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Arab American University

Faculty of Graduate Studies

Assessment of E-learning Engagement as a Strategic Choice Compared to Traditional Education in Palestinian Public Schools

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By

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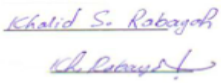
1. Supervisor Name: Dr. Khalid Rabaya'h 
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Dedication

To those who showed me the way to take it, to those with whom I began the first letters of the language (to the souls of my father and mother, may God have mercy on them, I dedicate my graduation).

- To the winds of my life, this life without you is nothing, with you I am and without you I will be like anything, to those with pure hearts and innocent souls, to those who were my refuge after God, and with their presence I spend the most beautiful moments (To my wife and children I give my graduation).

- To those who have found a way with the soul. To those who share my joy, pray for me, and always love me. I dedicate my graduation (to my brothers, sisters, colleagues, friends and loved ones I dedicate my graduation).

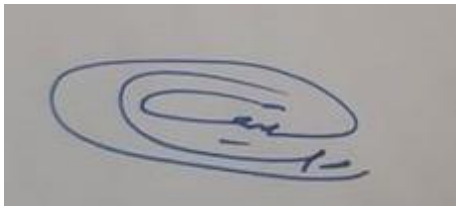
-To the one who stood on a pulpit of light and gave me and my colleagues the sum of his ideas to light my path (to Dr. Khalid Rabaya'h and the faculty at the Arab American University I dedicate my graduation).

- To the Virgin who bled the hearts of lovers, to the Lady who gives birth to martyrs and for whom the stabs of years' weep, to the glory that was, and today has become ruins of mud and mud. To the first bride who wears her dignity, and men wear their last white gowns to her to challenge the

universe longing for her (To beloved Palestine, its wealth, martyrs, captives, heroes and freemen, I dedicate my graduation)

Declaration

I, the author of the thesis, acknowledge that it has been submitted to the Arab American University to obtain a master's degree, and that it is the result of my own research, except for what has been indicated wherever it appears, and that this thesis or any part of it has not been submitted to obtain any higher degree for any other university or institute.

Signature: 

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Praise be to God alone, a praise worthy of the majesty of his destiny and the greatness of his authority, and thanks to God first for the blessings he bestowed upon me, for helping me complete this research.

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Abstract

Many technological innovations and developments have allowed many countries to improve their education at low cost. At the Palestinian level, the Ministry of Education is currently placing considerable efforts towards employing technology in education at the school level, especially after the break of the Covid-19 Pandemic. The ministry move aims at making a considerable shift in the educational processes and transferring them from traditional (face-to-face) to electronic, especially teaching and learning. The ministry move relies on improving the communication infrastructure, in addition to technological solutions of e-learning. The ministry is working to provide schools with the basic infrastructure, mainly the Internet, digital content, and access equipment as computers and tablets. The ministry is also exerting huge efforts in teachers' training and qualification.

However, these national endeavours are hindered by several obstacles where the Israeli occupation is the most prominent one. The occupation authorities confiscate electronic means and equipment that are imported or donated from abroad, as they pass through the Israeli crossings. The second obstacle have to do with the allocated budgets that are not sufficient for the generalization of the initiatives on national level. The third obstacle has to do with the lack of qualified teachers in using technology to deliver content effectively. These to be added to the cultural issues which make large fraction of teachers and students as well not convinced of using technology as a method of learning and teaching.

This study is designed to contrast the effectiveness of using technology in public education at school level with traditional face-to-face methods, as perceived by students and teachers as well.

The study is designed to tackle the issue from two different perspectives; students and teachers. On the students' level, the contrast between e-learning and face-to-face, will be completed with regards to perceived effectiveness of learning processes, perceived ease of use, interactivity, motivation towards learning, and effectiveness of learning environment. On the students' level too, the process of assessment and examination will be evaluated in the e-learning environment and contrasted with face-to-face traditional learning.

The researcher believes that students views on e-learning will be dissimilar from that of teachers views. To that end, the researcher decided to design a special questionnaire, that investigate the above listed issues: effectiveness of teaching processes, ease of use of educational processes, readiness of the technology infrastructure, motivation towards teaching, and examination and assessment.

The overall goal of the study is to assess the extent to which technology can practically be reliable alternative to traditional in-person learning system, and can effectively contribute to transfer of knowledge to learner within the Palestinian context via the use of technology.

The descriptive approach was used to study, analyze and evaluate the effectiveness of technology employment in the Palestinian educational system. Quantitative approach was used to collect data from a large national sample of study participants (students and teachers).

The data were collected with the assistance of the Ministry of Education and the questionnaires were distributed and collected electronically.

There is a negative attitude among students and teachers towards the effectiveness of e-learning compared to traditional (face-to-face) education. However, students' attitudes were more negative than teachers.

The importance of the study stems from the fact that education reform, improving its quality, and searching for solutions to its problems are the focus of Palestinian society's attention at all levels, in an attempt to reorient the educational system and put it on the right path that accompanies global changes and modern educational trends to advance the Palestinian community and build a generation that possesses skills, capabilities and knowledge values ability to develop life skills, produce science, and solve problems in order to achieve sustainable development aimed at advancing the Palestinian reality.

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Chapter 1

The general framework of the study

1.1 Topic and context

The educational reform and development process is based on the importance of clear perceptions that show the role and responsibilities of the teacher in the era of the technological and knowledge explosion that requires investment in human capital. As the education sector is affected by the accelerating technological development in a significant way, like other sectors that invaded markets, homes and even schools, and it is necessary to invest this modern technology in providing qualitative learning for students and developing their educational skills. So many educational researchers around the world went to study the effectiveness of technology utilization in teaching and learning, to search for the added values of using tablet devices in education as a supportive educational method, and to explore the possibility of being an alternative to the textbook and a tool on which the teaching, learning, and communication between the teacher and the student are centered.

The integration and employment of technology in the educational process should lead to a qualitative shift in the education process, as tablets have been introduced in the educational process of many countries in the world that have made significant progress in this field, and emerging economies in Asia, Eastern Europe and other countries are keen to adopt Tablets in schools, and among the countries that have had this experience: Britain, the United States, India, China, Singapore, Turkey, Brazil, Colombia, Thailand, South Korea, Australia, Saudi Arabia and others. (Ministry of Education and Higher Education, 2016)

By benefiting from the experiences of countries and to achieve educational concepts consistent with the skills of the twenty-first century to catch up with developed societies

by improving current practices of education and increasing the effectiveness of current educational mechanisms, taking into account the characteristics of students and their various needs, The Ministry of Education in Palestine made a decision to switch from traditional education to e-learning at the end of the year 2015 in partnership with national institutions, civil society institutions and the private sector. The program aims to achieve a set of goals under the umbrella of (Improving the Quality of Education) through capacity development for teachers, school leaders, and students to employ technology and informatics and invest this in education in order to reach an attractive and stimulating school learning environment, using the tools of the e-learning system, which are students' tablets, a teacher tablet, an interactive display or smart board, the infrastructure for wireless networks, a charging and storage unit for tablets, and educational content Interactive digital. (Ministry of Education and Higher Education, 2018).

The e-learning program was started at the beginning of the 2016/2017 academic year with a sample of 37 schools in the West Bank, in addition to several schools that were working in the same framework through previous projects (Promoting e-learning in Palestinian / Belgian schools, Al-Bairaq, Al-Ufuq), bringing the number of schools to 70 schools. The program targeted the fifth and sixth primary grades students in all education directorates, and other levels of classes were added later. And about 6203 tablets were provided and distributed with the support of knowledge tax in the municipalities and the participation of local communities. In addition, the ministry trained 1000 teachers to employ technology and manage classroom. During the academic year 2017/2018 the number of schools which was included in the program reached 159 schools; they were distributed in the governorates of the West Bank, but

now devices are redistributed at a rate of 50 devices in the school or according to the mechanism of employment of the technology used in the school, where all teachers are allowed to hire technology in all grades, targeting all schools in the directorates of education. (Ministry of Education and Higher Education, 2017).

However, after the spread of the Corona pandemic, the Ministry of Education had an enforced shift from traditional education to electronic education due to the as a result decision government, to enforced a state of emergency in Palestine in March, 2020.The Palestinian educational sector was affected, as the rest in the whole world. The educational sector in Palestine must apply e-learning fully in all educational levels.

1.2 Focus and scope

The study will focus on assessing the engagement of e-learning compared to traditional education in public schools in Palestine from the viewpoint of students and teachers from 2005 to 2021, that is, from the first idea under the name of the e-learning initiative through smart learning schools, which was for the Education Directorate of Ramallah and Al-Bireh. It obtained the lion's share for several considerations. The Directorate is more open in this area and so close to decision-making body, and it leads to the application of enforced electronic education due to the closure of schools in full agreement with the health protocol imposed by the Corona pandemic. We will look at the experience of schools that have used electronic education to communicate knowledge to students and compare it with traditional education in order to find out the difference between them, and which one fosters students higher order thinking skills in order to build educational competencies that must be nurtured in our students, and finally to explore whether the Ministry of Education take a strategic decision to move

towards education Or to keep practicing the traditional education that has been tried for decades.

1.3 Relevance and importance

Interest in the application of e-learning has increased recently in most countries of the world, especially after the spread of the Corona pandemic, and this experience is worthy of attention in a country such as Palestine, and the importance of this research is in evaluating the use of technology in the educational learning process compared to traditional education, as the trend towards the use of technology in education It will enable teachers to find realistic data that will enable them to re-design and restructure the education system. Therefore, the importance of this study lies in the fact that it sheds light on the evaluation of the employment of e-learning in Palestinian public schools and the extent of their compatibility with the capabilities of teachers and students alike, compared to the traditional education applied for decades.

The evaluation of the use of smart tablets and tablets in the Turkish educational system showed that, according to the views of teachers, there is a significant difference in the distribution of tablets for male teachers, assuming that teachers teach to adapt more easily to tablets than using computers. In general, teachers agree on the use of smart boards in their classes, where as they differ with the distribution of tablet computers in the classroom where teachers did not consider the distribution of tablet computers as a positive development because they affect students' motivation for the classes in a negative way. Also, it was found that teachers need more training on the use of tablet and smart panels with class contents. (Erol & Mucahit, 2017).

In Tehran, the use of information and communication technology (ICT) system in schools in developing countries among students who could not use technology at home is an opportunity to learn new skills. (Saheb, 2014).

As for India, it has exerted great efforts in following the global trend through the digitization of its educational system as the previous traditional education system was a major means of teaching and learning, but today the educational systems change rapidly due to the technology and internet revolution that led to an educational mode supported by technology, through the use of content Digital Classroom is specifically designed to integrate a unique methodology with language learning tools that enable students to understand the patterns of sentences, practice reading and writing, and verbal skills themselves, and therefore attention to quality education and increased learning outcomes helped teachers to provide a suite of educational solutions that help students to leapfrog towards a reinforced learning model and learning, especially with the ubiquitous transition from traditional to digital tools that seamlessly jump from mobile phones to laptops and tablets. (Nivedita & Veena, 2016).

As for the countries that apply the digitization of education (the experience of education by tablets) in the Arab world, the Kingdom of Saudi Arabia, where several experiments have been identified for private schools seeking to employ tablets in the educational process, including what were the devices are means of enriching and searching for information, including what was an essential factor in the educational process, a way to follow lessons and communication between the teacher and the student, a method for assessing and following up students and an integrated platform for the teaching and learning processes according to modern teaching strategies such as inverted class

strategy or specialized learning strategy or others. (Ministry of Education and Higher Education, 2016).

Aspects of teacher performance vary and change with changing attitudes imposed by several factors, including: globalization, the communication and information revolution, scientific progress, technical development, and educational innovation. As stated in educational literature, there are many aspects of contemporary teacher performance that vary according to the areas of educational innovations, where they are a mirror Reflecting the scientific, technological, and economic changes that the new global system is producing, given that the local system is part of the global system, and for this it is not easy to define aspects of the teacher's roles that he must perform because they are renewable and constantly changing, in addition to being intertwined with each other and complementing each other. (Haroun, 2013).

The teacher's capabilities and capabilities related to innovation and the ability to carry out other burdens also include participating in the continuous development of school programs, and performing practices to improve the administrative, social, and technical systems in the school in such a way that this practice becomes part of the school's culture. (Al-Sayed, 2003).

Therefore, the greatest responsibility in employing e-learning rests with the Palestinian teacher and the extent of his ability to adapt technology to impart knowledge to his/her students, and whether they gain knowledge through e-learning in Palestinian schools with a higher rate than traditional education?

1.4 E-learning within the Palestinian educational context

The Palestinian Ministry of Education is working on developing the employment of information and communication technology (education and e-learning), as part of its plan to achieve its goal towards improving the quality of education. education and enhance communication between the parties to the educational process.

The Ministry has taken several steps in this field within the framework of the implementation of various projects focusing on the basic components of the use of information and communication technology in education, which are: infrastructure, electronic content, capacity building, and strengthening the communication network within schools to reach a high access to information.

E-learning has gone through various stages; Since the establishment of the Palestinian Authority, there have been individual and sporadic attempts to employ information and communication technology in education; In 2005, with the launch of the e-learning initiative, which aimed to improve the quality of education through the use of technology, an e-learning strategy was developed. Since then, the Ministry has implemented several projects that have contributed to enhancing the employment of information and communication technology in education, including:

1- The Model Schools Network Project: which was launched in 2007; the Intel Education Program, which was launched in Palestine in 2008; the Seed Project, which was launched in 2012, the Net-Kitabi PSD project, which was launched in March 2011, and was considered the largest and most important projects in

utilizing information and communication technology in education that the Ministry has been implementing since them.

2- The project to promote e-learning in Palestinian schools, which is funded by the Belgian government, and is implemented in cooperation with the Palestinian government. The project was launched in 2010. The project is based on supporting and developing e-learning and education in primary schools. It aims to create an active interactive environment between students, teachers and the community inside and outside the classroom to provide students with critical and creative thinking skills and the ability to solve problems.

E-learning is applied between schools at unequal proportions; There are schools where e-learning is applied to a large extent due to the availability of various capabilities, from technological tools and human capabilities, which help to effectively employ information and communication technology in education within the school; There are schools where e-learning is used modestly; due to lack of technological capabilities; Among the most important are the Internet lines that provide access to the information network.

The Ministry seeks to provide various possibilities in all schools; Through various projects, it has provided computers, smart tablets, projectors, and other tools that help employ modern technology in education.

During the previous years, the Ministry, along with the Communications Corporation for Community Development, provided internet lines to more than 1,000 public schools affiliated with the seventeen directorates of education in the West Bank.

The Ministry, through the E-Learning Enhancement Project, has worked to develop an educational portal that contains educational resources that help teachers during their teaching tasks, and every male and female teacher can participate in this portal.

The Ministry, in cooperation with the private sector, has established a school portal to communicate with parents and enable them to view their children's educational history at school. The Ministry is currently working on training male and female teachers on the effective use of e-learning; About 1,000 teachers have been trained so far.

1.5 Questions and objectives

The use of technology in education has become a major requirement for the success of the educational process and raising the level of students 'performance, by developing teachers' skills and abilities in this field, and investing in them effectively and positively. It is considered an investment in the field of human development, so the following questions had to be asked:

1.Is the use of modern technology in Palestinian government schools a strategic option to improve the effectiveness of the educational system?

2.Is there a difference in the process of transferring knowledge between e-learning and traditional or (face-to-face) education, and which one is better for Palestinian government schools?

Which gives rise to the following sub-questions for each of the main questions:

1- What is the reality of engaging e-learning in the educational process compared to traditional education from the student's point of view?

2- What is the reality of engaging e-learning in the educational process compared to traditional education from the teacher's point of view?

The current study aims to reveal the effectiveness of employing e-learning in developing the educational process, where the main objective of the study is the following:

Evaluating the employment of e-learning as a strategic option compared to traditional education in Palestinian government schools.

The following sub-goals stem from it:

1- Determining the degree to which students use technology tools and modern teaching methods in learning.
2- Determining the degree to which teachers employ higher-order thinking skills in acquiring problem-solving skills and producing innovative technological projects.
3- Determine the degree to which teachers employ virtual learning societies in the educational process.
4- Determine the importance of publishing interactive content for teachers and students on the educational portal and the Internet.

1.6 Overview of the structure

The study includes five chapters divided as follows:

Chapter One (The general framework of the study): It presents the introduction of the study, its importance, objectives, questions, the limits of time and spatial study, and the detail of the study structure.

Chapter two (Literature Review): The literature review is a survey of scientific sources on the subject of research. It provides an overview of current knowledge, allowing you to define relevant theories, methods and gaps in the current research and what we can draw from a review of those literature.

Chapter three (Study Methodology): deals with the study methodology, the community in which the study was conducted, the research sample, the study tool, and the procedures for verifying the validity and consistency of the study.

Chapter four (Presentation of Analysis and Results): Shows the results of the statistical analysis of the data obtained from the respondents, displaying the results, answering the study questions, validating the hypotheses.

Chapter five (Discussion and Concluding Remarks): It includes a discussion of the results and the master's thesis and the extent of its proof, and a summary of the results, conclusions and recommendations based on the results of the study.

Chapter 2

Literature review

The process of educational reform and development is based on the importance of having clear perceptions, showing the role of the ministry, specifically the teacher and his/her responsibilities in the age of explosion of knowledge and technology, which reflected on all regions of social skills, especially as keeping abreast of these developments, knowledge rights and new developments which requires effective investment in human capital and contribute to building a conscious human committed to the issues of his/her nation and concerns. Therefore, we had to look for ways to achieve this through access to international and local literature specialized in the field of technology and the extent to which they keep leap with the educational process.

Zhang& Nunamaker (2003).

In today's new economy characterized by industrial change, globalization, increased intensive competition, knowledge sharing and transfer, and information technology revolution, traditional classroom education or training does not always satisfy all the needs of the new world of lifelong learning. Learning is shifting from instructor-centred to learner-centred, and is undertaken anywhere, from classrooms to homes and offices. E-Learning, referring to learning via the Internet, provides people with a flexible and personalized way to learn. It offers learning-on-demand opportunities and reduces learning cost. This paper describes the demands for e-Learning and related research and presents a variety of enabling technologies that can facilitate the design and implementation of e-Learning systems. Armed with the advanced information and communication technologies, e-Learning is having a far-reaching impact on learning in the new millennium. I think that the Palestinian society is not yet ready to fully implement e-learning.

Hixon & Buckenmeyer (2009).

The researchers stated that as the technology infrastructure of schools expands, a common concern has been the underutilization of computers and other technologies in the classroom. They added that teachers are always blamed for failing to integrate technology into their teaching, giving such reasons as lack of time, training, equipment, and support. So they emphasized that these are the primary obstacles against having successful technology integration. I think that it is not only teachers who are the problem of e-learning, but there are multiple factors that affect the implementation of e-learning in Palestine, including infrastructure, budgets, culture, …etc.

Shraim & Khlaif (2010).

This paper explores the potential of e-learning methods in conflict situation with mobility restrictions to enhance the educational process and to provide continuous learning for secondary students in Palestine. An interactive web-based application prototype called the Alaws Educational Network (AEN) developed provided a variety of methods for a student-centered learning process, including virtual classrooms, a discussion forum and e-training courses. Students and teachers were asked to evaluate different aspects of the AEN in terms of usefulness, self-efficacy, willingness and challenges as indications of their ability and readiness to embrace e-learning. The results show that both students and teachers have positive attitudes towards the usefulness of e-learning methods, but that they might not yet be ready to adopt them. This confirms the existence of problems facing e-learning compared to face-to-face education that both students and teachers practice, but in light of the spread of the

Corona virus, we had to adopt e-learning in line with the existing health protocol.I think that Palestine is not yet ready to implement e-learning.

Abu-Shanab, Momani & Ababneh (2012).

This study tried to measure teachers' perceptions towards the intention to use EduWave and the factors affecting it. EduWave is a system implemented by MoE in Jordan, like many Arab countries. The study concluded that perceived usefulness and perceived ease of use significantly influenced intention to use Eduwave, but perceived trust failed to do so. I think this confirms that e-learning needs more research from several dimensions, not just the ease of use.

Lim, Tondeur, Chai & Tsai (2013)

Considerable investment has been made to bring technology to schools and these investments have indeed resulted in many "success stories." However, there are two significant gaps in educational uses of technology that must be addressed. The first is a usage gap. The second is an outcome gap. This article discusses the causes of these two gaps and provides suggestions for bridging them by engaging in discussions about effective teaching and committing to technology planning. I think that there are dimensions that must be measured before judging a success story for e-learning.

Abu Khamis, Ahed, Islaih, Adnan, Salman & Kamel. (2013).

The researcher showed that the total degree of the effect of using modern technologies in learning from the teacher's point of view was low as the total percentage of the respondents' average responses on all paragraphs for all fields (51.9%), and the total score for the use of modern technologies in learning (47.7%). The researchers

recommended several recommendations, the most important of which was the need to train teachers of technology in the use of modern educational techniques, especially e-learning and multimedia and make it an essential part in achieving the objectives of different lessons, and the need for a special educational techniques specialist in each school. I think that the findings of the study are close to the Palestinian reality, but we need more research

Brinkley and Etzkorn (2018).

This study aims to test one model for training new online instructors and measure its impact on the Technological Pedagogical Content Knowledge (TPACK) model served as the conceptual framework. The findings of this study showed that instructors demonstrated. To have improvements in their teaching abilities as self-reported in the follow-up survey. However, there were no significant changes in their student evaluations of teaching pre- and post-training. Overall, instructors demonstrated modest improvements in their teaching effectiveness. I think that the findings of the study need to be proven in the Palestinian context.

Kong (2018).

This study aimed to investigate parents' understanding, support, and concerns about e-learning, and suggested a partnership between the school and parents to allocate responsibilities to parents and schools based on the results of the study. Where parents should implement a proactive policy of e-learning at home to monitor, support and inspire e-learning. Schools should formulate a comprehensive policy to address parental concerns responsively and proactively to obtain support. Schools can enhance parents' educational understanding of e-learning and address parental concerns through

communication between the school and parents and peer support between parents, and this confirms that the educational process does not depend on the school alone, but rather is a community partnership in which each has an important role. I believe that education is a societal responsibility, so I agree with the study, but we need to raise national awareness regarding e-learning.

Having observed a lot of research related to the process of using technology in education, we found that there are several gaps to talk about, what is the extent of the promise of the Palestinian Ministry of Education in its strategic plan to employ technology in education and are there real implementation plans or is it ink on paper. Is it influenced by the change of ministers and governments, the extent to which schools have an infrastructure to implement, are teachers convinced that the transfer of knowledge to students can be done through technology or can it be a substance, not a key factor? Can the culture of Palestinian families respond to the Ministry's development thesis in the field of modern educational process? Is there harmony between the different levels in the Ministry of Education on the adoption of the use of technology in the educational process, although the ministry's claim that it has begun to implement this process, but are there any budgets allocated by the ministry for this purpose and can they employee funds for that. Although many developed countries that support education in Palestine did not go to this option in the development of their educational process.

Chapter 3

Methodology

This chapter reviews the study's methodology, and tools, the study population on which the researcher conducted the study, the sample and its characteristics, the method followed by the researcher to ensure the validity of the study tool, and the method of statistical processing of the study data.

3.1 Methodological approach

Based on the nature of the data and information needed for this study, the researcher adopted the descriptive approach to accomplish it and achieve its objectives. This approach is appropriate for the purpose of the study, as it is based on identifying and analysing the current reality of the study issue through its description and interpretation of results.

The primary data was collected through a questionnaire, as a main tool for the research, designed specifically for this purpose. Tow questionnaires were designed and transferred to a Google system, and the data were unpacked and analysed using the statistical program (SPSS v.24).

3.2 Population and sample

The study population is represented in all government schools distributed in (17 education directories) in the West Bank and (7 education directorates) in Gaza - Palestine for the academic year 2020/2021.

The study sample was chosen using the stratified random sampling method, so that this sample is representative of the community according to the size of the directorate in the West Bank. Social communication for the education directorates on all teachersand

students who underwent e-learning in public schools, as they were according to the following table:

Table 3.1: Distribution of the study sample in the directorates of education \ the northern governorates.

Directorates	Teachers		Students		المديريات
	%	#	%	#	
Jenin	8.2%	410	8.0%	376	جنين
Qabatiya	4.7%	235	4.5%	211	قباطية
Tubas	2.4%	121	3.6%	168	طوباس
Tulkarm	9.1%	457	12.3%	576	طولكرم
Qalqilya	3.3%	163	3.5%	162	قلقيلية
Nablus	8.7%	435	6.5%	305	نابلس
S. Nablus	4.5%	224	4.3%	202	ج. نابلس
Salfit	3.4%	171	3.6%	167	سلفيت
Ramallah	10.8%	540	5.3%	248	رام الله
Sub. Jerusalem	4.0%	198	4.2%	195	ض. القدس
Jerusalem	2.0%	99	2.3%	109	القدس
Jericho	2.0%	101	2.0%	95	أريحا
Bethlehem	7.7%	385	9.7%	452	بيت لحم
N. Hebron	6.2%	308	3.8%	179	ش. الخليل
Hebron	8.6%	429	7.3%	343	الخليل
S. Hebron	9.1%	456	8.6%	404	ج. الخليل
Yatta	5.0%	249	4.0%	188	يطا
Total		**5004**		**4671**	المجموع

3.3 Data collection method

In the current study, the questionnaire instrument is utilized to collect data. The reason is that the data collection method will be more efficient in terms of time and cost using questionnaires than other data collection methods. More specifically, questionnaires are electronically distributed, using Google Forms. The questionnaire consists mainly of two parts; part 1 is dedicated for demographic variables, and part two for constructs.

A 7-point Likert scale that ranges from 1 (Very Low) to 7 (Very High) is used in the 2nd parts of the questionnaire. All items are positively phrased. Therefore, no items need to be reversed. Higher scores (moving from 1 to 7) indicate higher levels of satisfaction and agreement with what is stated by the statement. Two questionnaires (questionnaires) were used for teachers and students.

The validity of the study tool, was verified by presenting the study tool to (5) specialists, where minor modifications were recommended. The study tool was sufficient to measure the intended constructs with the clarity of the paragraphs and the strength of their linguistic formulation.

3.4 Data analysis techniques

The necessary statistical treatment of the data was carried out by extracting numbers, percentages, arithmetic averages and standard deviations. The hypotheses of the study were examined at the level of $\alpha \leq 0.05$ by the following statistical tests using the computer through the SPSS24 statistical package:

1- Percentages, mean, and standard deviation.

2-Pearson correlation coefficient.

Chapter 4

Results of data analysis

4.1 Overview

This chapter is devoted to the exploration and analysis of the gathered data throughout the research project. The chapter comprises of the analysis of student's data and the teacher's data as well. The analysis will involve both descriptive and inferential approaches.

The chapter will start with the analysing the student's data which comprises of about 4700 cases. For that sample, the demographic variables will be explored, followed by the constructs, and then explore whether there is any correlation or association among the demographic variables and the constructs.

The chapter will them move to analyse the teachers sample data with the size of 5000 cases, where we repeat what we have done for the student's sample. Starting with an exploratory demographic variables analysis, followed by the analysis of the teachers' constructs. The correlation among the demographic variables and constructs will be performed to see how the different variables and constructs are interconnected with each other's.

In the last part of the chapter, student's responses will be contrasted with that of teachers, especially in relation to similar constructs. This part of the analysis is added to contrast how e-learning systems and practices are approached and assessed by students versus teachers.

4.2 Results of demographic variables analysis

The e-learning acceptance analysis involves both students and teacher's samples. For the student's sample, data were collected for both variables and constructs included in the study. Table 4.1a lists the variables, and table 4.1b lists the constructs included in the study.

Table 4.1a: variables included in the study.

Variable		Age	Score	Grade	Gender	Stream	Internet bandwidth	Technology used in learning	Level of IT Skills	Educational Directorate
N	Valid	4671	4671	4671	4671	1523	4671	4671	4671	4718
	Missing	47	47	47	47	3195	47	47	47	0

Table 4.1b: constructs included in the study

Constructs		E-learning Effectiveness	E-learning Ease of Use	Interactivity	Motivation	E-learning Environment	Assessment
N	Valid	4671	4671	4671	4671	4671	4671
	Missing	47	47	47	47	47	47

As is shown by the tables above, a typical missing value of 47 is recorded for both variables and constructs. The cases with these missing variables will be excluded from the study. The “stream” variable involves high level of missing values, as students at school cannot decide their stream before grade 10.

Table 4.2: describes the sample grades.

Grade	8^{th}	9^{th}	10^{th}	11^{th}	12^{th}
Percentages (%)	22.7	21.0	23.7	30.1	2.5

The students sample comprises of mostly grown-up students selected from grade 8 till grade 12, see table 4.2 for details. From the 8th to the 11th grades, contribution in the sample were significant, with the exception of the 12th grade. The reason for this low involvement of the 12th grade, has to do with the fact that the grade students are in early vacation to prepare for their "Tawjihi" certification exams, which are organized on national level.

Of the study sample 18.2% were males, and 81.8% were females. This imbalance in gender contribution resulted from the fact that male students are quite reluctant to participate in research studies, and to fill in the questionnaires. The ministry of education who assisted in distributing the questionnaires, could not do anything to change this imbalance. This imbalance in gender involvement will be kept in mind in the upcoming analysis.

Table 4.3 below depicts the distribution of the sample among the educational streams. There are 4 of such streams; Science, Literary, Commerce and Technology. Most students in reality are registered in Science and Literary streams, whereas few are registered in the other two. This is indeed reflected in the sample selection, as shown by table (4.3) below.

Table 4.3: student sample distribution among streams.

Stream	Science	Literary	Commercial	Technology
Percentage	47.5	41.4	9.3	1.8

Of the variables that are included in the study is the students' scores of the previous academic year. This is included to see whether students' academic level has a role to play in their impression towards e-learning.

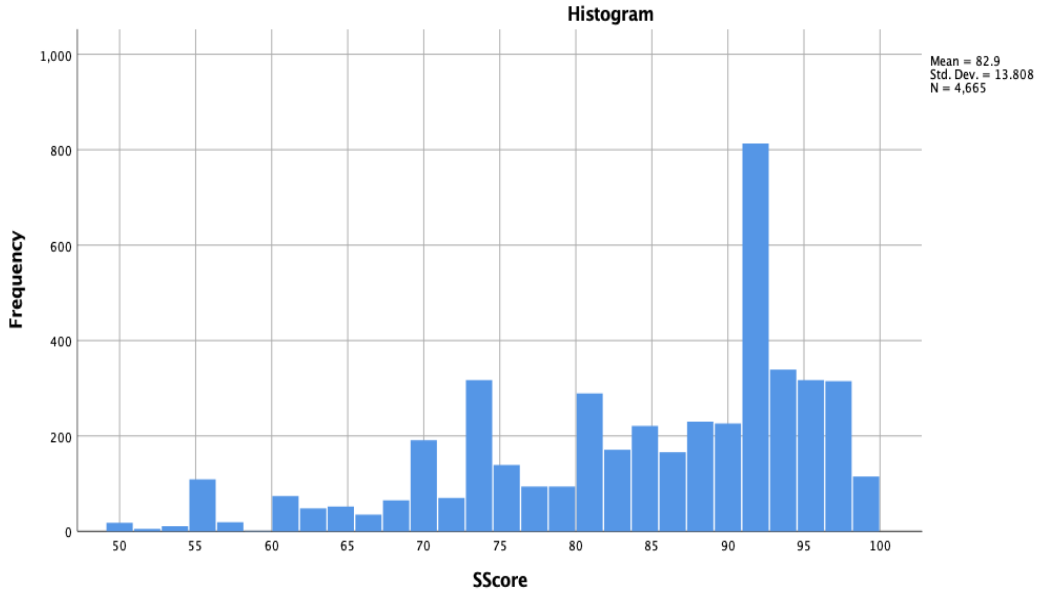

Figure 4.1: student's GPA distribution as measured from the sample.

As is shown by Figure 4.1 above, students' scores are significantly shifted towards high values, with a mean value of 82.9%.

Among the issues that will be investigated in this study is the Internet speed used by students measured by Mega bit per second. The table below depicts the reported used bandwidth as reported by the students' sample.

Table 4.4: Internet speed as reported by students.

Bandwidth (Mbps)	1	2	4	8	16	20
Percentage	2%	1%	25%	39%	25%	8%

As designated in table (4.4), 72% of the sample reported Internet connection at a minimum speed of 8 Mbps. This speed facilitates the connection of a high quality video which enables online attendance of classes without interruption or reduced quality. The

Internet speed has been selected to be incorporated in the study, to test whether the technology used by students and its capabilities, have any role to play in deciding the student's attitude towards e-learning.

Table 4.5: Results of descriptive analysis of the demographic variables.

		Age	Grade	Score	Gender	Stream	Internet bandwidth	Technology used in learning	IT skill	Name of Directorate
N	Valid	4671	4671	4665	4671	1523	4671	4671	4671	4718
Median		15	10	88	2	2	8	mobile	3.0	
Mode		14	11	91	2	1	8	mobile	1.0	
Range		4	4	79	1	3	20	2	5.0	
Minimum		14	8	21	1	1	0	1	1.0	
Maximum		18	12	100	2	4	20	3	6.0	

Table (4.5) above lists the results of the descriptive analysis of the demographic variables of the student's sample. Of the remarkable results we can report that the median score is 88% which rather high, we have student's grades ranging between 8 and 12, and the median internet speed is 8 Mbps. As for the level of IT skills, students reported a median value of 3.0/6.0, which means that 50% of students believe that their IT skill level is below the average (3.0), and 50% above 3.0.

Table 4.6: Technology used to attend e-learning classes.

Technology	Mobile	Laptop	Desktop
Percentage	76%	17%	5%

As is shown by table (4.6) above, the majority (76%) of students use their smart phone to attend classes. This emphasizes the technology use trend, especially among young generations, which is overwhelmed by smart phones. In the upcoming analysis, we shall try to investigate how the technology used by student's impact student's attitudes towards e-learning.

The students' levels of IT skills were also investigated, by requesting students to estimate their level in these skills in the range that goes between null (1) and very high (6). The results came as a surprise for the researcher, and they were far below expectations. 64% of the students consider their IT skills as "weak" or below, where 25% consider themselves, "null" i.e. no nothing in that regard, see figure 4.2.

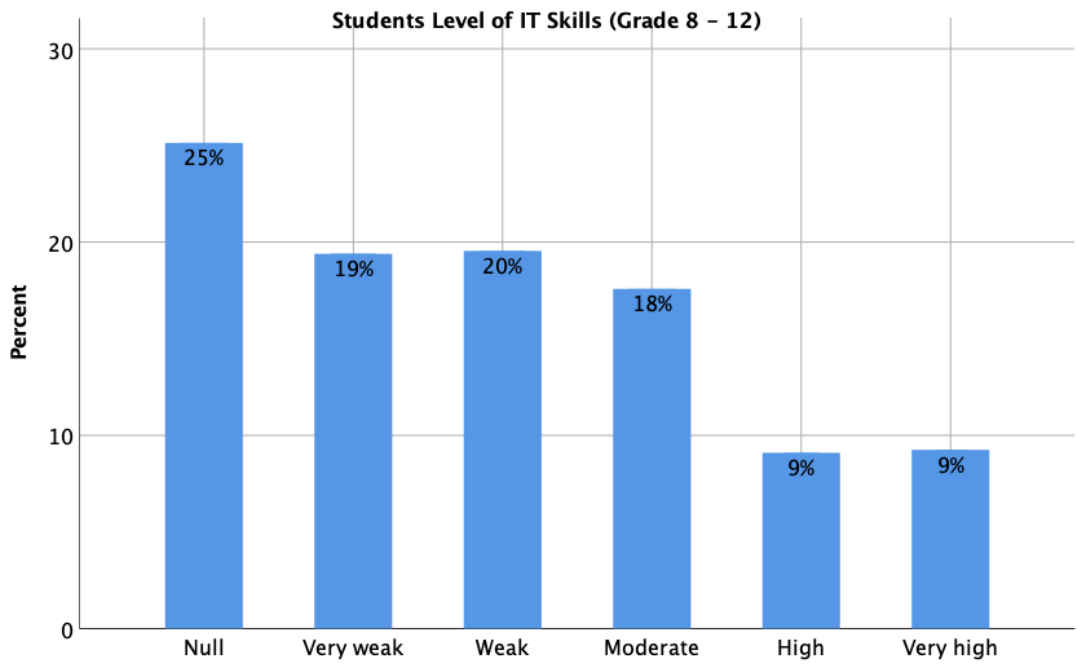

Figure 4.2: IT skills level as reported by sample students.

Concerning the directorates to which the students' sample do belong, the table below shows the distribution of participants among these different directorates. The table shows that the sample included students from most directorates managed by the ministry of education.

Table 4.7: distribution of sample contributors on districts.

	غزة	أريحا	الخليل	القدس	بيت لحم	جنين	جنوب الخليل	جنوب نابلس	رام الله	سلفيت	شمال الخليل	ضواحي القدس	طوباس	طولكرم	قباطية	قلقيلية	نابلس	يطا	Total
Frequency	291	95	343	109	452	376	404	202	248	167	179	195	168	576	211	162	305	188	4718
Percent	6.2	2	7.3	2.3	9.6	8	8.6	4.3	5.3	3.5	3.8	4.1	3.6	12.2	4.5	3.4	6.5	4	100

4.3 Analysis of students' responses with respect to their attitudes towards e-learning

In this section the intent is to analyse the students' attitudes towards e-learning as a learning environment as experienced by them throughout the covide-19 pandemic. Remark that students were asked to assess their attitudes towards the issues under investigation, in reference to face-to-face (traditional) learning. The issues that will be investigated are;

1. E-learning effectiveness
2. E-learning ease of use
3. E-learning interactivity
4. Motivation towards learning
5. Suitability of E-learning environment
6. Academic assessment

Students attitude towards these issues will be detailed below, starting with e-learning effectiveness.

- **Effectiveness of e-learning**

To assess e-learning effectiveness, we analysed student's responses with respect to the indicators, listed down in table (4.8), that cover various aspects of the issue. The table includes in addition to the indicator label, the mean, the median, and the standard deviation of the learner's responses.

Table 4.8: Sample responses to effectiveness of e-learning, with respect to different indicators.

Indicator	Mean	Median	Std. Deviation
Enhanced understanding	3.14	3	1.965
Enhanced Interactivity with learning material	3.3	3	1.991
Enhanced Interaction with instructor	3.36	3	2.008
Enhanced accumulation of Knowledge	3.2	3	1.989
Enhanced skills	3.34	3	1.991
Enhanced doing Homework	3.78	4	2.168
Enhanced thinking skills	3.42	3	2.027
Enhanced computer Skills	4.41	5	2.094
Enhanced self confidence	3.91	4	2.142
Enhanced Language Skills	3.6	4	2.045
Enhanced research Skills	3.78	4	2.082
Enhanced note taking	3.66	4	2.162

Enhanced exam taking	3.93	4	2.299

Table (4.8) above shows that students responses to e-learning as an effective learning tool with respect to face-to-face is rather negative. The average of their responses ranges between 3 (disagree to certain extent) to 4 (neutral). This impression prevails over all indicators, with a slight increase in the (enhancement in computer skills) indicator. The standard deviation revolves around 2, which suggests that 68.2% of the sample have their impression ranges between 1.5 (somewhere between strongly disagree to disagree) and 5.5 (slightly higher than agree to some extent), which again emphasizes their negative attitude towards e-learning.

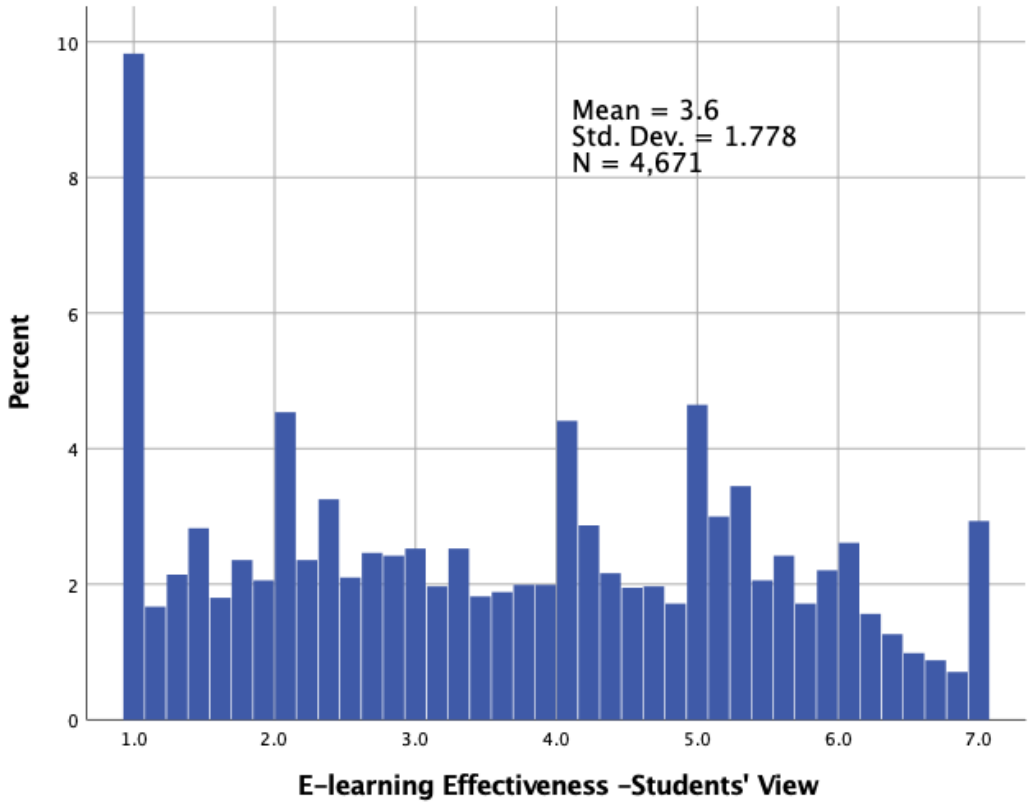

Figure 4.3: distribution of student's responses in relation to learning effectiveness.

To have a broad view of the student's responses concerning the e-learning effectiveness, the mean value of all indicators were calculated and plotted in figure (4.3). The overall picture of the student's view in relation to the effectiveness of e-learning is close to be neutral. However, 10% of the students' sample do have a very strong negative attitude towards effectiveness of e-learning. If we consider the average of all mean values, a mean value of 3.6 with a standard deviation of 1.78 is recorded, which is located in the negative side of the Likert scale.

- **Perceived ease of use**

This construct measures students' impressions in relation to the ease of use of technology in learning, as always, with respect to the traditional face-to-face learning style. The construct consists of 6 indicators as are exhibited in table (9).

Table 4.9: Sample responses to ease of use of e-learning, with respect to different indicators.

	Mean	Median	Mode	Std. Deviation	Percentiles		
					25	50	75
Easier learning processes	3.49	3	1	2.025	2	3	5
Easier satisfaction of learning needs	3.26	3	1	2.013	1	3	5
Ease of use of learning technologies	4.09	4	1	2.123	2	4	6
Less time	4.04	4	1	2.234	2	4	6
Easier to manage learning files and material	3.64	4	1	2.166	1	4	6
Easier rehearsal	3.42	3	1	2.12	1	3	5
Easier to deal with learning	3.21	3	1	2.089	1	3	5

environment							
Less distraction	3.39	3	1	2.181	1	3	5

As is exhibited by table 4.9 above, student's reactions towards ease of use of e-learning is rather negative, with an average value that ranges between 3.2 (slightly higher than disagree to some extent) to 4.0 (neutral). When both the standard deviation and the mean are used, then 68.2% of the sample has their responses ranges from (1.9) almost disagree to (5.3) slightly higher than agree to some extent. The percentiles, shown in table 9, revealed that 50% of the sample have their responses almost below 3 (disagree to some extent), whereas some indicators do have it below 4 (neutral).

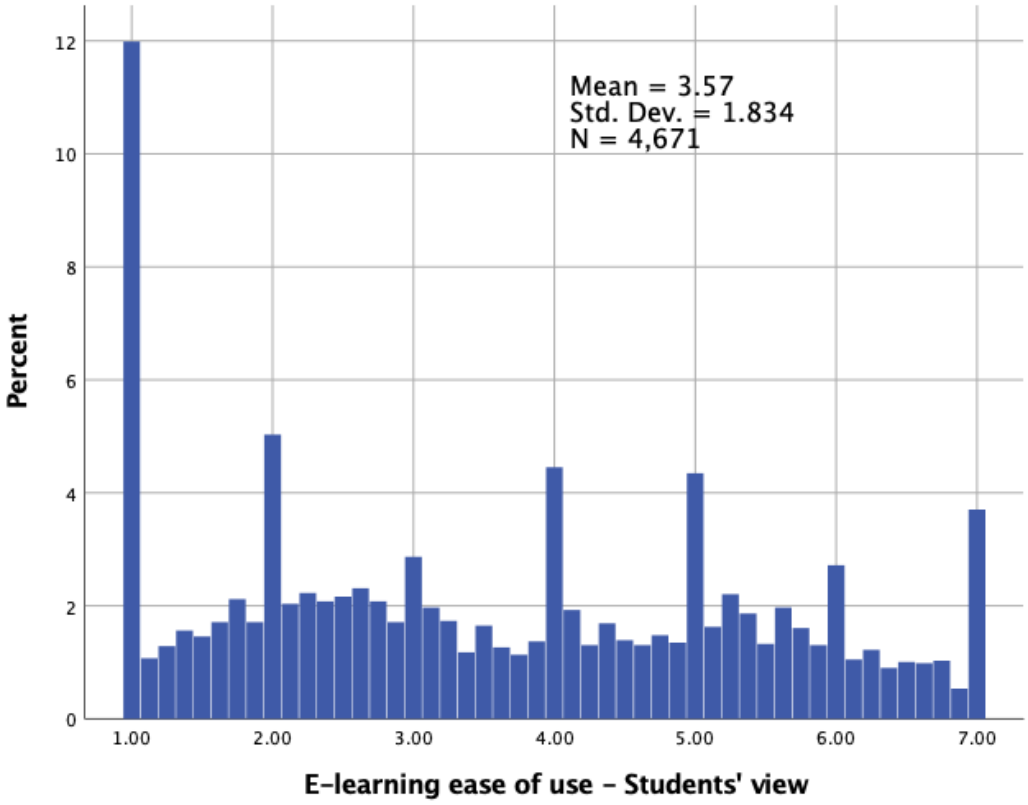

Figure 4.4: distribution of student's responses in relation to learning Ease of use.

Figure (4.4), which displays the average of all indicators, emphasized what the descriptive analysis has revealed. The figure shows somewhat a clear trend towards the negative attitude. This to be added to the fact that 12% of all the students sample do have a strong negative attitude towards the e-learning ease of use.

- **Interactivity**

This construct measures the level of interactivity as felt by students in their use of e-learning.

The construct uses the indicators listed and assessed in table (10).

Table 4.10: Sample responses to interactivity of e-learning, with respect to different indicators.

	Mean	Median	Mode	Std. Deviation	Percentiles		
					25	50	75
Enhanced interaction with teacher	3.58	4	1	2.053	2	4	5
Less fear from teacher	3.91	4	1	2.087	2	4	6
Enhanced interaction with learning material	3.42	3	1	2.055	1	3	5
Enhanced discussion with teacher	3.44	3	1	2.054	1	3	5
Enhanced questions asking	3.43	3	1	2.076	1	3	5
Enhanced interaction with colleagues	3.31	3	1	2.065	1	3	5
Enhanced interaction with external resources	3.79	4	1	2.099	2	4	6
Enhanced interaction with recorded material	3.67	4	1	2.139	1	4	6

Table (4.10) above depicts students' responses in relation to interactivity of e-learning systems as they experienced it throughout the pandemic period. Once more, an average value that ranges between 3 (disagree to some extent) and 4 (neutral) is recorded for all

indicators. It also reveals that 68.2% of the sample recorded their responses between 1.5 (midway between strongly disagree and disagree) and 5.4 (midway between agree to some extent and agree.

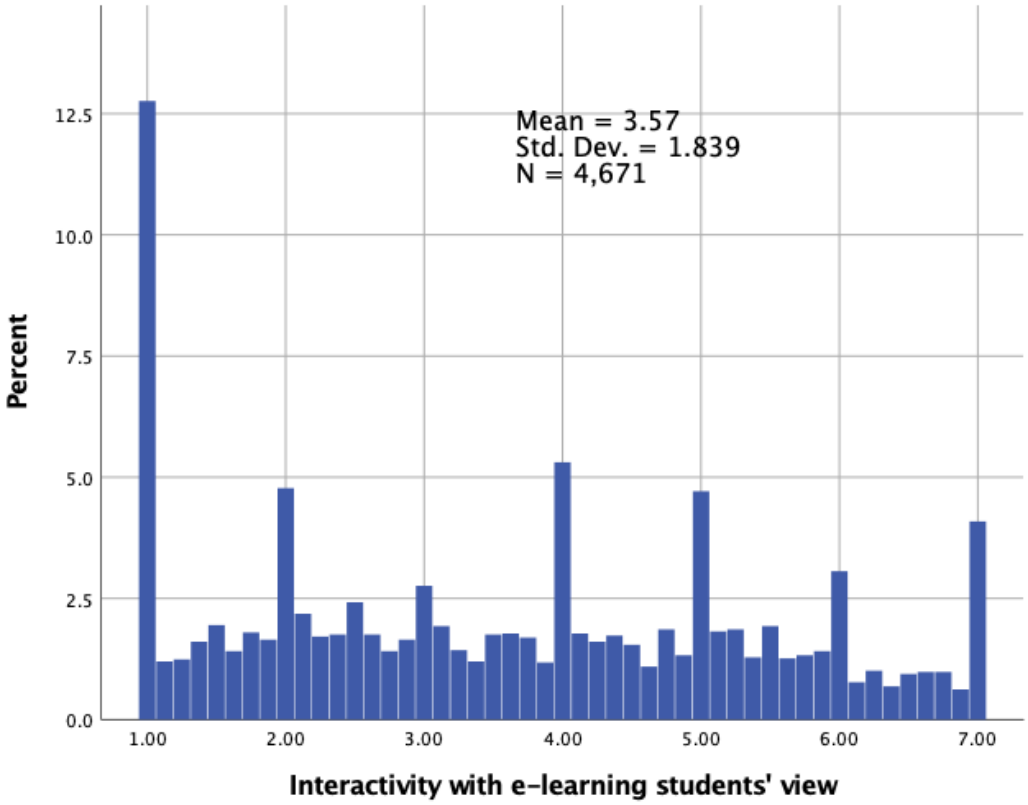

Figure 4.5: distribution of student's responses in relation to interactivity of learning, averaged over all indicators.

Figure (4.5) emphasized the students' impressions recorded in table (10), that most of the students are not satisfied with the interactivity level provided by the e-learning systems. Remarkable to notice that about 12.5% of all students' sample expressed strong disagreement towards the interactivity feature of e-learning.

- **Motivation towards learning**

As disclosed by table (4.11) below, the motivation construct is estimated through the use of 7 indicators that represent different aspect of motivation towards learning using technology. The average responses of students towards these indicators is rather negative, which indicates that technology does not effectively work to motivate students to learn via technology. The average responses to most indicators is slightly higher than 3.0 (disagree to certain extent).

Table 4.11: Sample responses towards motivation towards learning of e-learning, with respect to different indicators.

	Mean	Median	Mode	Std. Deviation	Percentile		
					25	50	75
Enhanced motivation for learning	3.33	3	1	2.119	1	3	5
Encouraged to learn more	3.19	3	1	2.109	1	3	5
Enhanced self-confidence to learn	3.4	3	1	2.094	1	3	5
Enhanced desire to learn	3.18	2	1	2.146	1	2	5
Higher relaxation	3.37	3	1	2.213	1	3	5
Higher motivation to put more efforts	4.02	4	1	2.3	1	4	6
Higher encouragement to practice	3.56	4	1	2.151	1	4	5

When the standard deviation is taken into consideration together with the mean value (of all indicators, over all cases, then 68.2% of the sample have their responses between 1.5 (midway between strongly disagree to disagree) to 5.3 (little higher than agree to some extent), which also designates a rather negative impression.

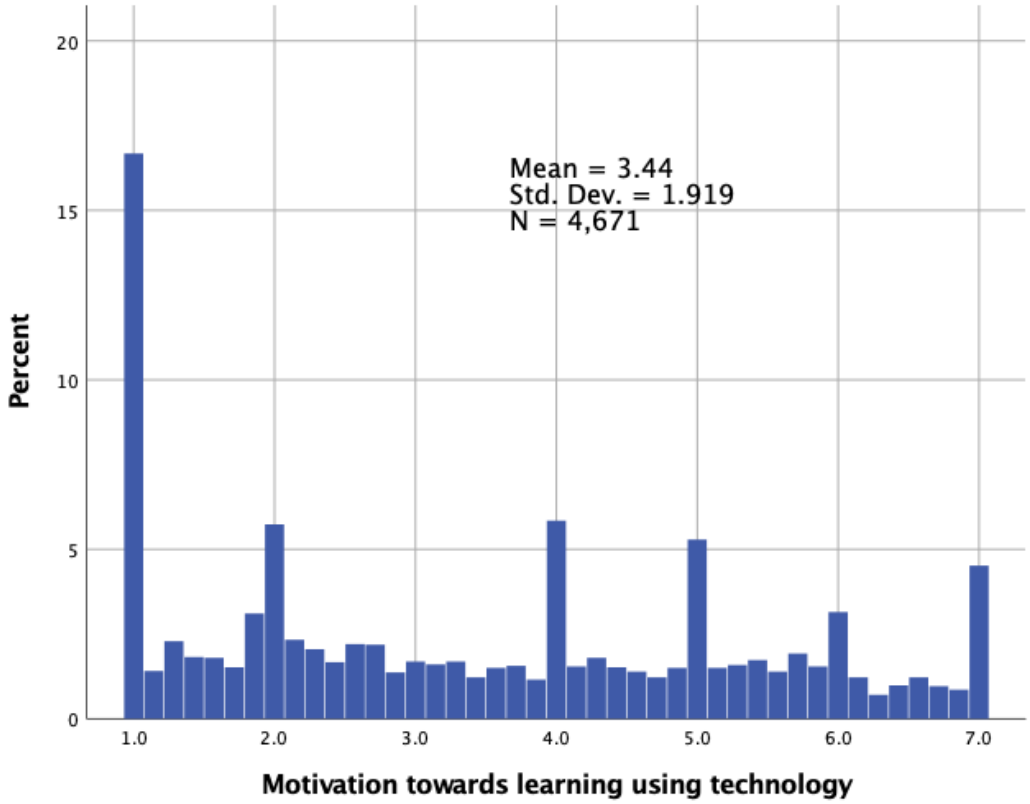

Figure 4.6: distribution of student's responses in relation to motivation toward learning using technology, averaged over all indicators.

Figure (4.6) above stresses the learner's impression recorded by indicators in table (4.11) that most of the students are not motivated towards learning using e-learning systems. Remarkable to notice that about 17% of the students' sample expressed strong negative impression against that fact that technology provides motivation to learning.

- **E-learning environment effectiveness**

This part is designed to measure how effective is the e-learning environment as seen by students, using the 6 indicators listed in table (4.12).

Table 4.12: Sample responses towards effectiveness of e-learning environment towards learning, with respect to different indicators.

	Mean	Median	Mode	Std. Deviation	Percentile		
					25	50	75
Eencouraging learning environment	3.28	3	1	2.084	1	3	5
More controlled learning environment	3.2	3	1	2.089	1	3	5
Less distracting environment	3.15	2	1	2.112	1	2	5
Better environment for discussion	3.3	3	1	2.114	1	3	5
Better environment in emergency (electric power down)	3.28	3	1	2.201	1	3	5
More controlled personal learning environment	3.52	4	1	2.156	1	4	5

As was the case with the other constructs, the average values of all indicators revolves around 3.0 (disagree to some extent), which also indicates a moderately negative attitude. When the standard deviation is taken into consideration, 68.2% of the sample will have their reactions ranging between 1.4 (slightly less than strongly disagree) to 5.2 (little bit higher than agree to some extent). The percentile records as shown by table (4.12) indicate that 50% of the sample has their response below 3.0 – disagree to some extent.

The average responses of all indicators of students concerning suitability of the e-learning environment, is calculated and depicted in figure (4.7) below.

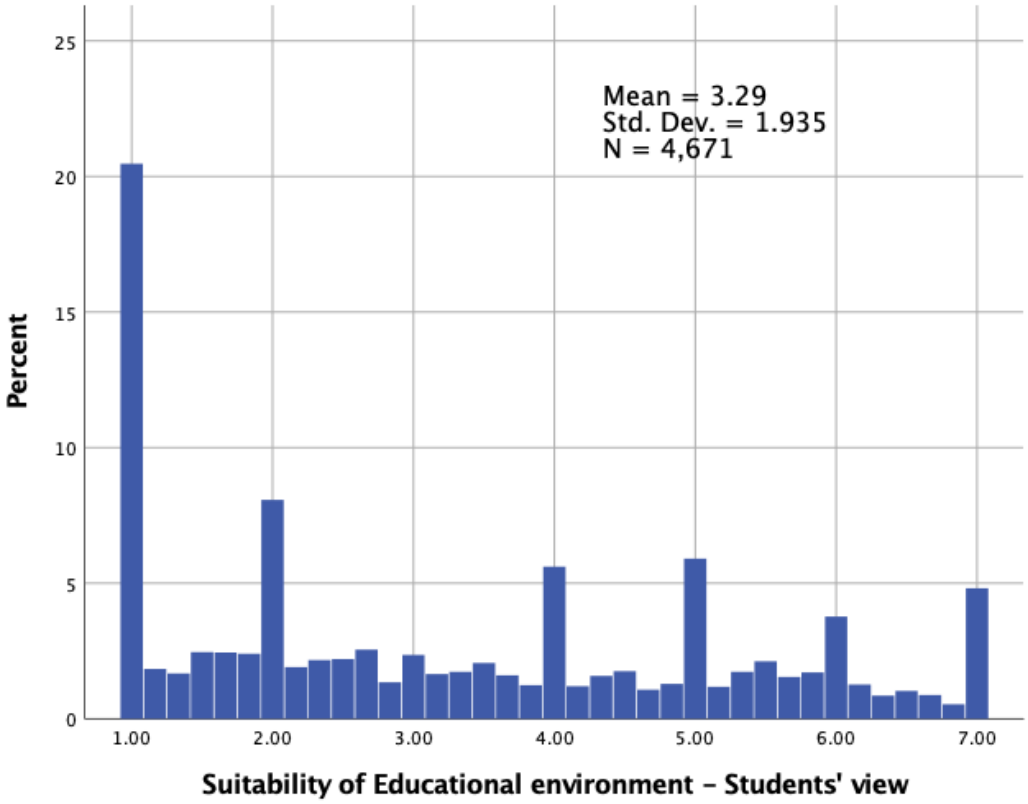

Figure 4.7: distribution of students' responses in relation to appropriateness of e-learning environment, averaged over all indicators.

Figure (4.7) evidently depicts the negative attitude of students towards the suitability of the e-learning environment. The figure shows that over 20% of the students' sample do have an average response of 1 (strongly disagree).

- **Assessment**

Of the issues that has been investigated in the study is the academic assessment, or examination, via the e-learning system. The overall impression of this construct is moderate, with an average value revolving around 4.0 (neutral). 50% of all students have their impression below 4 (neutral).

Table 4.13: Sample responses towards motivation towards academic assessment using e-learning, with respect to different indicators.

	Mean	Median	Mode	Std. Deviation	Percentile		
					25 %	50 %	75 %
Easier assessment	3.98	4	1	2.313	1	4	6
Less stress during assessment	3.96	4	1	2.283	1	4	6
Enhanced precision in assessment	3.62	4	1	2.234	1	4	6
Easier to use external resources	4.31	5	7	2.185	2	5	6
better assessment	3.78	4	1	2.233	1	4	6

The average of all indicators of this construct is depicted in figure (4.8). We can easily observe a clear trend shifted toward positive attitude concerning this issue, nevertheless, about 13% of the student's sample recorded strong negative impression against the suitability of assessment using e-learning platform.

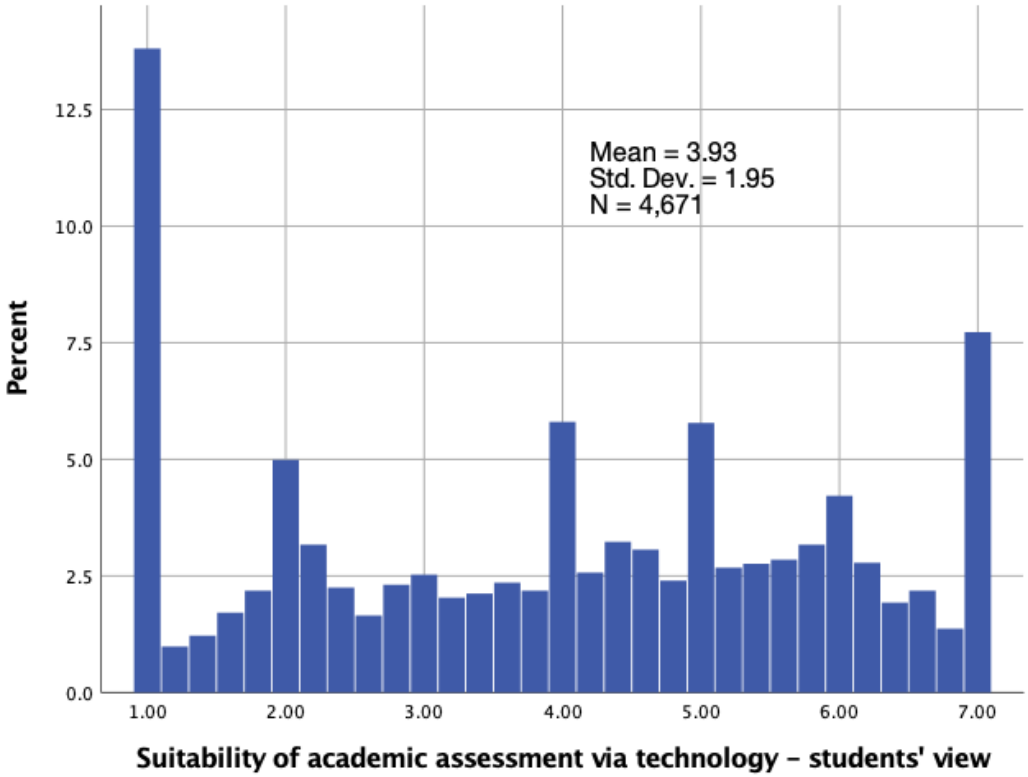

Figure 4.8: distribution of students' responses in relation to academic assessment of e-learning environment, averaged over all indicators.

Correlation among demographic variables of student's sample

Table (4.14) presents the correlation coefficient amongst the demographic variables and the different constructs incorporated in the study. These constructs are expressed by the average of all indicators used to express the construct. Among the constructs to be tested are effectiveness of the learning process, the interactivity of the learning processes, motivation towards learning, the suitability of the environment, and the efficiency of assessment method.

Though there are significant correlations among the demographic variables and the various constructs, indicated by a p-value (Sig.) of "0" which is less than 0.05, the

strength of the correlation is very weak as implied by the correlation coefficients listed in table (4.14a). All values of correlation coefficients are actually smaller than 0.1. This means that none of these parameters have any significant role to shape student's impression regarding e-learning.

Table 4.14a: correlation among demographic variables and the effectiveness of the learning process, interactivity, motivation, environment, and assessment.

	Score		Internet bandwidth		Age		Grade	
	Pearson Correlation	Sig.	Pearson Correlation	Sig	Pearson Correlation	Sig	Pearson Correlation	Sig.
Effectiveness	-.069**	0	.085**	0	-.067**	0	-.075**	0
Interactivity	-.088**	0	.074**	0	-.052**	0	-.063**	0
Motivation	-.084**	0	.067**	0	-.038*	0.01	-.048**	0.001
Environment	-.079**	0	.067**	0	-.053**	0	-.067**	0
Assessment	-.063**	0	.063**	0	-.052**	0	-.054**	0

Table 4.14b: correlation among the IT skills of students and the different constructs incorporated in the study.

	IT Skill	Effectiveness	Interactivity	Assessment	Motivation	Ease_of_Use_Mean	Educ_Environm
IT Skill	1	-0.040	-.030*	-0.027	-.031*	-.039**	-0.027

Sig. (2-tailed)	0.006	0.04	0.063	0.035	0.008	.061

The overall conclusion from table (4.14a) implies that neither the students' academic level, nor their ages, or the grade that they are in, have any significant and true impact on their attitudes towards e-learning. In fact, students' Scores, Age and Grade do have negative impact on their attitudes towards e-learning. Even the speed of their Internet connection does have a tiny positive impact on their impression towards e-learning.

In table (4.14b), the students level of IT skills was correlated with the various constructs of the study. The table displays a rather significant but very weak and negative correlation. This implies that not only the IT skill level has a small role to play in deciding the students' attitudes, but it has a negative impact, meaning that those students who have higher level of IT skills, they have slightly stronger negative attitude toward e-learning in general.

Among the issues that we have investigated, is the correlation among the different constructs. As is depicted by table (4.15), there are high and significant correlations amongst these constructs. This means that those students who are positive about e-learning in one aspect are also positive on other aspects. Take for example, the e-learning effectiveness, this construct has a strong correlation with other constructs; like interactivity, motivation, e-learning environment, ease of use, and assessment, see row 1 in table (4.15).

Table 4.15: correlations among different constructs included in the study.

		Elearn_Effectiv_Mean	Interactivity_Mean	Motivation_Means	Enrironment_Means	Assessment_Means	Ease_of_Use_Mean
Elearn_Effectiv_Mean	Pearson Correlation	1	.845**	.830**	.815**	.682**	.861**
	Sig. (2-tailed)		0	0	0	0	0
Interactivity_Mean	Pearson Correlation	.845**	1	.881**	.866**	.714**	.878**
	Sig. (2-tailed)	0		0	0	0	0
Motivation_Means	Pearson Correlation	.830**	.881**	1	.893**	.717**	.860**
	Sig. (2-tailed)	0	0		0	0	0
Enrironment_Means	Pearson Correlation	.815**	.866**	.893**	1	.740**	.853**
	Sig. (2-tailed)	0	0	0		0	0
Assessment_Means	Pearson Correlation	.682**	.714**	.717**	.740**	1	.711**
	Sig. (2-tailed)	0	0	0	0		0
Ease_of_Use_Mean	Pearson Correlation	.861**	.878**	.860**	.853**	.711**	1
	Sig. (2-tailed)	0	0	0	0	0	
** Correlation is significant at the 0.01 level (2-tailed).							

4.4 Analysis of teachers' responses

The e-learning acceptance study involves both students and teacher's samples. For the teacher sample, data were collected for variables and constructs, which are to some extent very close to those used for students' sample. Table 4.16a lists the variables, and table 4.16b lists the constructs incorporated in the study.

Table 4.16a: demographic variables incorporated in the teachers' sample.

Variable	Age	Experience	Qualification	Gender	Specialty	Internet Speed	Device used	IT Skills	Directorate
Valid	5004	5004	5004	5004	5004	5517	5004	5004	5517
Missing	513	513	513	513	513	0	513	513	0

Table 4.16b: constructs incorporated in the teachers' sample.

Constructs	E-learning Effectiveness	E-learning Ease of Use	Suitability of Infrastructure	Motivation	E-learning Environment	Assessment
Valid	5004	5004	5004	5004	5004	5004
Missing	513	513	513	513	513	513

As is shown by the table (4.16 a & b) above, a typical missing value of 513 is recorded for both the variables and constructs. The cases with these missing variables will be excluded from the study.

Table 4.17: list the summary of the demographic variables of the teachers' sample.

	Age	Years_Exper	Internet_Speed
Mean	41.8	5.8	9.8
Median	43	6	8.0
Mode	43	6	8.0
Std. Deviation	7.4	2.9	5.1

As presented by table (4.17) above, the average age of contributing teachers is about 42 years, with a standard deviation of 7.4 years. Their years of teaching experience is rather small with as average value of 5.8 years, and their Internet speed averages around 10 Mbps.

Table 4.18: Summary of the nominal and ordinal demographic variables of the teachers' sample.

Gender			
		Frequency	Valid Percent
Valid	M	1188	23.7
	F	3816	76.3
Years of Experience			
		Frequency	Valid Percent
Valid	1	461	9.2
	2	1316	26.3
	3	2099	41.9
	4	1018	20.3

	5	110	2.2
Qualification			
		Frequency	Valid Percent
Valid	Diploma	357	7.1
	BA	4094	81.8
	MA	544	10.9
	PhD	9	0.2
Device used in teaching			
		Frequency	Valid Percent
Valid	Mobile	1690	33.8
	Laptop	3167	63.3
	Desktop	147	2.9
IT skill level			
		Frequency	Valid Percent
Valid	Null	361	7.2
	very weak	768	15.3
	weak	1532	30.6
	moderate	1503	30
	high	602	12
	very high	238	4.8

The sample distribution of gender is biased towards female, with a percentage of 76.2% for female versus 23.8% for male. This bias will be taken into consideration in further analysis of the data. The number of years of teaching experience is also collected for the

sample, to see whether it has any role in deciding the teachers' attitudes towards e-learning.

The recorded years of experience for the sample is rather small, with values ranging between 1 year and 5 years, with the majority having 3 as their number of years of experience. This records of teaching years of experience do not reflect existing reality, as there are high percentage of teachers with higher years of experience.

With regards to qualifications, about 82% of the teachers do have a BA degree, and the remaining 18% are teachers with diploma, master PhD degree, see table (4.18) above. As for the devices used in teaching, the majority (63.3%) of teachers use laptops, followed by mobiles with a 33.8%, and very tiny percentage (2.9%) are using PCs.

Concerning their level of IT skills, teachers' reactions vary, ranging from null (7.2%), to very high (4.8%). However, 82.2% of the teachers' sample consider their IT experience moderate or lower. Only 16.8% believe that their IT skills is very high.

To have more insights into the analysis of the distribution of teaches' IT skills, we plotted the level of skills versus directorates, see figure (4.9). As is depicted by figure (4.9) the IT skills of teachers belong to different directorates are almost indistinguishable. Most of the directorates do have their skills centered around 3.0 (weak) and 50% of the teachers do have their skills ranging between 2 (very weak) to 4 (moderate).

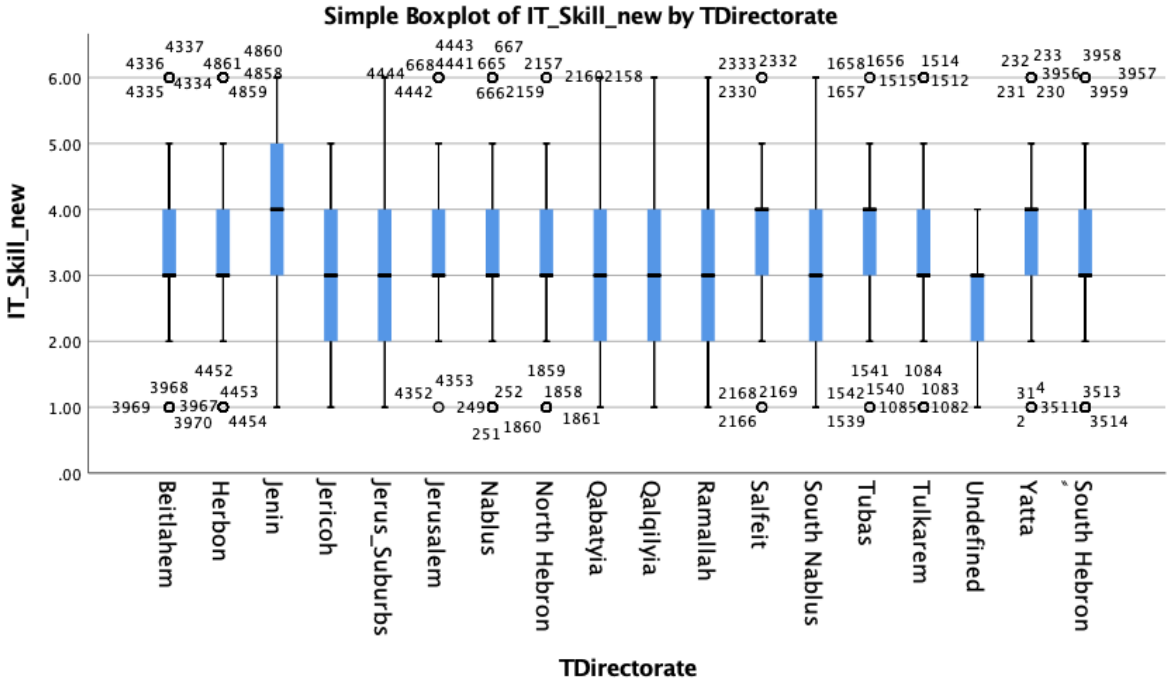

Figure 4.9: IT teacher's skills as evaluated by the sample in various directorates.

Analysis of responses of teachers' attitudes towards e-learning

In this section the intention is to analyse teachers' attitudes towards using e-learning platform in teaching as practiced by Palestinian teachers during the covide-19 pandemic. Remark that teachers were asked to consider their impressions concerning the issues under investigation, in reference to face-to-face (traditional) learning. The issues that will be investigated are;

- E-learning effectiveness in teaching
- E-learning ease of use in teaching
- Suitability of infrastructure to teaching
- Motivation towards the use of e-learning in teaching
- Suitability of e-learning environment for teaching
- Suitability of e-learning for academic assessment

In what follows we shall analyse the teachers recorded responses in relation to the above listed constructs.

E-learning effectiveness in teaching

E-learning effectiveness in teaching is estimated using the indicators listed in table (4.19), where we have 11 of them. The indicators used in defining the construct focus on teaching activities. Remark that indicators focused on learning activities were used to measure effectiveness of learning in the students' sample.

Table 4.19: Sample responses to effectiveness of e-learning in teaching, with respect to different indicators.

	Mean	Median	Std. Deviation	Percentile		
Indicator				25	50	75
Enhanced explanation	4.28	5	1.604	3	5	5
Enhanced Presentation	4.36	5	1.648	3	5	6
Enhanced Interactivity	3.83	4	1.662	2	4	5
Enhanced knowledge	4.09	4	1.676	3	4	5
Enhanced Methods to show content	4.29	5	1.698	3	5	6
Enhanced knowledge resources	4.53	5	1.641	4	5	6
Enhance metal abilities of students	3.97	4	1.631	3	4	5
Enhance practical abilities of students	3.93	4	1.64	3	4	5
Enhanced Homework	4.34	5	1.665	3	5	6
Enhanced language skills	3.85	4	1.627	2	4	5
Enhanced testing	3.66	4	1.686	2	4	5

Table (4.19) above shows that teachers' responses to e-learning as an effective teaching platform with respect to face-to-face is almost 'neutral'. The average of their responses revolves around 4 (neutral). This impression prevails over all indicators, with a slight increase in indicators like 'enhanced knowledge resources' and 'enhanced presentation. When the standard deviation is considered, 68.2% of the sample have their impression ranging between 3 (disagree to certain extent) to 5 (agree). The median of some indicators shifted little bit higher towards 5 (agree to some extent), which means that 50% of the sample located below this level, and 50% above this level.

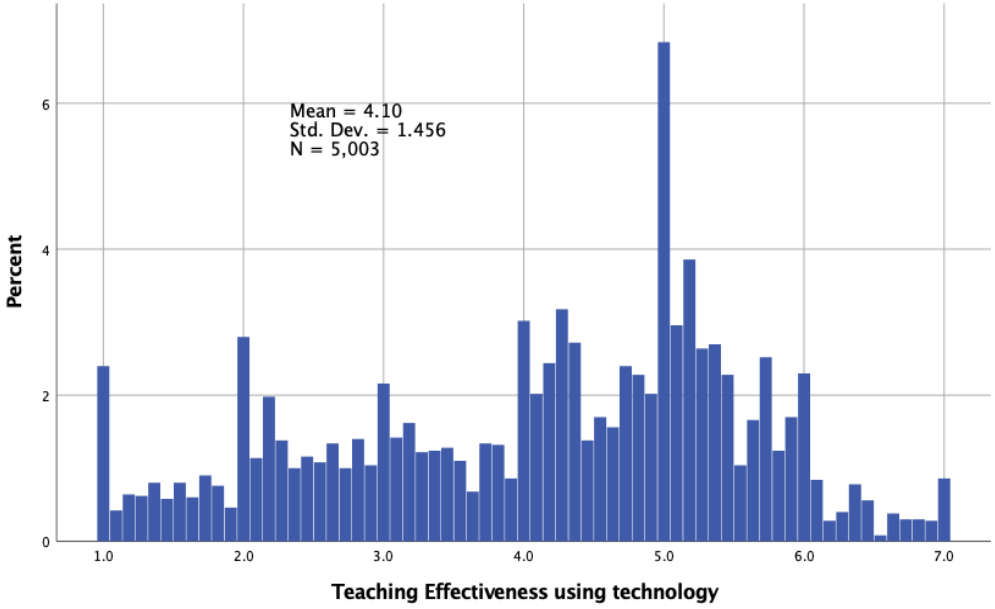

Figure 4.10: distribution of teacher's responses in relation to learning effectiveness.

Figure 4.10 above illustrates what has been recorded in table (4.19). The distribution of teachers' responses concerning their attitude towards the effectiveness of the use of e-learning in teaching, is shifted towards favourableness. Remark that high percentages do have their responses in the range between 4 (neutral) and 6 (agree), and the highest recorded response is 5 'agree to some extent'.

When the standard deviation is counted, then 68.2% of the teacher's sample do have their responses ranging between 2.6 (midway between disagree and disagree to some extent) to 5.6 (midway between agree to certain extent and agree).

Perceived ease of use

This construct measures teachers' impressions in relation to the ease of use of technology in teaching, and it consists of 7 indicators listed in table (4.20).

Table 4.20: Sample responses to ease of use of e-learning in teaching, with respect to different indicators.

	Mean	Median	Std. Deviation	Percentile		
				25	50	75
Facilitate teaching	4.01	4	1.624	3	4	5
Meet requirements of teaching	3.75	4	1.618	2	4	5
E-learning is sophisticated	4.5	5	1.577	3	5	6
Requires less time and efforts	4.32	5	1.627	3	5	6
Requires less preparation	4.1	4	1.768	3	4	5
Easier to deal with e-learning platform	3.8	4	1.722	2	4	5
Easier to store	4.75	5	1.695	4	5	6

As shown by table 4.20 above, teachers' reactions towards ease of use of e-learning is moderate, with an average value that circles around 4 (neutral). As revealed by the standard deviation, 68.2% of the sample has their responses ranges between (middle way between disagree and disagree to certain extent) as the lower bound, and (middle way between agree to some extent and agree) as the upper bound. The percentiles

revealed that 50% of the sample have their responses almost below 5 (agree to some extent).

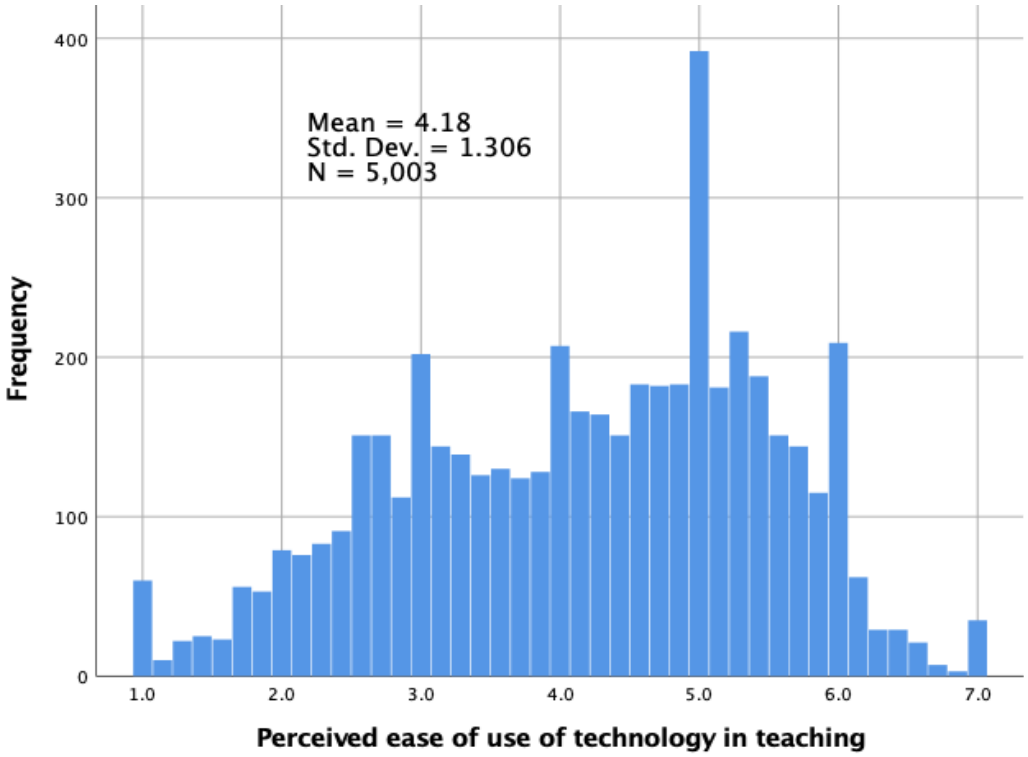

Figure 4.11: distribution of teachers' responses in relation to e-learning Ease of use for teaching

Figure (4.11) emphasizes what the descriptive analysis has revealed, where teachers are rather positive in their attitude regarding the ease of use of technology in teaching.

Motivation towards teaching

As is shown by table (4.21) below, the motivation construct is estimated using 8 indicators that represent different aspect of the motivation towards teaching using technology. The average responses of teachers towards different indicators revolves around 4.0 (neutral), and in some cases jumps beyond 4, as in the 'motivation to put

more efforts', and 'enhanced exploitation of resources', where both of them are (4.8) close to agree to certain extent.

Table 4.21: Teachers' responses towards motivation towards teaching using e-learning, with respect to different indicators.

	Mean	Median	Std. Deviation	Percentile		
				25	50	75
Enhanced Motivation towards teaching	4.1	4	1.666	3	4	5
More encouraged to teach	4.0	4	1.673	3	4	5
Enhanced self confidence	3.9	4	1.638	3	4	5
Enhanced Desire to teach	3.9	4	1.659	3	4	5
Enhanced Relaxation	3.9	4	1.695	2	4	5
Motivated towards putting more efforts	4.8	5	1.648	4	5	6
Enhanced teaching activities	4.5	5	1.651	3	5	6
Enhanced exploitation of resources	4.8	5	1.631	4	5	6

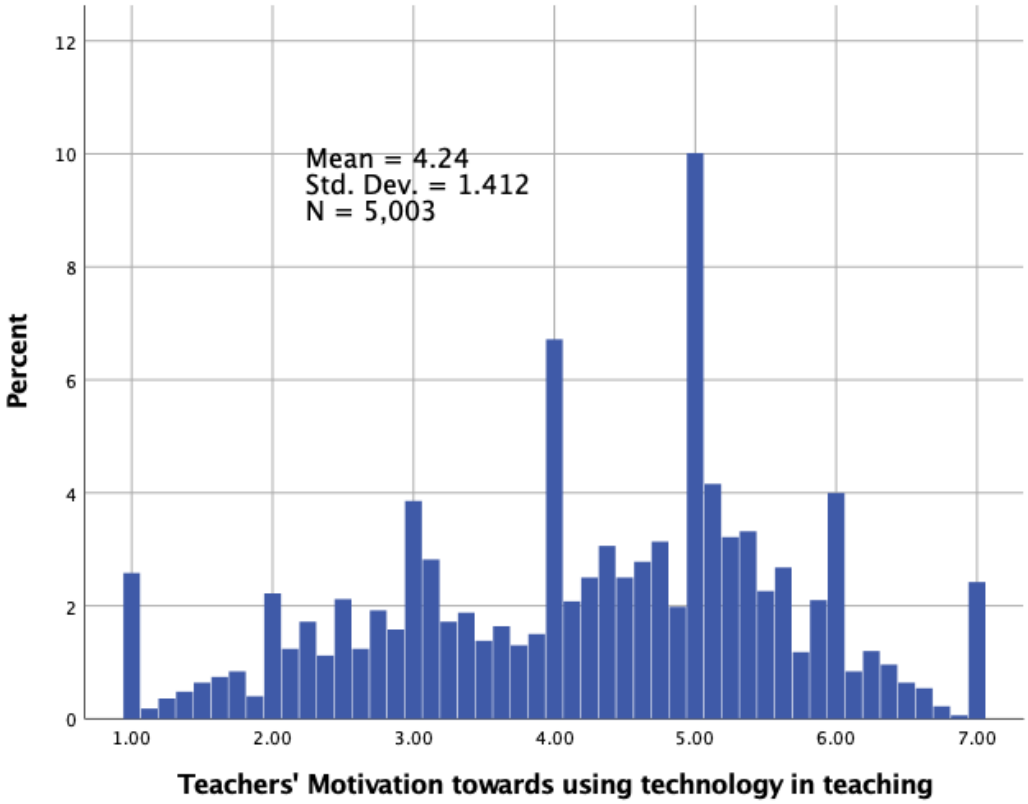

Figure 4.12: distribution of teacher's responses in relation to motivation toward teaching using technology, averaged over all indicators.

Figure (4.12) above stressed the teachers' impressions recorded by indicators listed in table (4.21), that large percentage of teachers are moderately motivated towards teaching using e-learning systems. Remarkable to notice that teachers' impressions are exhibited shifted towards higher Likert values beyond 4.0 (neutral), and they peaked at 5.0 (agree to some extent).

When the mean value of all indicators and teachers is considered together with the standard deviation, it turned out that 68.2% of the sample have their responses recorded between (2.8) almost disagree to some extent, and (5.6) midway between agree to some extent and agree.

E-learning environment effectiveness in teaching

This part is designed to measure how effective is the e-learning environment as seen by teachers. The construct consists of 6 indicators, as recorded by the table (4.22) below.

Table 4.22: Sample responses towards effectiveness of e-learning environment in teaching, with respect to different indicators.

	Mean	Median	Std. Deviation	Percentile		
				25	50	75
More encouraging environment	4.0	4	1.652	3	4	5
More controlled and managed environment	3.9	4	1.667	2	4	5
Less distracting environment	3.8	4	1.723	2	4	5
Enhanced encouragement for discussion	3.8	4	1.693	2	4	5
Deal with abrupt conditions	3.7	4	1.754	2	4	5
Enhanced control of environment	3.8	4	1.721	2	4	5

As was the case with the other constructs, the average values of all indicators revolves around 4.0 (neutral). When the standard deviation is taken into consideration, then 68.2% of the sample will have their reactions ranges between 2.3 (little higher than disagree)- to 5.3 (little higher agree to somewhat extent). The percentile records indicate that 50% of the sample has their response below 3.0 – disagree to some extent.

The average responses of students concerning effectiveness of the e-learning environment, is calculated and depicted in figure (4.13) below.

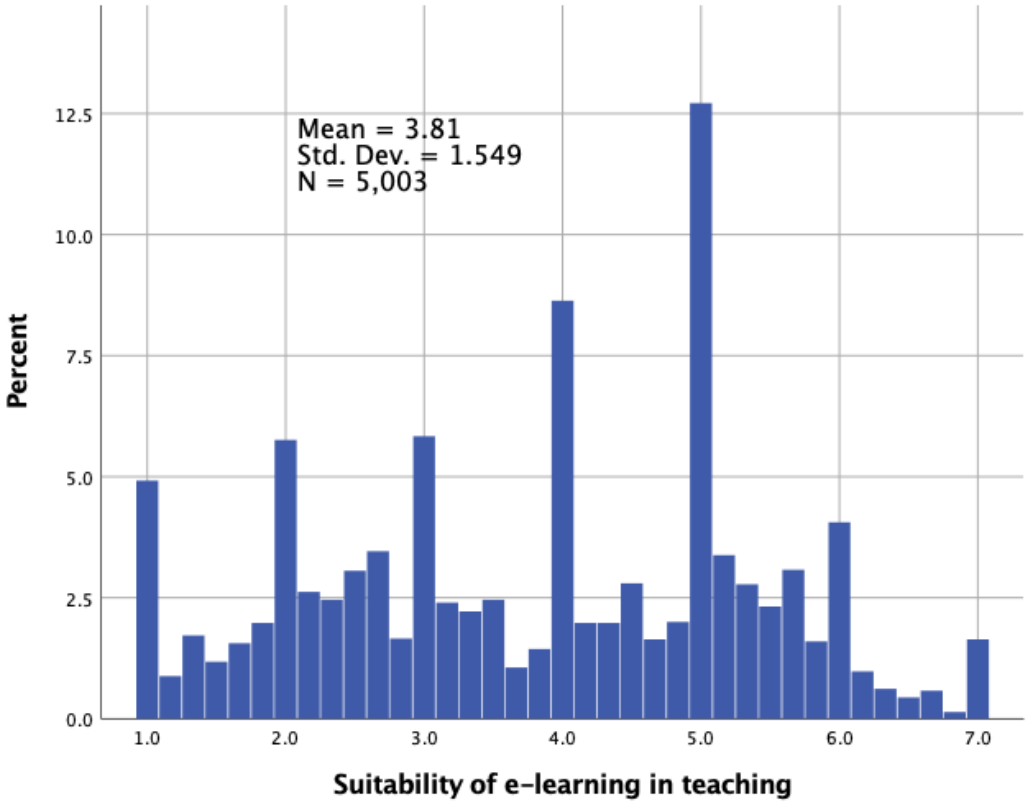

Figure 4.13: distribution of student's responses in relation to effectiveness of e-learning environment, averaged over all indicators.

Suitability of e-learning for academic assessment

Of the issues that has been investigated in the study is the academic assessment, or examination through the e-learning system. The overall impression of teachers towards this construct is negative, with an average value revolving around 3.5 midway between disagree to certain extent to neutral. The result indicates that teachers are not satisfied with the online examination, and tend to be somewhat negative against the approach, see table (4.23).

Table 4.23: Sample responses regarding teachers' attitudes towards online academic assessment with respect to different indicators.

	Mean	Median	Std. Deviation	Percentiles		
				25	50	75
Better assessment	3.52	4	1.699	2	4	5
Easier preparation of exams	3.58	4	1.71	2	4	5
Better control of cheating	3.32	3	1.713	2	3	5
Less use of external resources during exam	3.49	4	1.753	2	4	5
Better assessment for theoretical and practical	3.31	3.5	1.767	2	3.5	5
More precise in assessing students	3.21	3	1.783	1	3	5
Less stress during exam	3.83	4	1.828	2	4	5

One of the most indicators that teachers' attitudes were negative about is the 'More precise in assessing students', which indicates that teachers do believe that there has to be another approach for assessment and examination even if students use technology in learning.

The average of all indicators used to measure the assessment construct is depicted in figure (4.14) below.

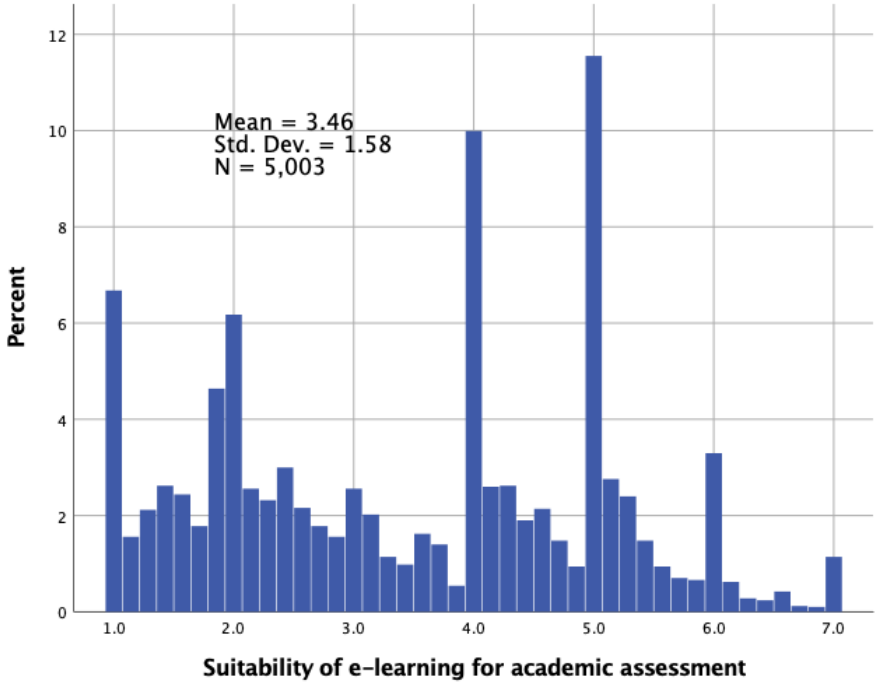

Figure 4.14: distribution of teachers' responses in relation to academic assessment using technology.

As is depicted in figure (4.14), responses are somewhat inclined towards being negative with an average value of 3.5 on Likert scale, and there is a considerable percentage of responses that disagree with the way how assessment is performed using the e-learning system, see responses between 1 and 4 in figure (4.14).

Correlation among variables

Correlation of demographic variables with e-learning construct

Table (4.24) presented below displays the correlation coefficient between some demographic variables and the various constructs estimated by the educator's sample. These constructs are expressed by the average of all indicators used to express the construct. Most of the constructs do not have any significant correlation with the

demographic variables used in the study, as are remarked by the level of significance of the test. Remarkable to not that neither the Years of experience, nor the Qualification, or the Internet speed do have any substantial correlation with any of the constructs. The level of IT skills of the educator does have a tiny significant correlation with some constructs like 'teaching effectiveness'.

Table 4.24: correlation among demographic variables and the effectiveness, ease of use, infrastructure, motivation, environment, and assessment.

		TAge	TYears_Exper	TQalification	TInternet_Speed	IT_Skill_new
Teaching effectiveness using technology	Pearson Correlation	-0.013	-0.006	-0.004	0.017	0.024
	Sig. (2-tailed)	0.351	0.659	0.781	0.219	0.093
Perceived ease of use of Technology in teaching	Pearson Correlation	0.025	0.02	-.028*	0.001	.031*
	Sig. (2-tailed)	0.074	0.149	0.048	0.931	0.027
Suitability of Infrastructure For teaching	Pearson Correlation	0.007	0.024	0.001	0.019	.031*
	Sig. (2-tailed)	0.597	0.086	0.927	0.169	0.026
Motivation towards the Use of technology in teaching	Pearson Correlation	-0.018	-0.011	0.006	0.007	0.026
	Sig. (2-tailed)	0.205	0.452	0.67	0.606	0.065
Suitability of e-learning Environment in teaching	Pearson Correlation	0.004	0.002	-0.006	0.011	0.026
	Sig. (2-tailed)	0.778	0.864	0.653	0.457	0.064
Suitability of e-learning in assessment	Pearson Correlation	0.017	0.01	-0.008	-0.007	0.027

	Sig. (2-tailed)	0.232	0.459	0.568	0.628	0.059
** Correlation is significant at the 0.01 level (2-tailed).						
* Correlation is significant at the 0.05 level (2-tailed).						

The overall conclusion of this part of the analysis, indicates that neither the teachers age, nor their professional level, or teaching experience, or their qualification, or the Internet speed they use, do have any impact on their attitudes towards e-learning.

Correlation among e-learning construct

Among the issues that we have investigated, is the correlation among the different constructs included in the study. As is depicted by table (4.25), there is a high and significant correlation among constructs. This means that those teachers who are positive about e-learning from one aspect are likewise positive from other aspects. Take for example, the e-learning effectiveness in teaching construct, this construct has a strong positive correlation with other constructs; like ease of use, infrastructure, motivation, environment, and assessment.

Table 4.25: correlations among different (teachers) constructs included in the study.

		Teach_Effect mean	TPEOU mean	Tinfrast mean	Tmotivation mean	TElearning_Environmmean	Tassessment mean
Teach_Effect_mean	Pearson Correlation	1	.799**	.766**	.755**	.746**	.685**
	Sig. (2-tailed)		0	0	0	0	0
TPEOU_mean	Pearson Correlatio	.799**	1	.803**	.755**	.754**	.717**

	n						
	Sig. (2-tailed)	0		0	0	0	0
TInfrast_mean	Pearson Correlation	.766**	.803**	1	.788**	.793**	.735**
	Sig. (2-tailed)	0	0		0	0	0
TMotivation	Pearson Correlation	.755**	.755**	.788**	1	.808**	.714**
	Sig. (2-tailed)	0	0	0		0	0
TElearning_Environm_mean	Pearson Correlation	.746**	.754**	.793**	.808**	1	.832**
	Sig. (2-tailed)	0	0	0	0		0
TAssessment_mean	Pearson Correlation	.685**	.717**	.735**	.714**	.832**	1
	Sig. (2-tailed)	0	0	0	0	0	

Impact of gender on the study results

As is shown by table (4.26), the IT skill of male and female teachers are almost equivalent. There is some significant deviance at the null where percentage of male doubles that of females, and in case of very high where male also doubles female.

Remarkable to notice that 60% of all teachers consider their IT skills either weak or moderate.

Table 4.26: IT skill level vs. Gender cross tabulation.

IT skill * teachers' Gender Cross tabulation			
IT skill level	**Male**	**Female**	**Total**
Null	11.30%	5.80%	7.10%
Very Weak	14.20%	15.70%	15.40%
Weak	28.80%	31.20%	30.60%
Moderate	27.30%	30.90%	30.10%
High	10.60%	12.50%	12.00%
Very high	7.80%	3.80%	4.80%

The impact of gender has also been calculated over all constructs incorporated in the study, see table (4.27).

Table 4.27: difference between male and female impressions concerning the various constructs used in the study.

Remark that all recorded attitudes are referenced to face to face traditional teaching.

Gender		Teaching Effectiveness	Ease of Use of Technology	Infrastructure Effectiveness	Motivation	E-learning Environment	Assessment

M	Mean	4.2517	4.3861	4.1298	4.395	4.0634	3.702
	Std. Deviation	1.50107	1.32234	1.48562	1.45417	1.56145	1.61151
	Grouped Median	4.5749	4.6076	4.2855	4.6458	4.24	3.9338
F	Mean	4.0556	4.1118	3.8552	4.1928	3.7351	3.39
	Std. Deviation	1.43893	1.29479	1.4435	1.39534	1.5367	1.56322
	Grouped Median	4.3103	4.2672	4.0538	4.386	3.912	3.5429
Total	Mean	4.1022	4.177	3.9204	4.2408	3.813	3.4641
	Std. Deviation	1.45616	1.30648	1.45815	1.41201	1.54877	1.58024
	Grouped Median	4.3473	4.3415	4.1042	4.4523	3.9679	3.6774

The results depicted by table (4.27) reveals that the attitudes regarding the use of technology in teaching is almost indistinguishable for male and female teachers' subgroups. Yet, there is a slight deviation of preference for male teachers in regards to the different constructs used in the study; teaching effectiveness, ease of use of technology, infrastructure effectiveness, motivation towards teaching, and the use of technology in assessment. The fact that gender has a marginal influence on stance towards the use of technology in teaching, means that other factors shape this attitude of teachers towards the use of technology in teaching, rather than gender.

Impact of qualification on teachers' attitudes towards e-learning constructs

Four different academic levels were recorded in the teachers' sample, diploma, bachelor, master, and PhD. Table (4.28), details the teachers' attitude as recorded by the constructs as a function of teacher academic degree levels.

Table 4.28: teachers' impression concerning different constructs, measured versus their academic degree.

Teachers' Qualification		Teaching Effectiveness	Ease Of Use	Infrastructure	Motivation	Elearning_Environm Effectiveness	Assessment
Diploma	Mean	4.3109	4.3786	4.1401	4.4293	4.0201	3.6082
	Std. Deviation	1.36255	1.23813	1.37852	1.33896	1.47672	1.51656
	Grouped Median	4.7273	4.7143	4.3947	4.7663	4.1504	3.94
BA	Mean	4.0691	4.1622	3.8817	4.2036	3.7822	3.4468
	Std. Deviation	1.45548	1.30686	1.46157	1.41215	1.55286	1.57868
	Grouped Median	4.3182	4.3279	4.0646	4.4063	3.9481	3.6316
MA	Mean	4.2109	4.1468	4.0621	4.3952	3.9081	3.49
	Std. Deviation	1.51005	1.33833	1.46655	1.44172	1.55544	1.62863
	Grouped Median	4.4949	4.1513	4.2429	4.5694	3.9843	3.6378

PhD	Mean	4.2727	4.7143	4.2222	4.3333	3.8704	4.0159
	Std. Deviation	1.22306	1.24335	1.34701	1.34193	1.44765	1.65438
	Grouped Median	4.6364	5.2857	4.6	4.75	3.875	4.5714
Total	Mean	4.1022	4.177	3.9204	4.2408	3.813	3.4641
	Std. Deviation	1.45616	1.30648	1.45815	1.41201	1.54877	1.58024
	Grouped Median	4.3473	4.3415	4.1042	4.4523	3.9679	3.6774

The results depicted by table (4.28) clearly demonstrate that teachers' degree does not have any influence on their attitude towards the use of technology in teaching. In fact, most of the teachers' impression centered around 4.0 (neutral), which can be interpreted that teachers are either in favourite of the use of technology in teaching neither against it.

Impact of internet speed on teachers' attitudes towards e-learning constructs

Table (4.29) below records the teachers' attitudes towards e-learning influenced by the teachers Internet speed. The results depicted in table (4.29) demonstrates that the Internet speed has no significant role to play in forming the views of teachers regarding to the constructs included in the study. In fact, there is no clear trend in teachers' responses regarding the different constructs, based on the Internet speed they use at home to deliver their services to students.

Table 4.29: teachers' impression concerning different constructs, measured versus their Internet speed.

Internet Speed		Teaching Effectiveness	Ease Of Use	Infrastructure	Motivation	Elearning_Environm Effectiveness	Assessment
2	Mean	4.1178	4.0708	3.9652	4.2891	3.7667	3.3901
	Std. Deviation	1.32754	1.35055	1.4118	1.30759	1.48281	1.49606
4	Mean	4.0841	4.2137	3.8703	4.236	3.8322	3.5204
	Std. Deviation	1.43677	1.28502	1.42673	1.38218	1.52364	1.58581
8	Mean	4.0962	4.1705	3.9074	4.2269	3.7977	3.4669
	Std. Deviation	1.44523	1.29726	1.46907	1.401	1.53716	1.56932
10	Mean	4.8545	4.4286	4.32	4.7455	4.3667	3.2571
	Std. Deviation	1.04565	0.58902	0.95499	0.67082	1.55635	1.03707
12	Mean	5.0909	4.5714	3	4.75	2.8333	1.5714
	Std. Deviation	.	.	.	.	.	.
16	Mean	4.0872	4.139	3.9313	4.2403	3.7976	3.3992
	Std. Deviation	1.47647	1.33163	1.4568	1.45527	1.58446	1.59279
20	Mean	4.31	4.3401	4.0967	4.3182	3.9957	3.6395
	Std. Deviation	1.5302	1.29879	1.52374	1.43225	1.58478	1.62366
Total	Mean	4.1025	4.1777	3.9213	4.2412	3.8139	3.4647

	Std. Deviation	1.45655	1.30648	1.45811	1.41217	1.5488	1.58016

Impact of IT skills on teachers' attitudes towards e-learning constructs

As depicted by Table (4.30), there is no clear trend of teachers' responses to the different constructs based on their level of IT skills. The only distinction that can be spotted in table (4.30) is for those teachers whose IT Skills recorded as very high, with a slight distinction of about 0.7 degree.

Table 4.30: teachers' impression concerning different constructs, measured versus their IT skill level.

ITSkill of Teachers		Teaching Effectiveness	Ease Of Use	Infrastructure	Motivation	Elearning_Environm Effectiveness	Assessment
Null	Mean	4.2068	4.2173	4.0975	4.3172	3.9276	3.5726
	Std. Deviation	1.56752	1.38974	1.49596	1.52258	1.6026	1.6637
very weak	Mean	4.1295	4.1563	3.9143	4.305	3.8171	3.4174
	Std. Deviation	1.43889	1.30266	1.4066	1.36918	1.48662	1.50824
weak	Mean	4.0741	4.1606	3.8598	4.1958	3.7563	3.4555
	Std. Deviation	1.39117	1.26848	1.44527	1.36637	1.54098	1.55627
moderate	Mean	3.9878	4.1157	3.8182	4.1362	3.7415	3.3763
	Std. Deviation	1.45574	1.29597	1.45009	1.37905	1.52439	1.55248
high	Mean	4.1051	4.1925	3.9581	4.1894	3.8436	3.4748

	Std. Deviation	1.49192	1.34147	1.45215	1.48425	1.55114	1.60104
very high	**Mean**	**4.7647**	**4.6471**	**4.6303**	**5.0068**	**4.3782**	**4.0474**
	Std. Deviation	1.48782	1.32932	1.50849	1.4553	1.74334	1.82283
Total	Mean	4.1028	4.1775	3.9212	4.2412	3.8135	3.4647
	Std. Deviation	1.45623	1.30667	1.45826	1.41223	1.54905	1.58035

The overall conclusion of this section which dealt with the impact of different demographic variables on the study constructs, reveals that almost all the demographic variables that were used in the study, do not have any significant influence on the teachers' reactions considering the different constructs incorporated in the study.

4.5 Contrast between students and teachers' responses

What has been analysed and discussed so far are the students and teachers' reaction distinctly. This section has been added to contrast the reactions of the two groups with respect to the different issues related to the use of technology in learning, as recorded by the constructs.

IT skill level

The first issue we shall look at is to contrast the IT skill level between students and teachers, as depicted in figure (4.15).

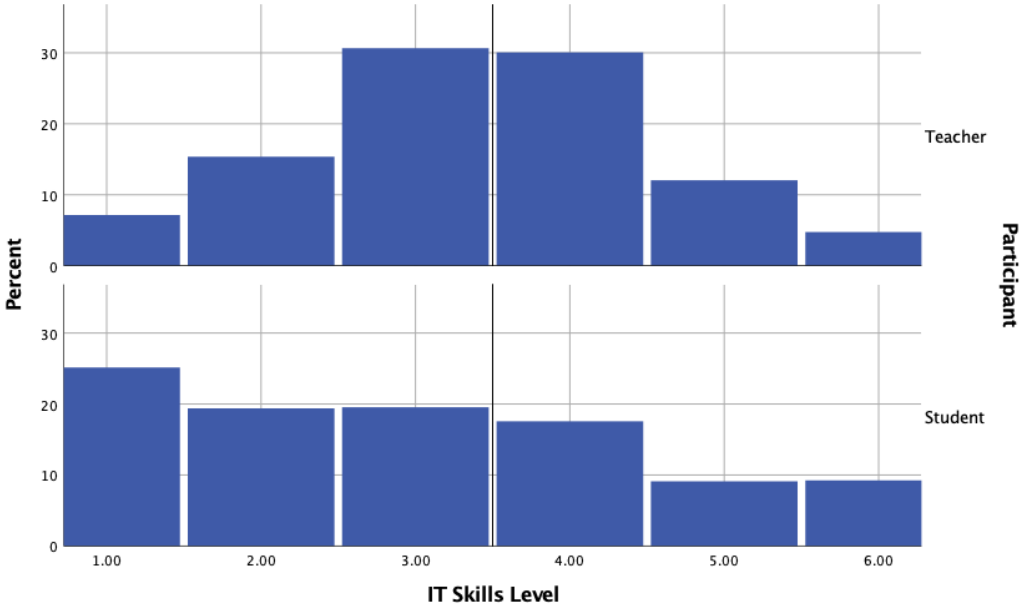

Figure 4.15: Comparison between IT Skill level of teachers and students.

As is depicted by figure (4.15), it is rather clear that teachers' skills are further shifted towards higher professionalism than the students are. Remark that IT skills level were divided into 6 level, starting with 1 (Null) into 6 (very high). Remarkable to notice that 25% of students' sample reported that they no IT skills at all (Null), whereas, about 7% of the teachers reported null IT skills.

Technology used

Three types of technologies were used to access the e-learning environment by both students and teachers. Figure (4.16) below depicts the distribution of technologies used by students and teachers. Mobile prevails as the device used by students, while laptop prevailed as the device used by teachers. Both students and teachers are reluctant to use desktops as the selected technology to access e-learning.

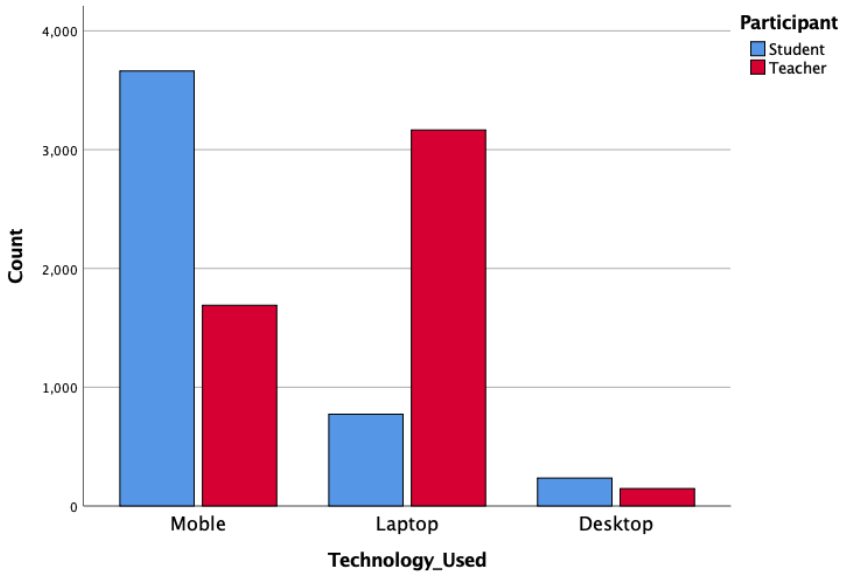

Figure 4.16: Comparison between students and teachers use of technology in learning and teaching.

Teaching / learning effectiveness

The effective use of technology in learning has been assessed by students, and in teaching assessed by teachers. The responses of both groups averaged over all indicators were depicted in figure (4.17) below.

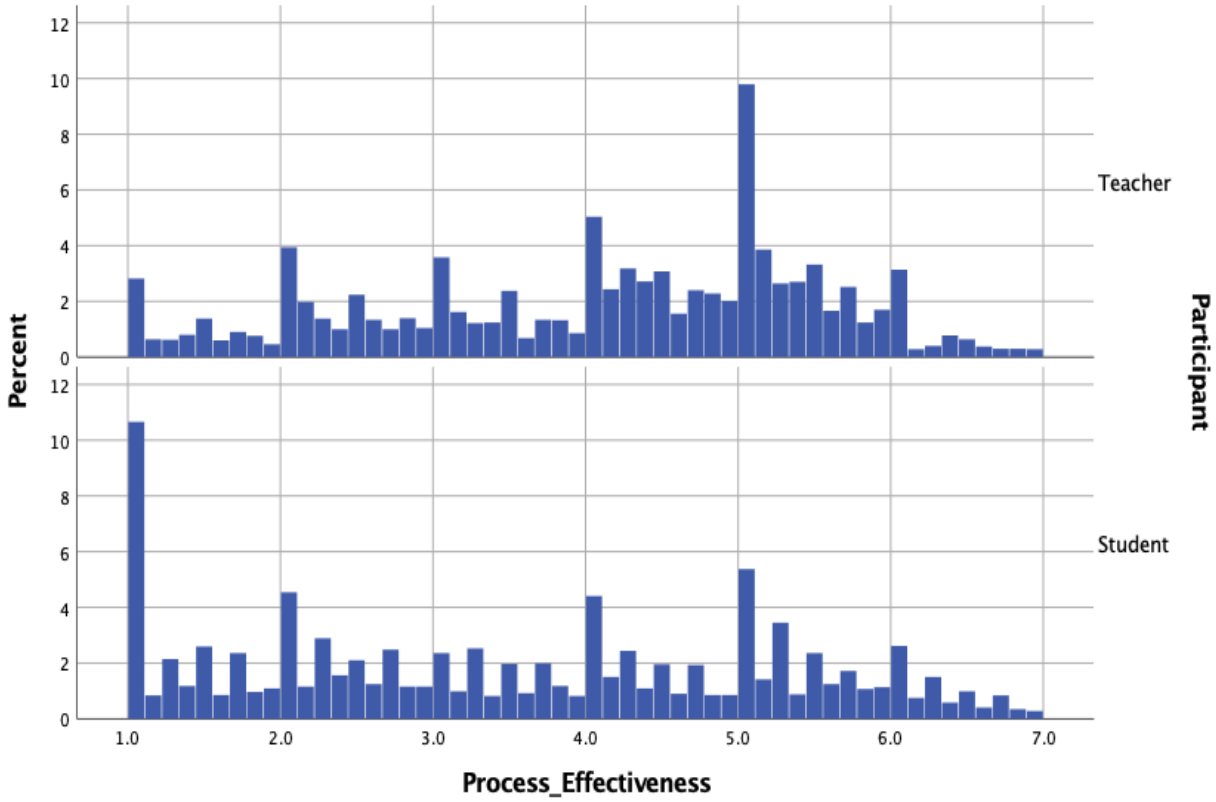

Figure 4.17: comparison between students and teachers' impression regarding the use of technology in learning and teaching.

It is pretty clear that teachers do have stronger belief in the effectiveness of e-learning in teaching than students do in learning. This is signified by the clear shift of teachers' responses towards the right side of the Likert scale, which indicates the positive attitude. Figure (4.17) shows that about 11% of the students' sample were strongly against the effective use of technology in learning while, only about 2% of the teachers were strongly against the use of technology in teaching.

Reaction against ease of use of e-learning

The study incorporated the assessment of ease of use of technology in learning by students, and in teaching by teachers. Remark that we almost used similar indicators to assess the attitude of

teachers and students, which allows us to make the comparison. The averaged values of both groups (teachers and students) for all indicators used in the construct, were calculated and depicted in figure (4.18).

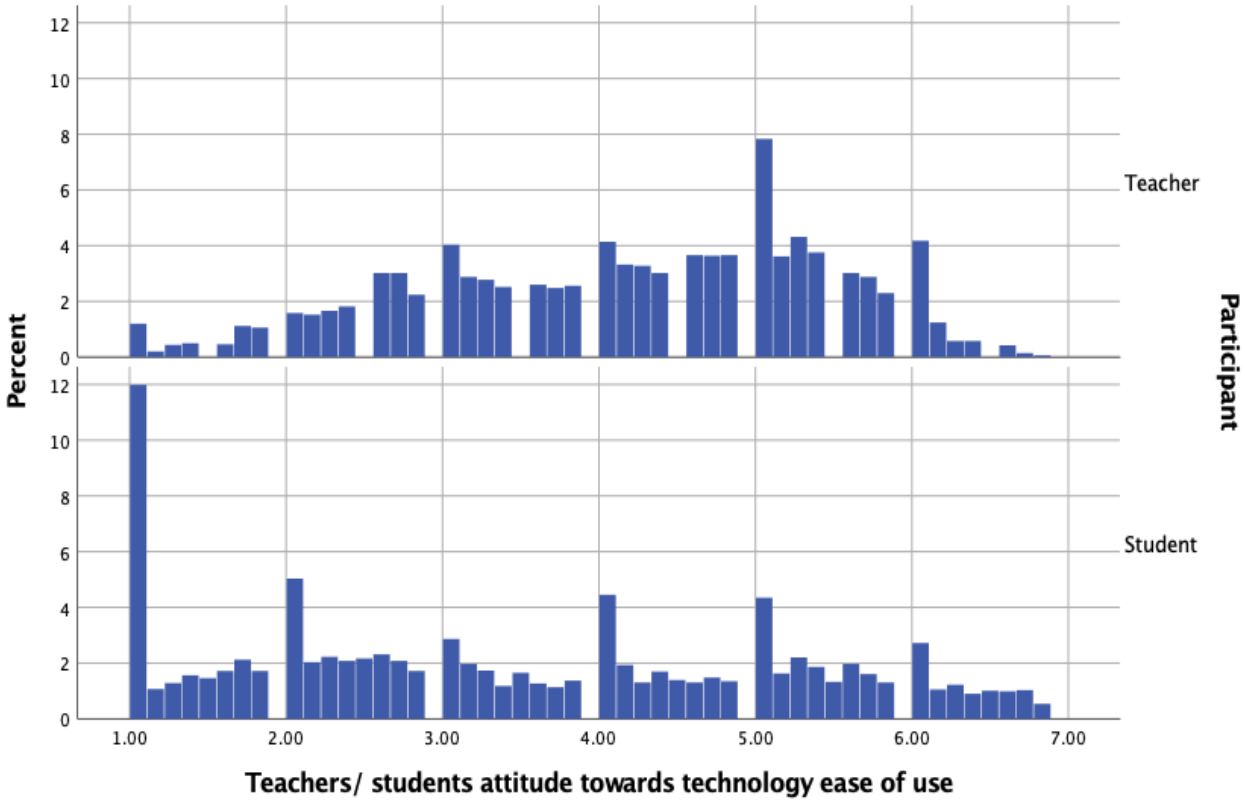

Figure 4.18: comparison between students and teachers' impression regarding the ease of use of technology.

Figure (4.18) demonstrates an extra positive attitude by teachers towards the ease of use of technology in teaching, in contrast to students' attitudes towards the use of technology in learning. Remark also that 12% of the students' sample do believe that technology is very hard to use in learning, compared to about 1% of the teachers who do have similar attitude.

Motivation towards the use of technology in learning / teaching

Of the issues that were investigated is the extent of motivation of students and teachers towards the use of technology in the learning/ teaching process respectively. The collected data for all indicators used in the construct were employed to calculate the means of the students and teachers' responses, as depicted by figure (4.19) below.

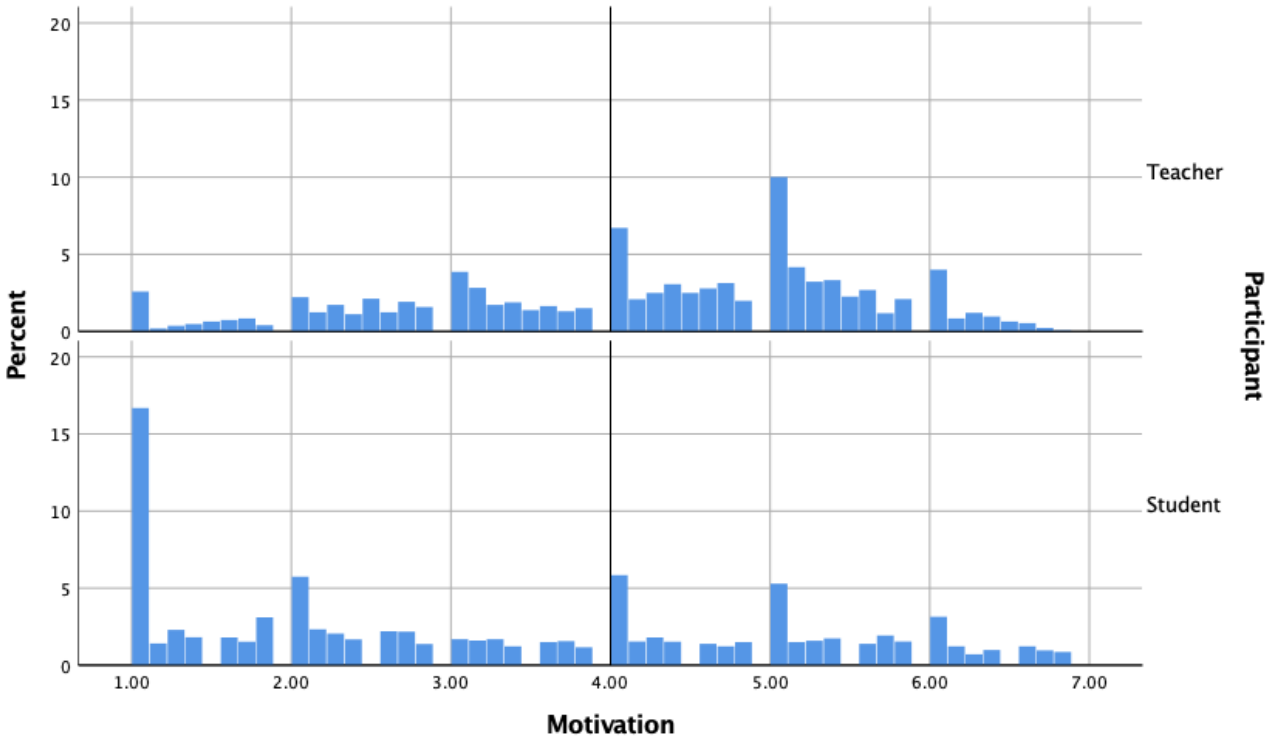

Figure 4.19: comparison between students and teachers' impression regarding the ease of use of technology.

As is shown by figure (4.19) teachers are more motivated towards the use of technology in teaching than students are in learning. Remarkable to not that about 17% of the students' sample are strongly demotivated against the use of technology in learning, while this percentage is only about 3% for teachers.

Impression regarding the e-learning environment

The effectiveness of the e-learning environment was tested in learning by students' sample, and in teaching by teachers' sample. The construct incorporates several indicators, each focus on some aspect of the e-learning environment effectiveness. The averaged values of all indicators are computed and plotted for effectiveness of e-learning environment, see figure (4.20). From the figure it seems that teachers are more positive towards the e-learning environment than students. Teachers responses are more shifted towards the right side – in the trend of encouraging attitudes. 20% of the students' sample do have a strong negative attitude against the e-learning environment, where only 5% of the teachers' sample have this strong negative attitude.

This is yet another feature of the e-learning systems where teachers reported more positive attitude towards e-learning than what students reported.

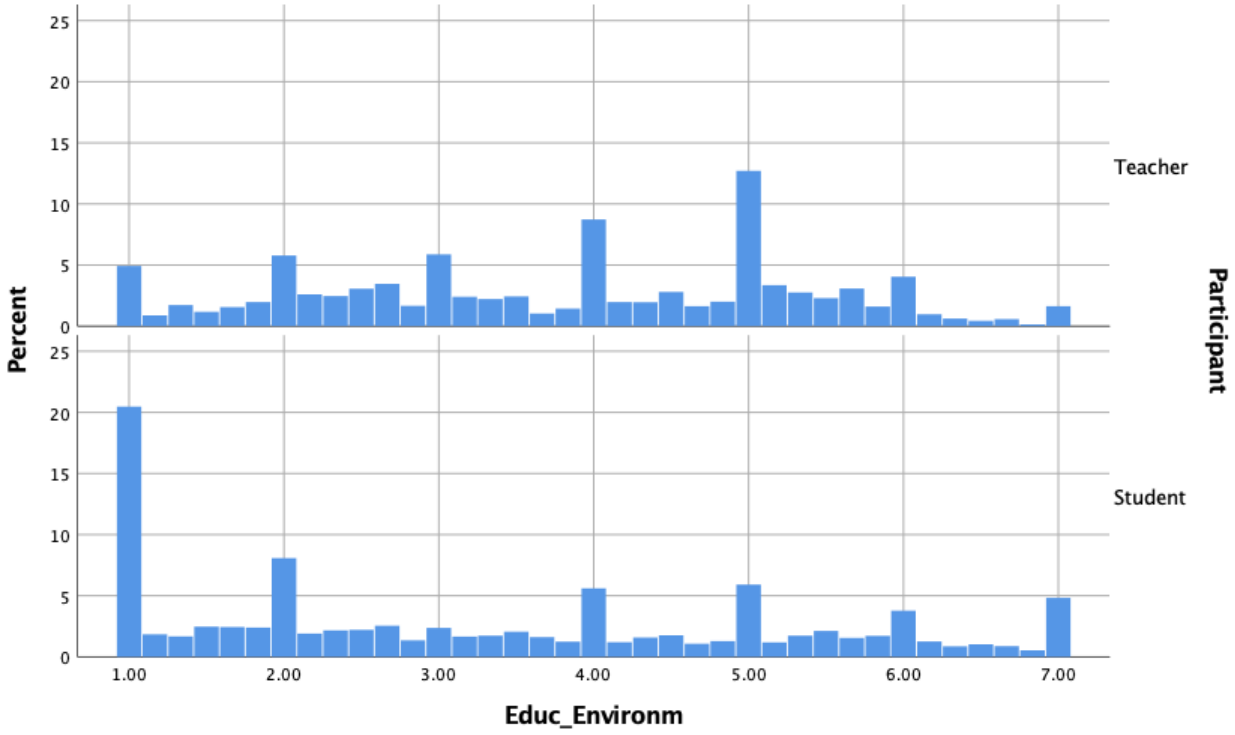

Figure 4.20: comparison between students and teachers' impression towards the effectiveness of the educational environment.

As is presented by table (4.31) it is rather clear that both samples of teachers and students are negative towards the suitability of technology as an educational environment. Yet the teachers' responses are more positive than that of students.

Table 4.31: comparison between students' and teachers' responses regarding the effectiveness of e-learning as an education environment.

Educ_Environm			
Participant	Mean	N	Std. Deviation
Student	3.2873	4671	1.93518
Teacher	3.8115	5003	1.54812

Total	3.5584	9674	1.76521

Impression regarding assessment in e-learning

The suitability of e-learning environment to academic assessment is among the issues we decided to investigate. This construct has seven indicators; their average is used to represent the values plotted in figure (4.21). For the assessment construct, there is no clear distinction between students and teachers towards the suitability of e-learning as an assessment tool.

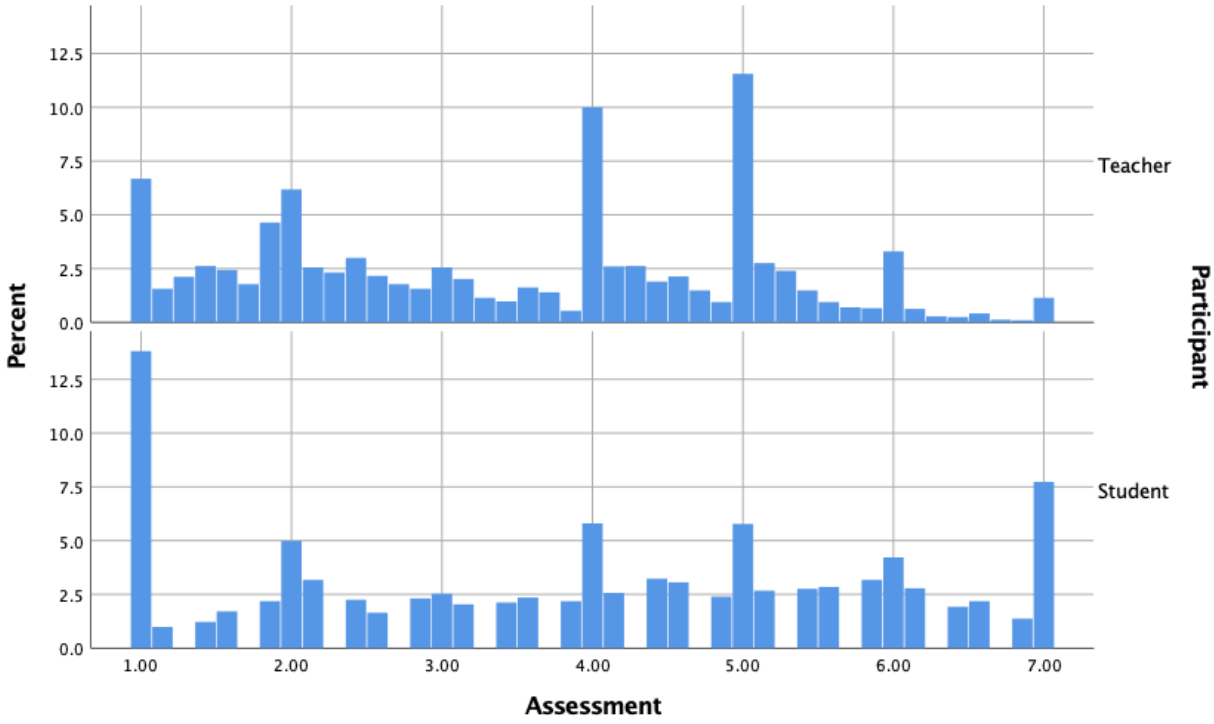

Figure 4.21: comparison between students and teachers' impression regarding the effectiveness of academic assessment.

To have a clearer idea about the responses of each group we calculated the mean and standard deviation of each sample shown in table (4.32). It turned out that students do

have a slightly more positive attitude towards assessment using technology than teachers. But the difference is only marginal.

Table 4.32: comparison between students' and teachers' responses regarding the use of technology in academic assessment.

Assessment			
Participant	Mean	N	Std. Deviation
Student	3.9313	4671	1.94997
Teacher	3.4641	5003	1.58024
Total	3.6897	9674	1.78369

Chapter 5

Discussion and concluding remarks

5.1 Overview

This chapter explains the findings of the study and discussing these results based on what was reached after analysing the study questions, passing through some conclusions, and arriving at some recommendations based on the results of the study, the general objective of which was to assess the extent to which technology can be a practical as a reliable alternative to the traditional personal learning, and can contribute effectively to the transfer of knowledge to the learner in the Palestinian context through the use of technology.

To answer the main question of the study: Is the use of modern technology in Palestinian public schools a strategic option to improve the effectiveness of the educational system? The following two sub-questions had to be answered:

What is the reality of engaging e-learning in the educational process compared to traditional(face-to-face) learning from the students 'perspectives?

What is the reality of engaging e-learning in the educational process compared to traditional(face-to-face) learning from the teachers 'perspectives?

5.2 Discussion of students' engagement with e-learning

What is the reality of engaging e-learning in the educational process compared to traditional(face-to-face) education from the students 'point of view?

The results of students' attitudes towards different aspects of engagements will be discussed below, starting with the effectiveness of e-learning.

- E-learning effectiveness: Students' attitudes towards the effectiveness of e-learning were rather negative. The researcher attributes this matter to a general weakness in the students' abilities to keep step with technological developments, as well as the difficulty of building and explaining educational materials in a way that clarifies to the student the scientific concepts through e-learning. Also, the students were not trained and qualified to be able to deal with the e-learning methodology.

- E-learning ease of use: Students' attitudes towards the ease of use of e-learning were all negative. The researcher attributes this to the fact that the students were facing multiple problems in terms of joining the virtual class or the process of participating in the class, and that they did not receive any training on using educational platforms that were the only way to access educational lessons at the beginning of the Corona pandemic. Distraction was high among students, as their presence in their homes increased the process of distraction, as well as the lack of electronic devices sufficient for a number of students in one family. They are required to be on the educational platforms at the same time.

- E-learning interactivity: Most of the students are not satisfied with the interactivity level provided by the e-learning systems. Remarkable to notice that about 12.5% of all students' sample expressed strong disagreement towards the interactivity feature of e-learning.

The researcher attributes this to the fact that students are not prepared to deal with e-learning platforms and do not have the ability to interact with teachers through these platforms, and the psychological situation that affects students through their continuous thinking about the capabilities of Internet networks and educational platforms, and

sometimes power outages and the lack of a support team Technical and psychological to deal with the conditions that accompany the class session, in addition to the element of distraction that was high among the students as their presence in their homes increased the process of their distraction, as well as the lack of electronic devices sufficient for a number of students in one family who are required to be on the educational platforms at the same time.

- Motivation towards learning: The average responses of students towards indicators of motivation towards e-learning are rather negative, indicating that technology does not work effectively to motivate students to learn through technology. The average responses to most indicators is slightly higher than 3.0 (disagree to certain extent).

The researcher attributes this to the fact that the students lost the element of follow-up and accountability by teachers through e-learning, which negatively affected their motivation towards education.

- Suitability of E-learning environment: The average responses of all indicators of students concerning suitability of the e-learning environment revolves around 3.0 (disagree to some extent), which also indicates a moderately negative attitude.

The researcher attributes this to the fact that the e-learning environment is not conducive to students to follow their lessons in a serious and successful manner, as students can record their attendance to class sessions without being committed to actual attendance to explain the educational materials, as well as the psychological situation that affects students through their continuous thinking about the capabilities of Internet networks and educational platforms Sometimes the electricity was cut off and the lack of a technical and psychological support team to deal with the conditions that

accompany the class session, in addition to the element of distraction that was high among students, as their presence in their homes increased the process of distraction.

- **Academic assessment:** about 13% of the student's sample recorded strong negative impression against the suitability of assessment using e-learning platform, but We can easily observe a clear trend shifted toward positive attitude concerning this issue.

The researcher attributes this matter to the fact that the outstanding students strongly rejected the method of exams or their evaluation in the e-learning environment compared to the rest of the students for whom the e-learning environment provides them with all the methods of cheating and the help of parents for them in answering exam questions or teachers' direct questions, and this will lead to educational disasters with unimaginable consequences.

5.3 Discussion of teachers' engagement with e-learning

In this section the reality of teachers' engagement in e-learning in the educational process compared to traditional(face-to-face) will be discussed from different aspects as are shown below.

- **E-learning effectiveness in teaching:** When the standard deviation is counted, then 68.2% of the teacher's sample do have their responses ranging between 2.6 (midway between disagree and disagree to some extent) to 5.6 (midway between agree to certain extent and agree).The researcher attributes this to the fact that some teachers received training on the use of technology in education and others did not, which led to a split in opinions between supporters of the effectiveness of e-learning and those who oppose it. In spite of this, there is a negative certain

extent impression about the effectiveness of e-learning in teaching from the point of view of teachers.

- **E-learning ease of use in teaching:** The percentiles revealed that 50% of the sample have their responses almost below 5 (agree to some extent).The researcher attributes this to the fact that the teachers preferred to some extent the e-learning environment, which does not bring them together directly with the students and does not make them nervous due to the students' poor educational abilities and their indifference to education in light of the various distractions that students are exposed to in this period and the inability of some teachers to understand Students' needs and the inability to control the quota in face-to-face education compared to e-learning.
- **Motivation towards the use of e-learning in teaching:** The motivation construct is estimated using 8 indicators that represent different aspect of the motivation towards teaching using technology. The average responses of teachers towards different indicators revolves around 4.0 (neutral). The researcher attributes this to the fact that teachers have an almost shy motivation towards e-learning, which stems from the fact that teachers do not meet directly with students and are not in a bad psychological situation, due to the poor educational abilities of students and their indifference to education in light of the various means of distraction that students are exposed to in this period.
- **Suitability of e-learning environment for teaching:** The percentile records indicate that 50% of the teachers' sample has their response below 3.0 – disagree to some extent of the e-learning environment in teaching. The researcher attributes this to the fact that teachers are aware of the reality of the electronic educational

environment in Palestine, where Internet services are weak, as well as power cuts in some cases, and that some teachers do not have computers, and if they are available, they present their children to use those devices, and that many of their students do not have Electronic devices to join classes, and many teachers did not receive training to use educational platforms or any course in computer basics.

- **Suitability of e-learning for academic assessment:** responses of teachers are somewhat inclined towards being negative with an average value of 3.5 on Likert scale, and there is a considerable percentage of responses that disagree with the way how assessment is performed using the e-learning system. The researcher attributes this to the fact that teachers were not able to build an electronic model for student assessment based on objectivity in terms of building paragraphs and the process of controlling the presentation of exams that were prevalent in cheating and parents' assistance to students. Also, the materials that need practical assessment, teachers were unable to apply them to students.

5.4 Concluding remarks

After reviewing the results of the study and its questions and discussion, the results of the study can be summarized as follows:

1. There is a negative attitude among students and teachers towards the effectiveness of e-learning compared to traditional (face-to-face) education, but students' attitudes were more negative than teachers.

2. The level of technical and technical support and infrastructure for the application of e-learning was low.

3. There is a need to provide technical support, train teachers and students on e-learning methodology and increase the speed of the Internet.

4. There is a need to focus more on these following tasks in teaching (deepening the main concepts in the educational content of students), (implementing tasks by the student), (preparing electronic programs to raise motivation and achievement) and (following up on students' skills during the educational process).

5. There is a negative practice among students more than teachers in the process of using e-learning.

6. There is more motivation among teachers than students towards e-learning, despite its moderation.

7. The evaluation process is more negative for teachers than for students

8. There is a need to work with teachers regarding awareness-raising and how to employ technology in education and deal with students according to this option.

9. There is a need to develop the capabilities of teachers and students in the field of e-learning.

10. There are no statistically significant differences at the significance level of $0.05 \geq \alpha$ for the degree of effectiveness of e-learning compared to face-to-face education for students and teachers of demographic variables, but in most of them it was marginal with weak and negligible significance.

5.5 Recommendations

1. Building an electronic culture for teachers and students and linking it to citizenship.
2. Supporting the infrastructure for the application of e-learning.

3. Reforming educational curricula to adapt to global changes and e-learning.
4. Raising the capabilities of students and teachers in dealing with e-learning.
5. Governance, information system development and e-learning management.
6. Fairness in assessing students' learning and their level of achievement.
7. Instructional design needs additional effort from teachers, which requires developing a system to motivate them.
8. Enhancing psychological and social support for students, teachers and parents.
9. Discussing future research to assess the supervisors and school principals of the reality of e-learning in Palestine.

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7. Appendices

Annex No. 7. 1: A letter to facilitate the assignment of a student from the university.

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FACULTY OF Graduate Studies
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July 12, 2020

طلب للتعاون مع طلبة الدراسات العليا في الجامعه العربية الامريكية

حضرة الدكتور محمد مطر – وزارة التربية والتعليم

تحية طيبة وبعد

بالاشارة الى الموضوع أعلاه نرجوا مساعدة الطالب الباحث **(نصيف عميره – طالب في برنامج التخطيط الاستراتيجي وتجنيد الأموال)** حامل هذا الكتاب في الحصول على البيانات والمعلومات اللازمه لاتمام متطلبات البحث الذي يعكف الطالب على أجرائه في سياق حصوله على درجة الماستر.

وهنا نود أن نؤكد لكم أن البيانات التي سيتم الحصول عليها من مؤسستكم ستعامل بسرية تامه ولن يتم استخدامها الا لاغراض البحث العلمي

شاكرين لكم حسن تعاونكم

د. خالد ربايعه

Khalid S. Rabayah

كلية الدراسات العليا
الجامعه العربيه الامريكية

Annex No. 7.2: Student facilitating assignment letter from the Ministry of Education.

State of Palestine
Ministry of Education
Center for Educational Research and Development

دولة فلسطين
وزارة التربية والتعليم
مركز البحث والتطوير التربوي

الرقم: و ت / ١٥٠/١/١٢
التاريخ: 31/ 03 /2021

لمن يهمه الأمر

تسهيل مهمة بحثية"

يهديكم مركز البحث والتطوير التربوي أطيب تحية، ويرجو منكم التكرم بتسهيل مهمة الباحث:

تصيف فيصل حسن عميرة '

من الجامعة العربية الأمريكية للحصول على المعلومات اللازمة لإعداد دراسته بعنوان:

"تقييم توظيف التعليم الالكتروني مقارنة بالتعليم الوجاهي في المدارس الحكومية الفلسطينية "

ملاحظات:

- تتضمن الدراسة تطبيق استبيان على عينة عشوائية من طلبة الصفوف الثامن وحتى الحادي عشر في الضفة وكذلك المعلمين والإداريين في المديريات .
- الاستجابة على الأدوات البحثية من قبل عينة المبحوثين طوعية.
- يتولى الباحث/ة أنشطة جمع البيانات، بتنسيق مع طاقم البحث والتطوير والجودة في المديرية.
- نظراً لظروف الجائحة يتم تطبيق أدوات البحث عبر النماذج المحوسبة دون تواصل وجاهي مع المبحوثين.

مع الاحترام،،

د. محمد بطو
٢/٣١
أمدير مركز البحث والتطوير التربوي

دولة فلسطين
وزارة التربية والتعليم

نسخة: عطوفة وكيل الوزارة المحترم.
عطوفة /وكلاء المساعدين المحترمين.
مدراء عامين التربية والتعليم المحترمين.
د.خالد ربايعة – المحترم/ المشرف على الدراسة- بريد الكتروني Khalid.rabayah@aaup.edu

Tel (+ 970-562-501092) E-mail (ncerd@moe.edu.ps)

Annex No. 7.3: Supplement of the arbitrators' names for the questionnaires.

الرقم	الإسم	المؤسسة
.1	**د. أمجد شحادة**	وزارة التربية والتعليم/ رئيس قسم في الإدارة العامة للتقنيات وتكنولوجيا المعلومات.
.2	**د. سهير قاسم**	وزارة التربية والتعليم/قائم بأعمال مدير عام التربية والتعليم/ بيرزيت.
.3	**د. ربيحة عليان**	وزارة التربية والتعليم/مدير دائرة المتابعة والتقييم في الإدارة العامة للتخطيط.
.4	**أ. مجدي معمر**	وزارة التربية والتعليم/رئيس قسم تدريب معلمي المرحلة الأساسية العليا في الإدارة العامة للإشراف والتأهيل التربوي.
.5	**أ. صادق الخضور**	وزارة التربية والتعليم/قائم بأعمال الوكيل المساعد لمركز المناهج، ومدير عام الادارة العامة للتعليم العام.

Annex No. 7.4: Students questionnaire.

تقييم توظيف التعليم الالكتروني كخيار استراتيجي مقارنة بالتعليم الوجاهي في المدارس الحكومية الفلسطينية

استبانة الطالب

القسم الاول: معلومات شخصيه (*Personal*): معلومات عامة عن المشارك/ة في تعبئة الاستمارة:

املأ / ي الفراغات بالمعلومات المطلوبة:

الرمز	السؤال
Age	العمربالسنوات: .....
Grade	الصف: .....
GPA	المعدل المدرسي في الصف السابق.....
Gender	الجنس: ☐ ذكر ☐أنثى
Stream	التخصص: ☐علمي☐أدبي☐تجاري ☐تكنولوجي
Bandwidth	سرعة الإنترنت في البيت: .....
StudyTool	لحضور الدروس الكترونيا أستخدم: – الموبايل – لاب توب – دسك توب

	(جهاز حاسوب عادي)
Experience	مدى معرفتي باستخدام الكمبيوتر والإنترنت *1*- معدومة *2*- ضعيفة جدا *3*- ضعيفة *4*- متوسطة *5*- عالية *6*-عالية جدا
Directorate	مديرية التربية والتعليم.....

المحور الأول: فعالية العمليات التعليمية الالكترونية مقارنة بالتعليم الوجاهي (التقليدي)(EL_Effectiveness)

الرمز	السؤال	أوافق بشده	أوافق	أوافق لحد ما	محايد (متشابهان)	أعارض لحد ما	أعارض	أعارض بشده
EL_Eff1	التعليم الالكتروني سهل علي فهم المحتوى التعليمي بطريقة أفضل من التعليم الوجاهي							
EL_Eff2	التعلم الالكتروني أتاح لي التفاعل مع المواد التعليمية بطريقه أفضل من التعليم الوجاهي							
EL_Eff3	التعليم الالكتروني أتاح لي فرصة التفاعل مع المدرس/ة بشكل أفضل من التعليم الوجاهي							
EL_Eff4	التعليم الالكتروني أتاح لي الحصول على قدر أعلى من المعلومات والمعارف من تلك							

	التي أتاحها لي التعليم الوجاهي							
EL_Eff5	التعليم الالكتروني أتاح لي الحصول على قدر أعلى من المهارات من تلك التي أتاحها التعليم الوجاهي							
EL_Eff6	التعليم الالكتروني أتاح ليأداء واجباتي البيتية بطريقه أفضل من التعليم الوجاهي							
EL_Eff7	التعليم الالكتروني أتاح لتنمية تفكيري وقدراتي الذهنية بطريقه أفضل من التعليم الوجاهي							
EL_Eff8	التعليم الالكتروني أكسبني مهارات تقنية (حاسوبية) أكثر من التعليم الوجاهي							
EL_Eff9	التعليم الالكتروني أكسبني مستوى أعلى من الثقة بالنفس والاعتماد على الذات للتعلم أكثر من التعليم الوجاهي							
EL_Eff10	التعليم الالكتروني أكسبني حصيلة لغوية وقدرة على استعمال اللغات أكثر من التعليم الوجاهي							
EL_Eff11	التعليم الالكتروني أكسبني مستوى أعلى من مهارات البحث العلمي من تلك التي اكتسبتها في التعليم الوجاهي							

EL_Eff12	تدوين الملاحظات في بيئة التعليم الالكتروني أسهل منه في بيئة التعليم الوجاهي							
EL_Eff13	أداء الامتحانات في بيئة التعليم الالكتروني أسهل منه في بيئة التعليم الوجاهي							

المحور الثاني: سهولة التعامل مع التعليم الالكتروني مقارنة بالتعليم الوجاهي Perceived Ease of Use (PEOU)

الرمز	السؤال	أوافق بشده	أوافق	أوافق لحد ما	محايد (متشابهان)	أعارض لحد ما	أعارض	أعارض بشده
PEOU1	استخدام أنظمة التعليم الالكتروني سهل علي عمليات التعلم بطريقة أفضل من التعليمالوجاهي							
PEOU2	التعليم الالكتروني يلبي حاجاتي في التعلم بصورة أسهل من التعليم الوجاهي							
PEOU3	تعلم استخدام بيئة التعليم الالكتروني سهل ولا يحتاج إلى الكثير من الجهد							
PEOU4	التعليم الالكتروني قلل من الوقت المطلوب بالمقارنة مع التعليم الوجاهي (من خلال عدم الذهاب الى المدرسة)							

PEOU5	إدارة الملفات الالكترونية والحصص الصفية المسجلة إلكترونيا أسهل من إدارة الكتب والدفاتر							
PEOU6	الدراسة والمراجعة باستخدام الملفات الالكترونية أسهل من الدراسة والمراجعة باستخدام الكتب والدفاتر							
PEOU7	التعامل والتفاعل مع عناصر بيئة التعليم الالكتروني مثل منصة *Zoom* أو *Teams* أسهل من التعامل والتفاعل مع عناصر التعليم الوجاهي في غرفة الصف (مثل السبورة)							
PEOU8	مستوى الإزعاج ووجود عنصر التشتيت في بيئة التعليم الالكتروني أقل منه في بيئة التعليم الوجاهي							

المحور الثالث: مستوى تفاعل الطالب مع العملية التعليمية من خلال المنصات الالكترونية مقارنة بالتعليم الوجاهي *Interactivity*

الرمز	السؤال	أوافق بشده	أوافق	أوافق لحد ما	محايد (متشابهان)	أعارض لحد ما	أعارض	أعارض بشده

Interact1	تفاعلي مع المدرس باستخدام منصات التعليم الالكتروني أعلى من تفاعلي معه في التعليم الوجاهي							
Interact2	استخدام المنصات الالكترونية يكسر حاجز الخوف من المدرس أكثر منه في التعليم الوجاهي							
Interact3	تفاعلي مع المادة التعليمية باستخدام منصات التعليم الالكتروني الأفضل منه في التعليم الوجاهي							
Interact4	أمارس النقاش مع المدرس باستخدام منصات التعليم الالكتروني أكتر منه في التعليم الوجاهي							
Interact5	أتاحت لي منصات التعليم الالكتروني فرصة لطرح الأسئلة أكثر منه في التعليم الوجاهي							
Interact6	أتاحت لي منصات التعليم الالكتروني التفاعل مع زملائي في الصف أكثر منه في التعليم الوجاهي							

Interact7	أتاحت لي منصات التعليم الالكتروني التفاعل مع مصادر خارجية (كتب، محاضرات، مقالات) أكثر منه في التعليم الوجاهي							
Interact8	اتاحت لي منصات التعليم الالكتروني التفاعل مع المواد التعليمية مثل المحاضرات المسجلة والملفات الالكترونية أكثر منه من خلال الملاحظات المسجلة على الدفتر أو مراجعة الكتاب							
Interact9	أتاحت لي منصات التعليم الالكتروني التفاعل مع زملائي في الصف والتعاون معهم أكثر من التعليم الوجاهي من خلال اللقاءات الوجاهية							

المحور الرابع: الدافعية نحو التعلم باستخدام منصات التعليم الالكتروني مقارنة بالتعليم الوجاهي *Motivation towards Learning*

الرمز	السؤال	أوافق بشده	أوافق	أوافق لحد ما	محايد (متشابهان)	أعارض لحد ما	أعارض	أعارض بشده

Mot_Lear1	دافعيتي نحو التعلم باستخدام التعليم الالكتروني أعلى منها في التعليم الوجاهي							
Mot_Lear2	استخدام التعليم الالكتروني يحفزني للتعلم أكثر من التعليم الوجاهي							
Mot_Lear3	احقق ثقة في نفسي للتعلم عن طريق المنصات الالكترونية أكثر من تلك التي احققها عن طريق التعليم الوجاهي							
Mot_Lear4	أقبل على الدراسة بشغف ورغبة باستخدام المنصات الالكترونية أكثر من التعليم الوجاهي							
Mot_Lear5	أشعر براحة نفسية أكثر عند التعلم باستخدام منصات التعليم الالكتروني من التعليم الوجاهي							
Mot_Lear6	التعلم عبر منصات التعليم الالكتروني دفعني لبذل جهود أكبر لفهم المادة منه في التعليم الوجاهي							

Mot_Lear7	التعلم عبر منصات التعليم الالكتروني دفعني لممارسة الأنشطة المرتبطة بالمواد التعليمية أكثر من التعليم الوجاهي							

المحور الخامس: فعالية البيئة التعليمية الالكترونية مقارنة بالتعليم الوجاهي(التقليدي)(*EL_ educational environment)*

الرمز	السؤال	أوافق بشده	أوافق	أوافق لحد ما	محايد (متشابهان)	أعارض لحد ما	أعارض	أعارض بشده
EL_ee1	التعليم الالكتروني أتاح لي بيئة تعليمية محفزة بشكل أكبر منه في التعليم الوجاهي							
EL_ee2	التعليم الالكتروني أتاح لي بيئة تعليمية مضبوطة بشكل أكبر منه في التعليم الوجاهي							
EL_ee3	التعليم الالكتروني أتاح لي بيئة تعليمية تخلو من المشتتات بشكل أكبر منه في التعليم الوجاهي							

EL_ee4	التعليم الالكتروني أتاح لي بيئة تعليمية تحفز على النقاش والحوار بشكل أكبر منه في التعليم الوجاهي							
EL_ee5	التعليم الالكتروني أتاح لي بيئة تعليمية قابلة للتعامل مع الظروف الطارئة(انقطاع الكهرباء، خلل تقني....) أكبر منه في التعليم الوجاهي							
EL_ee6	التعليم الالكتروني أتاح لي التحكم في البيئة التعليمية الخاصة بي بشكل أكبر منه في التعليم الوجاهي							

المحور السادس: الامتحانات وعملية التقييم *Assessment*

الرمز	السؤال	أوافق بشده	أوافق	أوافق لحد ما	محايد (متشابهان)	أعارض لحد ما	أعارض	أعارض بشده
Asism1	أداء الامتحانات في بيئة التعليم الالكتروني أسهل من أدائها في بيئة التعليم الوجاهي							
Asism2	الضغط النفسي عند أداء الامتحانات في البيئة الالكترونية أقل من ذلك في بيئة التعليم الوجاهي							

Asism3	الامتحانات في بيئة التعليم الالكتروني أدق في تقدير أداء الطالب من بيئة التعليم الوجاهي							
Asism4	إمكانية الاستعانة بمصادر خارجية خلال الامتحان في بيئة التعليم الالكتروني أسهل من تلك في بيئة التعليم الوجاهي (التقليدي)							
Asism5	الوظائف والمشاريع التي يتم تكليفنا إياها عبر منصات التعليم الالكتروني تقيمنا أفضل من تلك المشاريع والوظائف التي يتم تكليفنا إياها في التعليم الوجاهي							

Annex No. 7.5: Teachers' questionnaire.

تقييم توظيف التعليم الالكتروني كخيار استراتيجي مقارنة بالتعليم الوجاهي في المدارس الحكومية الفلسطينية

استبانة المعلم

القسم الاول: معلومات شخصيه (*Personal*): معلومات عامة عن المشارك/ة في تعبئة الاستمارة:

املأ / ي الفراغات بالمعلومات المطلوبة

الرمز	السؤال
TAge	العمربالسنوات: .....
TExperience	عدد سنوات الخدمة .....
TQualification	المؤهل العلمي ☐ دبلوم ☐ بكالوريوس ☐ ماجستير ☐ دكتوراه
TGender	الجنس: ☐ ذكر ☐أنثى

Tspeciality	التخصص: ☐علوم☐رياضيات ☐عربي ☐ إنجليزي ☐تكنولوجيا ☐ إجتماعيات ☐ أخرى
Bandwidth	سرعة الإنترنت في البيت: .....
Study Tool	لحضور الدروس الكترونيا أستخدم: – الموبايل – لاب توب – دسك توب (جهاز حاسوب عادي)
Experience	مدى معرفتي باستخدام الكمبيوتر والإنترنت *1*–معدومة *2*–ضعيفة جدا *3*– ضعيفة *4*–متوسطة *5*–عالية– *6*عالية جدا
Directorate	مديرية التربية والتعليم.....

المحور الأول: فعالية عمليات التعليم الالكترونية مقارنة بالتعليم الوجاهي(التقليدي)(*TEL_Effectiveness*)

الرمز	السؤال	أوافق بشده	أوافق	أوافق لحد ما	محايد	أعارض لحد ما	أعارض	أعارض بشده

TEL_Eff1	التعليم الالكتروني سهل عليشرح المحتوى التعليمي بطريقة أفضل من التعليم الوجاهي							
TEL_Eff2	التعليم الالكتروني أتاح ليعرض المواد التعليمية بطريقه أفضل من التعليم الوجاهي							
TEL_Eff3	التعليم الالكتروني أتاح لي فرصة التفاعل مع الطلبة بشكل أفضل من التعليم الوجاهي							
TEL_Eff4	التعليم الالكتروني أتاح لي إعطاء قدر أكبر من المعلومات والمعارف من تلك التي يتيحها لي التعليم الوجاهي							
TEL_Eff5	التعليم الالكتروني أتاح لي عرض المادة التعليمية بطرق أكثر من تلك التي يتيحها التعليم الوجاهي							
TEL_Eff6	التعلم الالكتروني أتاح ليفرصة زيادة عدد مصادر التعلم والمراجع للطالب من تلك التي اتاحها التعليم الوجاهي							

TEL_Eff7	التعلم الالكتروني أتاح لي فرصةتنمية القدرات الذهنية للطلبة بطريقه أفضل من التعليم الوجاهي							
TEL_Eff8	التعلم الالكتروني أتاح لي فرصة تنمية المهارات العملية للطلبة بطريقة أفضل من التعليم الوجاهي							
TEL_Eff9	التعليم الالكتروني أتاح لي فرصة إعطاء واجبات بيتية بشكل أفضل من التعليم الوجاهي							
TEL_Eff10	التعليم الالكتروني أتاح لي فرصة إكساب الطلبة مهارات لغوية بشكل أفضل من التعليم الوجاهي							
TEL_Eff11	التعليم الالكتروني أتاح لي فرصة إعطاء الطلبة الامتحانات بشكل أفضل من التعليم الوجاهي							

المحور الثاني: سهولة التعامل مع بيئة التعليم الالكتروني مقارنة ببيئة التعليم الوجاهي *Perceived Ease of Use*

الرمز	السؤال	أوافق بشده	أوافق	أوافق لحد	محايد	أعارض لحد ما	أعارض	أعارض بشده

				ما				
TPEOU1	بيئة التعليم الالكتروني سهلت علي عمليات التعليم (التدريس) أكثر من التعليم الوجاهي							
TPEOU2	بيئة التعليم الالكتروني لبت متطلبات عمليات التعليم (التدريس) بشكل أفضل من التعليم الوجاهي							
TPEOU3	التعامل مع نظام التعليم الالكتروني معقد وليس من السهولة تعلمه بالمقارنة مع التعليم الوجاهي							
TPEOU4	تعلم استخدام نظام التعليم الالكتروني سهل ولا يحتاج الكثير من الجهد والوقت							
TPEOU5	التعليم الالكتروني قلل من الوقت المطلوب للتحضير للحصص بالمقارنة مع التعليم الوجاهي							

TPEOU6	التعامل والتفاعل مع عناصر بيئة التعليم الالكتروني مثل منصة *Zoom* أو *Teams* للتعليم (للتدريس) أسهل من التعامل والتفاعل مع عناصر التعليم الوجاهي (التقليدي) في غرفة الصف (مثل السبورة والطباشير)							
TPEOU7	القدرة على الاحتفاظ بالمحاضرات والشروح الكترونيا أفضل من الاحتفاظ بها ورقيا							

المحور الثالث: جهوزية البنية التحتية (*Technology Infrastructure*)

الرمز	السؤال	أوافق بشده	أوافق	أوافق لحد ما	محايد	أعارض لحد ما	أعارض	أعارض بشده
TTI1	تتوفر لدي أدوات ووسائل ومستلزمات التعليم الالكتروني أكثر من التعليم الوجاهي							
TTI2	يمكن التعامل مع منصات التعليم الالكتروني مثل (*Zoom, Teams*) بطريقة أفضل من التعامل مع أدوات التعليم الوجاهي مثل السبورة							

TTl3	البرامج المستخدمة في عملية التعليم الالكتروني فعالة وتؤدي وظائفها باستمرار وبكفاءة							
TTl4	تكاليف تلك البرامج بسيطة جدا ويستطيع الجميع الحصول عليها مقارنة بتكاليف إستخدام أدوات التعليم الوجاهي							
TTl5	سرعة الإنترنت وجودة الخدمات المقدمة من الشركات المزودة للخدمة ملائمة للعملية التعليمية							

المحور الرابع: الدافعية نحو التعليم (التدريس) باستخدام منصات التعليم الالكتروني مقارنة بالتعليم الوجاهي

Motivation towards Learning

الرمز	السؤال	أوافق بشده	أوافق	أوافق لحد ما	محايد (متشابهان)	أعارض لحد ما	أعارض	أعارض بشده
TMot_Teach1	دافعيتي نحو التعليم (التدريس) باستخدام منصات التعليم الالكتروني أعلى من التعليم الوجاهي							

TMot_Teach2	استخدام منصات التعليم الالكتروني يحفزني للتعليم(للتدريس) أكثر من التعليم الوجاهي							
TMot_Teach3	أحقق ثقة في نفسي للتعليم(للتدريس) عن طريق المنصات الالكترونية أكثر من تلك التي أحققها عن طريق التعليم الوجاهي							
TMot_Teach4	أقبل على التعليم(التدريس) بشغف ورغبة باستخدام المنصات الالكترونية أكثر من التعليم الوجاهي							
TMot_Teach5	أشعر براحة نفسية أكثر عند التعليم (التدريس) باستخدام منصات التعليم الالكتروني من التعليم الوجاهي							
TMot_Teach6	التعليم (التدريس) عبر منصات التعليم الالكتروني حفزني لبذل جهود أكبر لشرح المادة							

	منه في التعليم الوجاهي								
TMot_Teach7	التعليم (التدريس) عبر منصات التعليم الالكتروني دفعني لممارسة أنشطة تعليمية اكثر المرتبطة بالتدريس اكثر من التعليم الوجاهي								
TMot_Teach8	التعليم (التدريس) عبر منصات التعليم الالكتروني أتاح لي فرصة استغلال المصادر الموجودة في الانترنت أكثر من التعليم الوجاهي								

المحور الخامس: فعالية البيئة التعليمية الالكترونية مقارنة بالتعليم الوجاهي(التقليدي)(*EL_ educational environment)*

الرمز	السؤال	أوافق بشده	أوافق	أوافق لحد ما	محايد (متشابهان)	أعارض لحد ما	أعارض	أعارض بشده

TEL_ee1	التعليم الالكتروني أتاح لي بيئة تعليمية محفزة للتدريس بشكل أكبر منه في التعليم الوجاهي							
TEL_ee2	التعليم الالكتروني أتاح لي بيئة تعليمية (تدريسية) مضبوطة بشكل أكبر منه في التعليم الوجاهي							
TEL_ee3	التعليم الالكتروني أتاح لي بيئة ت تعليمية (تدريسية) تخلو من المشتتات بشكل أكبر منه في التعليم الوجاهي							
TEL_ee4	التعليم الالكتروني أتاح لي بيئة تعليمية (تدريسية) تحفز على النقاش والحوار بشكل أكبر منه في التعليم الوجاهي							
TEL_ee5	التعليم الالكتروني أتاح لي بيئة تعليمية (تدريسية) قابلة للتعامل مع الظروف الطارئة (انقطاع الكهرباء، خلل تقني....) أكبر منه في التعليم الوجاهي							

TEL_ee6	التعليم الالكتروني أتاح لي التحكم في البيئة التعليمية (التدريسية) الخاصة بي بشكل أكبر منه في التعليم الوجاهي							

المحور السادس: الامتحانات وعملية التقييم *Assessment*

الرمز	السؤال	أوافق بشده	أوافق	أوافق لحد ما	محايد	أعارض لحد ما	أعارض	أعارض بشده
TAsism1	التعليم الالكتروني أتاح لي فرصة تقييم الطلبة بشكل موضوعي أفضل من التعليم الوجاهي							
TAsism2	التعليم الالكتروني يساعدني على إعداد الامتحانات للطلبة أفضل من التعليم الوجاهي							
TAsism3	التعليم الالكتروني أتاح لي فرصة ضبط عمليات الغش وتعزيز المنظومة الاخلاقية أفضل من التعليم الوجاهي							
TAsism4	التعليمالالكتروني يمكنني كمدرس من الحد من استعانة الطلبة بمصادر خارجية خلال الامتحان بشكل أفضل منه في حالة التعليم الوجاهي							

TAsism5	التعليم الالكتروني أنسب في عملية تقييم المباحث جميعها بغض النظر عن طبيعتها (نظرية، عملية) من التعليم الوجاهي							
TAsism6	الامتحانات في بيئة التعليم الالكتروني أدق في تقييم أداء الطلبة من بيئة التعليم الوجاهي							
TAsism7	الضغط النفسي عند أداء الامتحانات في البيئة الالكترونية أقل من ذلك في بيئة التعليم الوجاهي							

الملخص

أتاحت الابتكارات والتطورات التكنولوجية للعديد من البلدان تحسين تعليمها بتكلفة منخفضة؛ وعلى المستوى الفلسطيني، تواصل وزارة التربية والتعليم حاليًا بذل جهود حثيثة؛ لتوظيف التكنولوجيا في التعليم على مستوى المدارس؛ خاصة بعد تفشي جائحة كوفيد -19، إذ تهدف خطوة الوزارة إلى إحداث نقلة كبيرة في العمليات التعليمية وتحويلها من التقليدية (وجها لوجه) إلى الإلكترونية؛ وخاصةعمليتي التعليم والتعلم. وتعتمد خطوة الوزارة على تحسين البنية التحتية للاتصالات، إضافة إلى الحلول التكنولوجية للتعلم الإلكتروني، وتزويد المدارس بالبنية التحتية الأساسية؛ خصوصا الإنترنت والمحتوى الرقمي ومعدات الوصول مثل، أجهزة الكمبيوتر والأجهزة اللوحية، كما تبذل الوزارة جهودا حثيثة في تدريب المعلمين وتأهيلهم.

إلا أنّ هذه المساعي الوطنية تعترضها معوقات عدة، أبرزها الاحتلال الإسرائيلي؛ حيث تقوم سلطات الاحتلال باحتجاز الأجهزة والوسائل الإلكترونية التي يتم استيرادها أو التبرع بها من الخارج أثناء مرورها عبر المعابر الإسرائيلية، وهناك عقبة ثانية تتعلق بالميزانيات المخصصة التي لا تكفي لتعميم المبادرات على المستوى الوطني، وثالثة تتعلق بعدم وجود معلمين مؤهلين لاستخدام التكنولوجيا؛ لتقديم المحتوى بشكل فعال ويضاف إلى ذلك ضعف الثقافة المجتمعية فيما يتعلق باستخدام الوسائل التكنولوجية في التعليم، وهو ما انعكس بدوره على فئة كبيرة من المعلمين والطلبة الذين يشكلون جزءا أصيلا من هذا المجتمع.

تم تصميم هذه الدراسة لمقارنة فعالية استخدام التكنولوجيا في التعليم العام على مستوى المدرسة بالأساليب التقليدية، التعليم الوجاهي، كما يراها الطلاب والمعلمون أيضًا.

صممت الدراسة لمعالجة القضية من منظورين مختلفين؛ الطلاب والمعلمين، فعلى مستوى الطلاب، سيتم استكمال التباين بين التعلم الإلكتروني والتعليم وجهاً لوجه فيما يتعلق بالفعالية المتصورة لعمليات التعلم، وسهولة الاستخدام المتصورة، والتفاعل، والدافع نحو التعلم، وفعالية بيئة التعلم، والتقويم في بيئة التعليم الإلكتروني ومقارنتها بالتعلم التقليدي وجهاً لوجه.

يعتقد الباحث أن آراء الطلاب حول التعلم الإلكتروني ستكون مختلفة عن آراء المعلمين، وتحقيقا لهذه الغاية تم تصميم استبانة خاصة، تبحث في الموضوعات المذكورة أعلاه، وفعالية عمليات

التدريس وسهولة استخدام العمليات التعليمية، وجاهزية البنية التحتية التكنولوجية، والدافع نحو التدريس وإضافة للتقويم.

الهدف العام من الدراسة هو تقييم المدى الذي يمكن أن تكون فيه التكنولوجيا بديلاً موثوقًا به عن نظام التعليم التقليدي، ومدى إسهامها بشكل فعال في نقل المعرفة إلى المتعلم في السياق الفلسطيني من خلال استخدام التكنولوجيا.

تم استخدام المنهج الوصفي لدراسة وتحليل وتقييم فاعلية توظيف التكنولوجيا في النظام التعليمي الفلسطيني ولتحقيق هذه الغاية، تم توظيف المنهج الكمي؛ لجمع البيانات من عينة وطنية كبيرة من المشاركين في الدراسة (الطلاب والمعلمين)، حيث جُمعت البيانات بمساعدة وزارة التربية والتعليم ووزعت الاستبانات وجُمعت إلكترونيًا.

تبين وجود موقف سلبي من وجهات نظر الطلاب والمعلمين تجاه فعالية التعلم الإلكتروني مقارنة بالتعليم التقليدي (الوجاهي)، علما أن مواقف الطلاب أكثر سلبية من المعلمين.

تنبع أهمية الدراسة من حقيقة أن إصلاح التعليم وتحسين جودته والبحث عن حلول لمشاكل النظام التعليمي هي محور اهتمام المجتمع الفلسطيني على المستويات جميعها، في محاولة لإعادة توجيه النظام التعليمي ووضعه على الطريق الصحيح لمواكبة المتغيرات العالمية والاتجاهات التربوية الحديثة؛ للنهوض بالمجتمع الفلسطيني، وبناء جيل ممتلك للمهارات والقدرات والقيم المعرفية، والقدرة على تطوير الحياة وإنتاج العلم وحل المشكلات؛ لتحقيق تنمية مستدامة تهدف إلى النهوض بالواقع الفلسطيني.