages impede the use of E-learning.	95	4.02	.899	High
TO2	The slow internet speed and Internet bandwidth hinder the use of E-learning.	95	4.14	.895	High
TO3	The high cost of E-learning supplies (computer, internet, etc.) hinders the use of E-learning.	95	3.58	1.116	High
TO4	The infrastructure available to support the use of technology for E-learning is limited.	95	3.80	1.017	High

LO: Lecturer-related Obstacles, SO: Student-related Obstacles, UO: University-related Obstacles,sCO: Curriculum-related Obstacles, TO: Technology and Infrastructure-related Obstacles

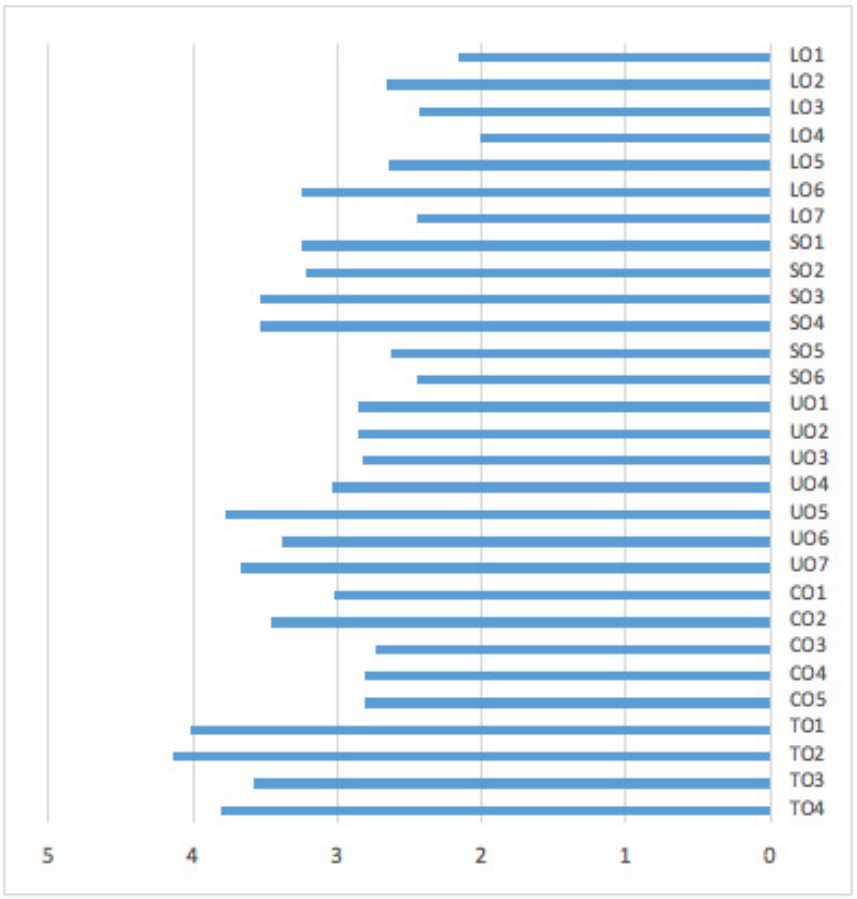

Figure 9. Means of the constructs' items

It is clear from Table 7 that the mean of the responses of the lecturers to the questionnaire paragraphs range from 4.14 to 2.01, and with a degree of appreciation ranging from (High) to (low). With regard to the details of the elements of each level, they are as follows:

Lecturer-related Obstacles

The results in Table 7 indicate that the lecturers' sense of the dangers of E-learning and the need for long sitting in front of the computer is the first hindrance to their use of E-learning (mean=3.24). In the second rank comes the lack of confidence (mean=2.65), and then the third comes the usefulness of E-learning (mean=2.64). As for the convenience of E-learning (mean=2.44), it comes in fifth rank, then the lack of experience of the lecturers in E-learning (mean=2.43) in the sixth rank. While the least influential component of the barriers of the lecturers is insufficient skills and experiences to use E-learning (mean=2.16).

Student-related Obstacles

The two most significant obstacles on the student's side are the lack of student's knowledge of English and the lack of student's interest in E-learning (mean=3.54). On the other hand, student's lack of knowledge of E-learning (mean=3.25) and student's lack of equipment for E-learning (computer or laptop) (mean=3.24) are second and third respectively. As for the fourth rank, it is the lack of interest of the student in E-learning (mean=2.62). Furthermore, the student's inability to access the E-learning system is the least obstacle (mean=2.44).

University-related Obstacles

Looking at Table 7, you will find that the lack of financial incentives granted by the university for those who use E-learning has a higher arithmetic mean of (3.78). This means that it is the highest obstacle among the obstacles related to the university. As for the university not having regulations and an educational system to support E-learning (mean=3.67), it is in the second rank. The absence of moral incentives from the university for those who use E-learning (mean=3.38) is in the third rank among these obstacles. Otherwise, the workload of the lecturers (mean=3.04) and the incompatibility of textbooks with E-learning (mean=2.86) appear in the fourth and fifth ranks respectively. As for the sixth rank, the lack of technical support provided by the university comes (mean=2.85). Finally, the least effective obstacle is the inadequate training provided by the university in the use of E-learning (mean=2.82).

Curriculum-related Obstacles

The biggest obstacle in this regard is the inconsistency between the assessments conducted by the university for students and the use of E-learning (mean=3.46). Then comes the incompatibility between E-learning and the curriculum (mean=3.02). On the other hand, the difficulty that students face in understanding the content of the courses through E-learning (mean=2.81) and the difficulty of teaching the content of the courses through E-learning (mean=2.81) appear in the third rank with the same effect. The least significant obstacle in this aspect is the inability to teach the contents of the courses using E-learning (mean=2.73).

Technology and Infrastructure-related Obstacles Level

Among the technological infrastructure obstacles, the slow Internet speed and internet bandwidth is at the forefront in terms of impact (mean=4.14). In second place comes the problem of poor electricity and power outages (mean=4.02). As for the limited infrastructure problem, it comes third (mean=3.80). The least significant obstacle is the cost of E-learning supplies (mean=3.58).

Correlation between the Obstacles

To find out the correlation between the different types of obstacles, Pearson correlation coefficients were calculated. Table 8 shows the details. The degree of correlation was explained using Table 9. All correlations are positive, most are moderately strong, and few are low strength. The results indicate that the strongest correlation is between the curriculum-related obstacles and the lecturer-related obstacles (r = 0.677) and then the correlation between the curriculum-related obstacles and the student-related obstacles(r = 0.658). On the other hand, the weakest correlation is between technological infrastructure-related obstacles and the lecturer-related obstacles (r = 0.417).

Table 8. Correlation matrix

	LOAVG	SOAVG	UOAVG	COAVG	TOAVG
LOAVG	1				
SOAVG	0.565**	1			
UOAVG	0.536**	0.532**	1		
COAVG	0.677**	0.658**	0.578**	1	
TOAVG	0.417**	0.536**	0.481**	0.487**	1

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

LOAVG: Lecturer-related Obstacles Average, SOAVG: Student-related Obstacles Average, UOAVG: University-related Obstacles Average, COAVG: Curriculum-related Obstacles Average, TOAVG: Technology and Infrastructure-related Obstacles Average

Table 9. Interpretation of degree of correlation based on Mukaka (2012)

Correlation Coefficient Value	Correlation Strength and Direction
0.90 to 1.00 (-0.90 to -1.00)	Very high positive (negative) correlation
0.70 to 0.90 (-0.70 to -0.90)	High positive (negative) correlation
0.50 to 0.70 (-0.50 to -0.70)	Moderate positive (negative) correlation
0.30 to 0.50 (-0.30 to -0.50)	Low positive (negative) correlation
0.00 to 0.30 (0.00 to -0.30)	Negligible correlation

Differences between the Lecturers According to their Demographic Information

The third research question is related to the differences between the lecturers according to their demographic information. To answer this question an independent t-test and One-Way ANOVA were used.

Differences between the Lecturers According to their Gender

Verification of the study hypothesis: Are there statistically significant differences between the views of the lecturers on the obstacles to E-learning by gender?

To assess the differences in the obstacles by gender of the lecturers, an independent t-test was applied. After confirming the test hypotheses and conditions, the results are in Table 10.

Table 10. Results of T-Test for Gender variable

Obstacle	Gender	N	Mean	Std. Deviation	Std. Error Mean	t-value	Probability value (Sig.)	Statistical significance
LOAVG	Male	62	2.4147	0.83127	.10557	-1.482-	0.142	Not significant
	Female	33	2.6926	0.94026	.16368			
SOAVG	Male	62	2.9462	0.65757	.08351	-2.882-	**0.005**	significant
	Female	33	3.3889	0.80759	.14058			
UOAVG	Male	62	3.0415	0.82832	.10520	-2.485-	**0.015**	**significant**
	Female	33	3.5022	0.91830	.15985			
COAVG	Male	62	2.8581	0.89030	.11307	-1.590-	0.115	Not significant
	Female	33	3.1697	0.94488	.16448			
TOAVG	Male	62	3.7177	0.91938	.11676	-2.607-	**0.011**	**significant**
	Female	33	4.1970	0.70920	.12346			
Totalavg	Male	62	2.9957	0.61856	.07856	-2.762-	**0.007**	**significant**
	Female	33	3.3901	0.73962	.12875			

LOAVG: Lecturer-related Obstacles Average, SOAVG: Student-related Obstacles Average, UOAVG: University-related Obstacles Average, COAVG: Curriculum-related Obstacles Average, TOAVG: Technology and Infrastructure-related Obstacles Average

From Table 10, it is clear that the gender variable has a statistically significant effect on both: student-related obstacles, university-related obstacles, technological-related obstacles, as well as total obstacles in favor of females at the level of significance ($\alpha = 0.05$). This means that female faculty members face more obstacles in E-learning than their male colleagues do.

Differences between the Lecturers According to their Degree

Verification of the study hypothesis: Are there statistically significant differences between the views of the lecturers on the obstacles to E-learning by degree?

To assess the differences in the obstacles by degree of the lecturers, One-Way ANOVA test was applied. After confirming the test hypotheses and conditions, the results are in Table 11.

Table 11. Results of ANOVA for Degree variable

Obstacle	Degree	N	Mean	Std. Deviation	F	Probability value (Sig.)	Statistical Significance
LOAVG	PhD	54	2.5159	.84739	0.024	0.976	Not significant
	M.A.	31	2.4885	.95602			
	Bachelor	10	2.5571	.85569			
	Total	95	2.5113	.87583			
SOAVG	PhD	54	3.0309	.73834	2.313	0.105	Not significant
	M.A.	31	3.0699	.76470			
	Bachelor	10	3.5667	.53403			
	Total	95	3.1000	.73994			
UOAVG	PhD	54	3.0926	.88853	1.654	0.197	Not significant
	M.A.	31	3.2535	.87420			
	Bachelor	10	3.6286	.82258			
	Total	95	3.2015	.88371			
COAVG	PhD	54	2.9741	.98137	.036	0.965	Not significant
	M.A.	31	2.9355	.85227			
	Bachelor	10	3.0200	.82435			
	Total	95	2.9663	.91682			
TOAVG	PhD	54	3.8565	.89627	0.202	0.818	Not significant
	M.A.	31	3.8790	.76341			
	Bachelor	10	4.0500	1.16548			
	Total	95	3.8842	.87884			
Totalavg	PhD	54	3.0940	.69194	0.654	0.522	Not significant
	M.A.	31	3.1253	.68188			
	Bachelor	10	3.3645	.68727			
	Total	95	3.1327	.68569			

From Table 10, it is clear that the there are no significant differences in obstacles between lecturers according to their degrees. This means that lecturers of all degrees are aware of the obstacles of E-learning to the same extent

Differences between the Lecturers According to their Teaching Experience

Verification of the study hypothesis: Are there statistically significant differences between the views of the lecturers on the obstacles to E-learning by their teaching experience?

To assess the differences in the obstacles by the teaching experience of the lecturers, One-Way ANOVA test was applied. After confirming the test hypotheses and conditions, the results are in Table 11.

Table 12. Results of ANOVA for Teaching Experience variable

Obstacle	Teaching Experience	N	Mean	Std. Deviation	F	Probability value (Sig.)	Statistical Significance
LOAVG	1-5 years	32	2.3348	0.66375	1.215	0.301	Not significant
	6-10 years	14	2.5816	1.04748			
	11-15 years	19	2.3609	0.87853			
	16-20 years	13	2.8791	0.95982			
	>20 years	17	2.6723	0.98557			
	Total	95	2.5113	0.87583			
SOAVG	1-5 years	32	3.2552	0.70327	1.913	0.115	Not significant
	6-10 years	14	3.0833	0.63633			
	11-15 years	19	2.7456	0.85953			
	16-20 years	13	3.3462	0.65072			
	>20 years	17	3.0294	0.72705			
	Total	95	3.1000	0.73994			
UOAVG	1-5 years	32	3.2054	0.60602	0.974	0.441	Not significant
	6-10 years	14	3.1633	0.96543			
	11-15 years	19	2.9023	1.24180			
	16-20 years	13	3.4176	0.84608			
	>20 years	17	3.3950	0.81367			
	Total	95	3.2015	0.88371			
COAVG	1-5 years	32	2.8875	0.72010	2.496	**0.048**	**Significant**
	6-10 years	14	2.7571	0.82715			
	11-15 years	19	2.6211	1.16980			
	16-20 years	13	3.3538	0.90978			
	>20 years	17	3.3765	0.85112			
	Total	95	2.9663	0.91682			
TOAVG	1-5 years	32	3.9453	0.73981	0.981	0.422	Not significant
	6-10 years	14	3.9464	0.87254			
	11-15 years	19	3.6447	1.26742			
	16-20 years	13	4.2115	0.61953			
	>20 years	17	3.7353	0.75762			
	Total	95	3.8842	0.87884			
Totalavg	1-5 years	32	3.1256	0.51356	1.592	1.83	Not significant
	6-10 years	14	3.1064	0.61186			
	11-15 years	19	2.8549	0.91254			
	16-20 years	13	3.4416	0.65068			
	>20 years	17	3.2417	0.71426			
	Total	95	3.1327	0.68569			

From Table 12, it is obvious that the there is a significant difference only in curriculum-related obstacles between lecturers according to their teaching experience (F= 2.496, p=0.048 < 0.05) at the level of significance (α = 0.05). It also shows a higher mean value for those with more years of teaching experience than those with fewer years. The highest group on curriculum-related obstacles is a group of lecturers with more than 20 years of teaching experience with a mean of 3.3765. This means that lecturers who have more than 20 years of teaching experience face curriculum-related obstacles in using E-learning more than lecturers whose teaching experience is equal to 20 years or less. As for the second group that follows, it is 16-20 years of teaching experience, with a mean of 3.3538. This means that lecturers with more experience in teaching face more obstacles lecturers with less experience. To find out the reason for the difference, a POST HOC test was conducted for multiple comparisons. Table 13 shows the results.

Table 13. Results of POST HOC Test for teaching experience

Teaching Experience (I)	Teaching Experience (J)	Mean Difference (I-J)	Probability Value (Sig.)	Statistical significance
>20 years	11-15 years	0.75542	**0.013**	**Significant**
16-20 years	11-15 years	0.73279	**0.024**	**Significant**
>20 years	6-10 years	0.61933	0.057	Not significant
16-20 years	6-10 years	0.59670	0.085	Not significant
>20 years	1-5 years	0.48897	0.070	Not significant
16-20 years	1-5 years	0.46635	0.114	Not significant
1-5 years	11-15 years	0.26645	0.303	Not significant
6-10 years	11-15 years	0.13609	0.665	Not significant
1-5 years	6-10 years	0.13036	0.648	Not significant
>20 years	16-20 years	0.02262	0.945	Not significant

** The mean difference is significant at the 0.05 level.*

It is clear from Table 13 that the reason for the statistically significant differences in the curriculum-related obstacles according to teaching experience is due to the difference between the more experienced group (more than 20 years) with the lowest group of them (16-20 years) with a significant difference of 0.75542. In addition to the difference between the group (16-20 years) with group (11-15 years), with a significant difference of 0.73279. The probability values are (0.013 - 0.024), respectively, and are less than 0.05. The differences between the rest of the groups are not statistically significant, as the probability values for all of them are greater than 0.05.

Differences between the Lecturers According to their Age

Verification of the study hypothesis: Are there statistically significant differences between the views of the lecturers on the obstacles to E-learning by their age?

To assess the differences in the obstacles by the age of the lecturers, One-Way ANOVA test was applied. After confirming the test hypotheses and conditions, the results are in Table 14.

Table 14. Results of ANOVA for Age variable

Obstacle	Age	N	Mean	Std. Deviation	F	Probability value (Sig.)	Statistical Significance
LOAVG	< 25Years	3	2.3810	1.43095	1.184	0.323	Not significant
	25-34 years	21	2.2653	0.54264			
	35-44 years	29	2.4039	0.91558			
	45-54 years	37	2.6950	0.85261			
	55 years or more	5	2.8857	1.48942			
	Total	95	2.5113	0.87583			
SOAVG	< 25Years	3	3.3889	0.85527	0.458	0.766	Not significant
	25-34 years	21	3.1984	0.69646			
	35-44 years	29	2.9885	0.80293			
	45-54 years	37	3.0811	0.68225			
	55 years or more						
	5						
	3.3000						
	1.05672						
	Total	95	3.1000	0.73994			
UOAVG	< 25Years	3	3.2381	0.87287	1.537	0.198	Not significant
	25-34 years	21	3.3333	0.66904			
	35-44 years	29	2.8916	0.82389			
	45-54 years	37	3.3012	0.96055			
	55 years or more	5	3.6857	1.22641			
	Total	95	3.2015	0.88371			
COAVG	< 25Years	3	2.9333	1.28582	2.661	**0.038**	**Significant**
	25-34 years	21	2.9714	0.67612			
	35-44 years	29	2.5586	0.89981			
	45-54 years	37	3.2216	0.91017			
	55 years or more	5	3.4400	1.19499			
	Total	95	2.9663	0.91682			
TOAVG	< 25Years	3	3.6667	1.52753	0.694	0.598	Not significant
	25-34 years	21	3.9643	0.77171			
	35-44 years	29	3.8621	0.95100			
	45-54 years	37	3.7973	0.87963			
	55 years or more	5	4.4500	0.41079			
	Total	95	3.8842	0.87884			
Totalavg	< 25Years	3	3.1216	1.12298	1.194	0.319	Not significant
	25-34 years	21	3.1466	0.44062			
	35-44 years	29	2.9410	0.67872			
	45-54 years	37	3.2192	0.73098			
	55 years or more	5	3.5523	0.92571			
	Total	95	3.1327	0.68569			

From Table 14, it is clear that the there is a significant difference only in curriculum-related obstacles between lecturers according to their age (F= 2.661, p=0.038 < 0.05) at the level of significance (α = 0.05). It also shows a higher average value for those with an older age group than a younger age group. The highest group in the curriculum-related obstacles is the group of lecturers aged 55 years or over, with a mean of 3.44. This means that lecturers who are 55 years of age or older face difficulties related to the curriculum in using

E-learning more than other lower age groups (younger). With regard to the group that follows it is the group of lecturers aged (45-54 years) with an average of 3.2216. To find out the reason for the difference, a POST HOC test was conducted for multiple comparisons. Table 15 shows the results.

Table 15. Results of POST HOC Test for age

Age (I)	Age (J)	Mean Difference (I-J)	Probability Value (Sig.)	Statistical significance
55 years or more	35-44 years	0.88138*	**0.043**	**Significant**
45-54 years	35-44 years	0.66300*	**0.003**	Significant
55 years or more	< 25Years	0.50667	0.436	Not significant
55 years or more	25-34 years	0.46857	0.291	Not significant
25-34 years	35-44 years	0.41281	0.107	Not significant
< 25Years	35-44 years	0.37471	0.487	Not significant
45-54 years	< 25Years	0.28829	0.589	Not significant
45-54 years	25-34 years	0.25019	0.304	Not significant
55 years or more	45-54 years	0.21838	0.606	Not significant
25-34 years	< 25Years	0.03810	0.945	Not significant

It is obvious from Table 15 that the reason for the statistically significant differences in the curriculum-related obstacles according to age is due to the difference between the older age group (55 years or more) and the group of age (45-54 years) with a significant difference of 0.88138. Moreover, there is a difference between a group of lecturers whose ages range between (45-54 years) and a group of lecturers whose ages range between (35-44 years) with a significant difference of 0.66300. The probability values are (0.043 - 0.003), respectively, and are less than 0.05. The differences between the rest of the groups are not statistically significant, as the probability values for all of them are greater than 0.05.

Differences between the Lecturers According to their College

Verification of the study hypothesis: Are there statistically significant differences between the views of the lecturers on the obstacles to use E-learning by their college?

To assess the differences in the obstacles by the college of the lecturers, One-Way ANOVA test was applied. After confirming the test hypotheses and conditions, the results are in Table 16.

Table 16. Results of ANOVA for College variable

Obstacle	College	N	Mean	Std. Deviation	F	Probability value (Sig.)	Statistical Significance
LOAVG	Engineering and Technology	14	2.0306	0.56917	2.714	**0.025**	**Significant**
	Applied Sciences	18	2.8810	0.81882			
	Arts and Educational Sciences	16	2.3839	0.94720			
	Palestine Technical College	19	2.7143	0.92949			
	Business and Economics	23	2.3043	0.89557			
	Agricultural Sciences and Technology	5	3.1143	0.27479			
	Total	95	2.5113	0.87583			

	Engineering and Technology	14	2.4881	0.52893			
	Applied Sciences	18	3.1667	0.57166			
	Arts and Educational Sciences	16	3.0104	0.82208			
SOAVG	Palestine Technical College	19	3.6228	0.45421	5.563	**0.000**	**Significant**
	Business and Economics	23	2.9493	0.82179			
	Agricultural Sciences and Technology	5	3.5667	0.57252			
	Total	95	3.1000	0.73994			
	Engineering and Technology	14	2.7449	0.53505			
	Applied Sciences	18	3.4762	0.99096			
	Arts and Educational Sciences	16	2.7411	0.73442			
UOAVG	Palestine Technical College	19	3.7895	0.75798	4.364	**0.001**	**Significant**
	Business and Economics	23	3.1056	0.93302			
	Agricultural Sciences and Technology	5	3.1714	0.48865			
	Total	95	3.2015	0.88371			
	Engineering and Technology	14	2.4143	0.67237			
	Applied Sciences	18	3.3222	0.98969			
	Arts and Educational Sciences	16	3.0250	1.15441			
COAVG	Palestine Technical College	19	3.2000	0.69602	3.284	**0.009**	**Significant**
	Business and Economics	23	2.6435	0.81342			
	Agricultural Sciences and Technology	5	3.6400	0.47749			
	Total	95	2.9663	0.91682			
	Engineering and Technology	14	3.6607	0.81811			
	Applied Sciences	18	4.0278	0.61170			
	Arts and Educational Sciences	16	3.9063	1.01191			
TOAVG	Palestine Technical College	19	4.1316	0.93307	1.135	0.348	Not significant
	Business and Economics	23	3.6196	0.94709			
	Agricultural Sciences and Technology	5	4.2000	0.77862			
	Total	95	3.8842	0.87884			
	Engineering and Technology	14	2.6677	0.39204			
	Applied Sciences	18	3.3748	0.69797			
	Arts and Educational Sciences	16	3.0133	0.75889			
Totalavg	Palestine Technical College	19	3.4916	0.60436	4.287	**0.002**	**Significant**
	Business and Economics	23	2.9245	0.67048			
	Agricultural Sciences and Technology	5	3.5385	0.24211			
	Total	95	3.1327	0.68569			

It is clear from Table 16 that the college variable has a statistically significant effect on the study tool as a whole where the level of significance ($p = 0.002 < 0.05$) and on all obstacles except for the technological infrastructure-related obstacles. The level of statistical significance of the other four levels are as follows: lecturer-related obstacles ($p = 0.025 < 0.05$), student-related obstacles ($p = 0{,}000 < 0.05$), university-related obstacles ($p = 0.001 < 0.05$), and curriculum-related obstacles ($p= 0.009 < 0.05$). In detail: The lecturers from Agricultural Sciences and Technology face obstacles related to the lecturer, the curriculum and all obstacles as a whole (total) more than the other colleges. The lecturers from Palestine Technical College face obstacles related to the student and the university more than the other colleges. To find out the reason for the differences, a POST HOC test was conducted for multiple comparisons. The results are in Table 17, Table 18, Table 19, Table 20 and Table 21.

Table 17. Results of POST HOC Test for lecturer-related obstacles by college

College (I)	College (J)	Mean Difference (I-J)	Probability Value (Sig.)	Statistical significance
Agricultural Sciences and Technology	Engineering and Technology	1.08367*	**0.015**	**Significant**
Applied Sciences	Engineering and Technology	0.85034*	**0.005**	**Significant**
Palestine Technical College	Engineering and Technology	0.68367*	**0.023**	**Significant**
Applied Sciences	Business and Economics	0.57660*	**0.031**	**Significant**
Agricultural Sciences and Technology	Business and Economics	0.80994	0.053	Not significant
Agricultural Sciences and Technology	Arts and Educational Sciences	0.73036	0.093	Not significant
Applied Sciences	Arts and Educational Sciences	0.49702	0.088	Not significant
Palestine Technical College	Business and Economics	0.40994	0.118	Not significant
Agricultural Sciences and Technology	Palestine Technical College	0.40000	0.345	Not significant
Arts and Educational Sciences	Engineering and Technology	0.35332	0.253	Not significant
Palestine Technical College	Arts and Educational Sciences	0.33036	0.249	Not significant
Business and Economics	Engineering and Technology	0.27374	0.338	Not significant
Agricultural Sciences and Technology	Applied Sciences	0.23333	0.583	Not significant
Applied Sciences	Palestine Technical College	0.16667	0.547	Not significant
Arts and Educational Sciences	Business and Economics	0.07958	0.771	Not significant

**. The mean difference is significant at the 0.05 level*

It is clear from Table 17 that the reason for the differences in the lecturer-related obstacles is in favor of the Faculties of Agricultural Sciences and Technology, Applied Sciences and the Palestine Technical College (diploma), respectively, versus the College of Engineering and Technology. As well as another difference in favor of the College of Applied Sciences versus the College of Economics and Business.

Table 18. Results of POST HOC Test for student-related obstacles by college

College (I)	College (J)	Mean Difference (I-J)	Probability Value (Sig.)	Statistical significance
Palestine Technical College	Engineering and Technology	1.13471*	**0.000**	**Significant**
Agricultural Sciences and Technology	Engineering and Technology	1.07857*	**0.002**	**Significant**
Applied Sciences	Engineering and Technology	0.67857*	**0.005**	**Significant**
Palestine Technical College	Business and Economics	0.67353*	**0.002**	**Significant**
Palestine Technical College	Arts and Educational Sciences	0.61239*	**0.008**	**Significant**
Arts and Educational Sciences	Engineering and Technology	0.52232*	**0.034**	**Significant**
Business and Economics	Engineering and Technology	0.46118*	**0.043**	**Significant**
Palestine Technical College	Applied Sciences	0.45614*	**0.040**	**Significant**
Agricultural Sciences and Technology	Business and Economics	0.61739	0.063	Not significant
Agricultural Sciences and Technology	Arts and Educational Sciences	0.55625	0.105	Not significant
Agricultural Sciences and Technology	Applied Sciences	0.40000	0.236	Not significant
Applied Sciences	Business and Economics	0.21739	0.301	Not significant
Applied Sciences	Arts and Educational Sciences	0.15625	0.495	Not significant
Arts and Educational Sciences	Business and Economics	0.06114	0.778	Not significant
Palestine Technical College	Agricultural Sciences and Technology	0.05614	0.867	Not significant

**. The mean difference is significant at the 0.05 level.*

It is evident from Table 18 that the reason for the differences in the student-related obstacles is in favor of the Faculties of the Palestine Technical College (diploma), Agricultural Sciences and Technology, and Applied Sciences, respectively, versus the College of Engineering and Technology. As well as another differences in favor of the Palestine Technical College (diploma) versus the College of Economics and Business and Arts and Educational Sciences respectively. Moreover, there are differences in favor of the College of Arts and Educational Sciences and the College of Business and Economics respectively versus the College of Engineering and Technology. The last difference is in favor of the College of Applied Sciences versus the Palestine Technical College.

Table 19. Results of POST HOC Test for university-related obstacles by college

College(I)	College(J)	Mean Difference (I-J)	Probability Value (Sig.)	Statistical significance
Palestine Technical College	Arts and Educational Sciences	1.04840*	**0.000**	**Significant**
Palestine Technical College	Engineering and Technology	1.04458*	**0.000**	**Significant**
Applied Sciences	Arts and Educational Sciences	0.73512*	**0.010**	**Significant**
Applied Sciences	Engineering and Technology	0.73129*	**0.013**	**Significant**
Palestine Technical College	Business and Economics	0.68388*	**0.008**	**Significant**
Palestine Technical College	Agricultural Sciences and Technology	0.61805	0.134	Not significant
Agricultural Sciences and Technology	Arts and Educational Sciences	0.43036	0.305	Not significant
Agricultural Sciences and Technology	Engineering and Technology	0.42653	0.317	Not significant
Applied Sciences	Business and Economics	0.37060	0.151	Not significant
Business and Economics	Arts and Educational Sciences	0.36452	0.172	Not significant
Business and Economics	Engineering and Technology	0.36069	0.194	Not significant
Palestine Technical College	Applied Sciences	0.31328	0.245	Not significant
Applied Sciences	Agricultural Sciences and Technology	0.30476	0.461	Not significant
Agricultural Sciences and Technology	Business and Economics	0.06584	0.870	Not significant
Engineering and Technology	Arts and Educational Sciences	0.00383	0.990	Not significant

**. The mean difference is significant at the 0.05 level.*

Based on Table 19, it is clear that the reason for the differences in the university-related obstacles is in favor of the Faculties of the Palestine Technical College (diploma) versus the College of Arts and Educational Sciences, Engineering and Technology, and Business and Economics respectively. Moreover, there are differences in favor of the College of Applied Sciences versus the College of Arts an Educational Sciences, and Engineering and Technology.

Table 20. Results of POST HOC Test for curriculum-related obstacles by college

College (I)	College (J)	Mean Difference (I-J)	Probability Value (Sig.).	Statistical significance
Agricultural Sciences and Technology	Engineering and Technology	1.22571*	**0.008**	**Significant**
Agricultural Sciences and Technology	Business and Economics	0.99652*	**0.022**	**Significant**
Applied Sciences	Engineering and Technology	0.90794*	**0.004**	**Significant**
Palestine Technical College	Engineering and Technology	0.78571*	**0.012**	**Significant**
Applied Sciences	Business and Economics	0.67874*	**0.015**	**Significant**
Palestine Technical College	Business and Economics	0.55652*	**0.041**	**Significant**
Agricultural Sciences and Technology	Arts and Educational Sciences	0.61500	0.169	Not significant
Arts and Educational Sciences	Engineering and Technology	0.61071	0.057	Not significant
Agricultural Sciences and Technology	Palestine Technical College	0.44000	0.315	Not significant
Arts and Educational Sciences	Business and Economics	0.38152	0.179	Not significant
Agricultural Sciences and Technology	Applied Sciences	0.31778	0.470	Not significant
Applied Sciences	Arts and Educational Sciences	0.29722	0.320	Not significant
Business and Economics	Engineering and Technology	0.22919	0.437	Not significant
Palestine Technical College	Arts and Educational Sciences	0.17500	0.553	Not significant
Applied Sciences	Palestine Technical College	0.12222	0.669	Not significant

**. The mean difference is significant at the 0.05 level*

Based on Table 20, it is obvious that the reason for the differences in the curriculum-related obstacles is in favor of Agricultural Sciences and Technology versus Engineering and Technology and Business and Economics. As well as another differences in favor of Applied Sciences versus Engineering and Technology and Business and Economics. Moreover, there are differences in favor Palestine Technical College (diploma) versus Engineering and Technology and Business and Economics.

Table 21. Results of POST HOC Test for total obstacles by college

College (I)	College (J)	Mean Difference (I-J)	Probability Value (Sig.).	Statistical significance
Agricultural Sciences and Technology	Engineering and Technology	0.87076*	**0.010**	**Significant**
Palestine Technical College	Engineering and Technology	0.82391*	**0.000**	**Significant**
Applied Sciences	Engineering and Technology	0.70704*	**0.002**	**Significant**
Palestine Technical College	Business and Economics	0.56718*	**0.005**	**Significant**
Palestine Technical College	Arts and Educational Sciences	0.47830*	**0.028**	**Significant**
Applied Sciences	Business and Economics	0.45031*	**0.026**	**Significant**
Agricultural Sciences and Technology	Business and Economics	0.61402	0.052	Not significant
Agricultural Sciences and Technology	Arts and Educational Sciences	0.52514	0.109	Not significant
Applied Sciences	Arts and Educational Sciences	0.36143	0.100	Not significant
Arts and Educational Sciences	Engineering and Technology	0.34561	0.139	Not significant
Business and Economics	Engineering and Technology	0.25673	0.234	Not significant
Agricultural Sciences and Technology	Applied Sciences	0.16371	0.610	Not significant
Palestine Technical College	Applied Sciences	0.11687	0.576	Not significant
Arts and Educational Sciences	Business and Economics	0.08888	0.667	Not significant
Agricultural Sciences and Technology	Palestine Technical College	0.04685	0.883	Not significant

**. The mean difference is significant at the 0.05 level.*

Table 21 shows that the reason for the significant differences on the study tool as a whole, according to the college, is in favor of Agricultural Sciences and Technology, Palestine Technical College and Applied Sciences versus Engineering and Technology. On the other hand, there are other differences in favor of the Palestine Technical College versus Business and Economics, as well as for the Arts and Educational Sciences. As for the last difference, it is in favor of Applied Sciences versus Business and Economics.

DISCUSSION

The aim of this study is to investigate the obstacles facing the lecturers of Palestinian higher education institution (Palestine Technical University "Kadoorie" as a case) for the effective use of E-learning. After reviewing the related literature, five types of obstacles were identified, namely: the lecturer, student, university, curriculum and technological infrastructure.

The results indicate that the most significant E-learning obstacles are the technology infrastructure-related obstacles. This appears from the consensus of the lecturers that the problem of Internet bandwidth and the speed of the internet greatly affects the effective use of E-learning. Moreover, most of the lecturers agree that the problem of weak electrical current and its interruption are also impediments to E-learning. This result is in accordance with Naveed et al. (2017) who use Fuzzy Analytic Hierarchy Process (FAHP) to Prioritize the four barriers of E-learning (Student, Instructor, Infrastructure and Technology, and Institutional Management). They find that the infrastructure and technology has the most influence on hindering E-learning. In addition, this result is consistent with Tarus et al. (2015) who investigate the challenges hindering the implementation of E-learning in Kenyan public universities. They find that inadequate ICT and E-learning infrastructure is one of the main obstacles hindering the implementation of E-learning in Kenyan public universities. Moreover, Mohamadzadeh et al. (2012) try to identify challenges of E-learning development in Payam Noor University of Iran to provide suitable solutions for effective E-learning. The results show that infrastructure barriers are part of the main set of challenges for E-learning at Payam University.

The reason for this is that Palestine lives under the Israeli occupation, which controls its resources and controls its outlets to the outside world. Not allowing the Palestinians to use the advanced generations of the Internet (The third and fourth generations) affects the speed and quality of the internet. Israel also refuses to increase the amount of electrical energy granted to the Palestinian territories or to improve the service. It also controls technological equipment that enters the Palestinian territories. In addition, the majority of Internet providers care about financial profit and do not provide community-based initiatives that support universities and E-learning or support campaigns for students. Finally, most universities in Palestine - Khedoori one of them - are still in their first steps in E-learning. Therefore, they still lack many of the modern technological equipment necessary to support E-learning. All of the above contribute to the limited technological infrastructure required for E-learning and raise prices for technology requirements.

The results also indicate that the lecturer-related obstacles have the least impact on the effective use of E-learning. This finding agrees with Almanthari et al. (2020) who explore the views of secondary school mathematics teachers on E-learning implementation obstacles in Indonesia during the COVID-19 pandemic at four obstacles levels (teacher, school, curriculum and student).The findings reveal that the teacher-related obstacles have the least effect, while the student-related obstacles have the most effect. Perhaps this is due to the positive attitudes of the lecturers on E-learning and their conviction of its importance. In addition, having the skills and knowledge necessary to use E-learning contributes to reducing the impact of the obstacles associated with the lecturers.

As for the correlation between the obstacles of E-learning, the highest correlations are between the curriculum-related obstacles and the lecturer-related obstacles and then between the curriculum-related obstacles and the student-related obstacles. This may be because these three elements are the necessary parties to integrate the educational process. The lecturer will teach the curriculum using E-learning. In return, the student will receive the curriculum through E-learning.

According to the differences between the responses of the lecturers depending on their demographic information, the following results appear:

- The gender variable has a statistical significance at the level ($\alpha = 0.05$) from the point of view of the lecturers on the study tool as a whole, as well as on both the student-related obstacles, university-related obstacles and technological infrastructure-related obstacles in favor of females versus males. This result can be explained by the fact that male faculty members may have much better skills in the fields of computer, internet applications and E-learning applications than their female colleagues. Moreover, females are more careful in details than males. This result is consistent with Vitanova et al. (2015) who declares that gender has effect on the teachers' ICT knowledge and skills and men are often more competent than women in dealing with information and communications technology. However, it does not agree with Almanthari et al. (2020) and Hassan (2020).
- As for the lecturer's degree, it has no effect on the responses of the lecturers at all. This result agrees with Almanthari et al. (2020) who state that education level does not influence teachers' attitudes towards E-learning barriers. This may be caused by the positive attitudes of the lecturers of different academic degrees towards E-learning. Most explain that the use of E-learning does not make them feel anxious or dreadful, and they consider E-learning appropriate for them.
- With regard to teaching experience, it is clear that it has a significant impact on the answers of the lecturers only with regard to the obstacles of the curriculum in favor of the highest teaching experience versus the least teaching experience. This result matches with Vitanova et al. (2015) who state that as teachers' years of experience increase, the outcomes of the efficiency of ICTs decrease. Meanwhile, it contradicts with Almanthari et al. (2020). The reason may be that the lecturers, who have been teaching for many years, have adapted to the curriculum in its traditional form, so it has become difficult for them to adapt it to E-learning. Especially regarding the availability of electronic resources and student assessments. Vitanova et al. (2015) mention that this is because of the relationship between age and experience of teaching.
- Considering the age, it is evident that it affects the responses of the investigated lecturers, only with regard to curriculum-related obstacles in favor of the oldest age group (45 years and over) compared to the younger age group (35-44 years). This result goes in accordance with Lloyd et al. (2012) and Vitanova et al. (2015). However, it is inconsistent with Pham & Tran (2020) and Fleming et al. (2017). This can be justified by the fact that E-learning is a modern method linked to the advancement of technology. It is well known that the younger age groups are more inclined to learn and try modern technologies while the older age groups tend to traditional methods.
- Finally, the results of this study show that there are significant differences on the responses of the lecturers, according to the college to which the lecturer belongs. These differences appear on the responses related to the study tool as a whole, as well as at all levels of obstacles that were investigated, except for technological infrastructure-related obstacles. Most of these differences are in favor of the Faculty of Agricultural Science and Technology, the Palestine Technical College and the College of Applied Sciences versus the College of Engineering and Technology, the College of Business and Economics and the College of Arts and Educational Sciences. This means that the lecturers of the College of Agricultural Science and Technology, the Palestine Technical College and the College of Applied Sciences face more difficulties in using E-learning from their colleagues in the College of Engineering and Technology, the College of Business and Economics and the College of Arts and Educational Sciences. This result matches with Hassan (2020) in that the college has an effect on the lecturer's awareness of the obstacles to E-learning, but it shows that the obstacles to using E-learning in human colleges are more than scientific colleges. In addition, Mercader & Gairín (2020) assert that academic specialization influences teachers' awareness of barriers to the use of digital technologies. However, this result contradicts with Al Gamdi & Samarji (2016). A possible justification for this result is that colleges that have largely evaluated obstacles (applied science and Palestine Technical College) most of their courses are practical and in need of laboratories, workshops or farms (College of Agricultural Sciences and Technology) so they face great difficulties in implementing their educational curriculum through E-learning. Also, some disciplines, such as mathematics, physics and the like, that follow Applied Sciences; their courses are difficult to assess through E-learning applications used, such as the Moodle. The strange result is that the College of Engineering and Technology was supposed to find the same result with the previous colleges due to its reliance on practical experiences, but perhaps

its result appears in contrast due to the small number of lecturers participating in the questionnaire. The number of participants from the College of Engineering and Technology is 14, out of 60 who were targeted. In addition, students of some colleges, such as Palestine Technical College, most of them have less academic performance and are less interested in E-learning compared to students of other colleges. This is evident from the mathematical mean of that college, on the obstacles of the student-related obstacles, as it is the highest among all colleges.

This study contributes to the literature on the most significant obstacle of E-learning use in higher education. The findings of this study have implications not only for Palestine but also for other developing countries that have started using E-learning in its higher education institutes. Moreover, this study reveals that there are differences in obstacles depending on lecturer's gender. This result asserts that the dominant of male lecturers over female lecturers in E-learning use is valid. This result agrees with the idea that men are more probably to have higher efficiency in ICT than women (Vitanova et al., 2015). In addition, there are differences between lecturers in terms of teaching experience. This confirms the idea that the more years of teaching experience, the lower the ICT efficiency results because of the relationship between age and teaching experience (Vitanova et al., 2015). As for the differences in terms of age, they confirm the previous results, which show that the older the teacher, the lower the degree of efficiency of his information and communication technology (Vitanova et al., 2015). Finally, the differences between lecturers according to college or specialization confirm the hypothesis that barriers to E-learning differ according to the academic specialization of the lecturer (Mercader & Gairín, 2020).

CONCLUSIONS AND IMPLICATIONS

In summary, this study aims to investigate main obstacles facing using E-learning in higher education institutes. Based on previous studies, some obstacles were determined and examined, including lecturers, students, university, curriculum, and technology infrastructure. An electronic questionnaire was prepared based on previous studies in the field of E-learning using Google Drive. The questionnaire was sent to lecturers to survey their opinions on the most important obstacles to the effective use of E-learning. After calculating the arithmetic mean and the standard deviation of each element at each level as well as the overall level of each obstacle, it was found that the most influential obstacle is the obstacles of the technology infrastructure, including the slow speed of the Internet and internet bandwidth, as well as the problem of poor electricity and power outages. Hence, universities must work quickly to provide the latest technological infrastructure on campus. They must equip classrooms with the necessary equipment for E-learning, update devices and networks, and increase the speed of the Internet. In addition, Internet service providers are required to help by providing better services to universities as well as students and lecturers by launching campaigns that enable the parties of the educational process to access high quality services at lower costs. The government should also have a role in supporting E-learning. The decision-makers in Palestine are required to address the problem of poor electricity and continuous power outages. Other alternatives, such as using the idea of solar cells, are advisable. In addition to the importance of the role of technology and software companies in E-learning, they are required to reduce costs, improve services and provide the necessary technical support.

As for the obstacles at the university level, which comes second in importance, they also need to be addressed to eliminate them or mitigate their impact. Financial and non-financial incentives should be given to lecturers who use and develop E-learning. Universities should also develop an education system that is compatible with E-learning as well as appropriate strategies. In addition to reducing the load of lecturers to enable them to prepare electronic educational resources. Finally, universities should update the curriculum books to suit E-learning. They should also provide adequate training in the use of E-learning as well as technical support.

Although the rest of the obstacles have less impact, they need to be addressed to ensure the success of E-learning. With regard to the third-rank student-related obstacles, students need to be made aware of the importance and benefits of E-learning to increase their interest in it. Training courses should be conducted to increase their skills in the use of E-learning. In addition, their English language skills must be developed because of its importance in E-learning use. To eliminate the obstacles of the curriculum, it is necessary to

update it immediately to make it appropriate for teaching through E-learning. One of the most important points of the study is student assessments, which must be developed in line with E-learning. Although the results indicate that the lecturer-related obstacles are the least influential, the importance of addressing them cannot be overlooked. Workshops and seminars should be held to educate lecturers and enhance their confidence in E-learning, its benefits and its importance.

Moreover, it is necessary to work to remove the obstacles for females' lecturers and train them to use E-learning more efficiently. Universities must focus training and motivation on the older age groups as well as those who have more teaching experience because of their familiarity with traditional methods and their preference to use them over the use of modern methods. The curricula of each discipline must also be studied to find appropriate methods for its teaching through E-learning applications and to develop appropriate assessment methods. In the end, cooperation between universities and the exchange of experiences can help in all of the above.

This study deduces that effective use of E-learning can be carried out by addressing the previous obstacles. Furthermore, this research asserts the findings of previous studies about obstacles to effective use of E-learning in developing countries, and fills the gap related the Palestinian case. It contributes valuable insights into the obstacles of E-learning such as the poor technology infrastructure (slow speed of the Internet and internet bandwidth, poor electricity and power outages) and insufficient support from the university that may limit from using E-learning effectively.

LIMITATIONS AND FUTURE RESEARCH

There are several limitations of this research. First, this study targets only lecturers from one university (Palestine Technical University "Khdoori"). It is therefore suggested that studies targeting lecturers from all Palestinian universities be conducted to generalize the results. Secondly, this research is based on quantitative data, so in the future similar research is preferred on qualitative data. Qualitative data helps identify the opinions of surveyed people who may mention important information not mentioned in the study and thus enrich the research. Thirdly, since students are considered an important part of E-learning, studies must be conducted to explore their opinions and identify the obstacles they face. They must be recalled in order to overcome the obstacles of E-learning and reach a successful educational process. Fourth, in-depth studies are needed to measure the quality of E-learning and how to improve and plan it. Finally, the small size of the sample and the low response rate. Although the sample was expressive, as it included lecturers from all colleges. Therefore, it would be more comprehensive if the number of lecturers participating were more to listen to more opinions, especially the Faculty of Engineering and Technology, where the participation of its lecturers is low. All those limitations could be the basis for future research.

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