

Degree Of Use Of E-Learning Science Teachers In Public High Schools In During The Corona-Covid 19 Pandemic

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Abstract

This study aimed to identify the Degree Of Use Of E-Learning Science Teachers In Public High Schools In During The Corona-Covid 19 Pandemic, and in order to achieve this, the researchers used the analytical descriptive curriculum where the study community of all science teachers in Nablus, Amman and Baghdad schools was selected from them random sample class size (200) teacher, and the data was entered on the computer and processed using the program (Spss) and the study reached a set of results, the most important of which is that The Degree Of Use Of E-Learning Science Teachers In Public High Schools In During The Corona-Covid 19 Pandemic was significant, and also showed that there were no statistically significant differences at the level ($0.05\alpha\leq$) between the average responses of the study sample members in the degree of use of e-learning in state high schools according to the variables of the study (Gender, state, years of experience, scientific qualification), and based on the results of the study, the researchers reached several results, the most important of which was that it was for science teachers Choose multimedia programs that contain sound, video and animations.

Keywords: E-Learning, Science Teachers, Secondary Schools.

Introduction

The deadly and infectious disease Corona Virus also known as Covid-19 has deeply affected the global economy. This tragedy has also shaken up the education sector, and this fear is likely to resonate across the education sector globally. The Covid-19 pandemic outbreak forced many schools and colleges to remain closed temporarily. Several areas are affected worldwide and there is a fear of losing this whole ongoing semester or even more in the coming future. Various schools, colleges, and universities have discontinued in-person teaching. As per the assessment of the researchers, it is uncertain to get back to normal teaching anytime soon. As social distancing is preeminent at this stage, this will have negative effects on learning opportunities. Educational units are struggling to find options to deal with this challenging situation. These circumstances make us realize that scenario planning is an

urgent need for academic institutions ([Rieley, 2020](#)).

The advent of cybersecurity began in the late 1990s and coincided with a rapid development in multimedia, virtual reality and satellite communication technology, allowing the development of the third generation in the use of electronic media to communicate and receive information, acquire skills and interact between student and teacher, student and school, school and teacher. This great progress has not been born today, but rather to the past decade since former Us President Bill Clinton asked for his initiative known as technological knowledge modernization in 1996, in which he called for intensified efforts to link all American public schools to the Internet by 2000 and in response to the initiative, the Federal Schools Union (1996) introduced the Academic Internet Project, the first school to teach courses online in Washington state. Some of the calls for the

establishment of an electronic university in England have already been made and this university is expected to offer online courses in continuing education and community development. (Hu,2020)

E-learning is also an interactive system linked to the learning process, based on the existence of a digital electronic environment that exposes the student to courses and activities through electronic networks and smart devices, a method of learning using modern communication mechanisms from a computer, networks, multiple media, research mechanisms, radio, television and telephone to provide an educational environment. (Berg, 2018)

The importance of e-learning lies in a number of advantages that are not available in other means such as: allowing the student to progress in the educational process as quickly as he or she is, where he learns and errs in an atmosphere of privacy, contributing to solving the problem of overcrowding lecture halls, the high cost of university buildings, and expanding the chances of students accepting non-limited school places (Affouneh& Salha & Khlaif), 2020).

E-learning also provides training for employees, and the use of e-learning provides learners with the opportunity to acquire new and other educational skills and experiences, as the internet has the ability to connect a large number of people over long distances, based on the use of multimedia in communication between learners and their teachers and between teachers and the educational institution (Shabul and Alian, 2014).

On the other hand, there is an interest in the teaching of science from ancient times, where human interest in science began to observe the phenomena that surround it, which directly affect his life, such as the movement of the moon, and with the development of agriculture became knowledge of the weather, and the date of its variable is very important, i.e. when the four seasons occur, in addition to the quality of plants grown if cosmic regularity, and cosmic teeth, are the main engine of man to explain the mechanism of occurrence of these phenomena, including the discovery of laws and formulated mathematically, and linking different factors, Scientists have linked factors, among other things, to the principle of causality (Al-Ani, 2020).

The importance of science is not only to present the scientific discoveries of scientists, but also to have a positive impact on individuals, in terms of developing the ability to ask questions, collecting information, organizing and testing ideas, as well as developing problem-solving skills, allowing for the practical application of theoretical material, and because speed and technology are advantages of the times, it is necessary to understand what is happening in the universe, as science is the ideal way to build self-confidence; By improving the ability to communicate, the child asks the question "Why?" countless times, if answered via the Internet, he will lose the opportunity to explore the world around him and find answers to his own questions, which helps him form his own views, and generates patience and perseverance, rather than considering the opinions of others to be taken for granted (Jurish, 2020).

Based on the above, it has been shown that there is a great importance to science in our daily lives, and from this point of view it must be concerned with it and the fact that the Corona pandemic worked on a problem in the arrangements that were going in the education of science subject, it is necessary to move effectively to teach it using e-learning, so this study came in order to highlight the degree of use of e-learning among science teachers during the Corona-Covid 19

Study problem:

The problem of study crystallized among the researchers of the invasion of the world virus Corona and the variable that took place by this virus, where there was a clear shift towards e-learning in many educational institutions, and that schools in Palestine , Amman and Baghdad are considered educational institutions that were affected by virus Corona and that the schools of the two countries need to enrich them with electronic devices specialized in the field of education and in order to employ technology in a large way, science teachers are among the teachers who have experienced distance learning but from It is not known whether e-learning has been applied to the fullest or not, and through the experience of researchers in the field of education and the fact that the majority of them are specialists in the field of science and others specialized in the field of education

technology noted that there is an unjustified confusion among science teachers towards the use of e-learning, and through their knowledge of many studies they have noticed that there are none of the previous studies that dealt with the subject of e-learning and science teachers in Palestine, Amman and Baghdad with each other where lies The problem of studying in answering the main question:

1. What is the Degree Of Use Of E-Learning Science Teachers In Public High Schools In During The Corona-Covid 19 Pandemic?
2. Are there statistically significant differences in the average responses of the respondents in the Degree Of Use Of E-Learning Science Teachers In Public High Schools In During The Corona-Covid 19 Pandemic attributable to the Gender variable r?
3. Are there statistically significant differences in the average responses of the respondents in the degree of use of e-learning among science teachers in public secondary schools during the Corona-Covid 19 pandemic due to the variable state?
4. Are there statistically significant differences in the average responses of the respondents in the Degree Of Use Of E-Learning Science Teachers In Public High Schools In During The Corona-Covid 19 Pandemic due to the variable of specialization?
5. Are there statistically significant differences in the average responses of the respondents in the degree of use of e-learning among science teachers in public secondary schools during the Corona-Covid 19 pandemic due to the variable in scientific qualification?

Study objectives:

This study aims to:

1. Learn about the Degree Of Use Of E-Learning Science Teachers In Public High Schools In During The Corona-Covid 19 Pandemic.
2. To determine if there are statistically significant differences in the average responses of the respondents in the Degree Of Use Of E-Learning Science Teachers In Public High Schools In During The Corona-Covid 19 Pandemic attributable to the Gender due to variable.

3. To determine if there are statistically significant differences in the average responses of the respondents in the Degree Of Use Of E-Learning Science Teachers In Public High Schools In During The Corona-Covid 19 Pandemic due to the state variable.

4. To determine if there are statistically significant differences in the average responses of the respondents in the Degree Of Use Of E-Learning Science Teachers In Public High Schools In During The Corona-Covid 19 Pandemic due to the variable specialization.

5. To determine if there are statistically significant differences in the average responses of the respondents in the Degree Of Use Of E-Learning Science Teachers In Public High Schools In During The Corona-Covid 19 Pandemic due to the variable in scientific qualification.

Study limits:

This study was limited to :

1. **Human Boundaries:** This study was conducted on a sample of science teachers (physics, chemistry, biology, science methods).
2. **Spatial boundaries:** This study was conducted in public schools in Nablus, Amman and Baghdad governorate.
3. **Temporal boundaries:** This study was conducted in the first semester of the academic year 2020-2021.

Study terms

E-learning: is an online education, through the use of modern electronic technologies to access everything related to educational materials outside the boundaries of the traditional educational class (Koumi, 2006)

Previous studies

Deshmukh & Anuradha(2021)

This paper describes the effect of “online science teaching” in teacher education institutes in the UAE (United Arab Emirates). The study was undertaken to understand the mindset and perceptions of educators with respect to online education with a sample comprising of 20 pre-service teachers in the second semester of a one-

year post graduate course in education. A quantitative research methodology was adopted to investigate the pre-service teachers' perceptions of online education. Also, there were interviews conducted and included in the analysis. A major result indicated that participants had a better understanding of course materials through using the online medium. Other results indicated the effectiveness of the online instruction to measure participants' expectations regarding the course design, role of the facilitator and interactions between the participants themselves and the instructor or facilitator. Supportive interviews indicated key aspects and also comparing the two modes: online and face-to-face. Keywords: online teaching, face-to-face instruction, pre-service teacher perception, teacher education programs

Ja'ashan(2020)

This study attempts to find out the challenges students' face in learning English as a foreign language when using E-learning system at University of Bisha. It also investigates whether using E-learning is beneficial to EFL students in their learning English to the degree anticipated. There are many challenges face both teachers and students during use E-learning. These challenges include academic, technological; and administrative challenges. The study sample included 36 teaching staff and 261 EFL students at University of Bisha - English department. To collect data required, the researcher developed questionnaires that consist of three domains for both teaching staff and students separately. The study results show that there are no significant differences between EFL students (males and females) of E-learning activities. Therefore, it argued that all domains of teaching staff and students' challenges could not predict academic achievement. The findings reveal that some factors such as academic, administrative, and technical challenges regarding E-learning were the main challenges of E-learning at University of Bisha. The results also show that students aware of the benefits of using E-learning. They perceive themselves as having a highly positive attitude towards E-learning in English. However, the main advantage can be used anywhere, anytime, and the E-learning system can adapt to the aims of improving communication and enriching students' learning experiences .

(Shary,2020)

study aimed to identify the trends of biology teachers towards e-learning in southern schools, and in order to achieve the objectives of the study, the analytical descriptive curriculum was used where the sample of the study was formed from (120) teachers, for the academic year 2020-2021. To achieve the objectives of the study, a questionnaire was built from 45 paragraphs and divided into two fields, and the validity and stability of the study tool was confirmed. The results of the study indicated that the trends of biology teachers towards e-learning in southern schools were significant, and showed that there were no statistically significant differences in the trends of biology teachers towards e-learning in southern schools due to the Gender variable, scientific qualification, years of experience, region, specialization), and one of the most important recommendations was to activate the use of the e-learning system in all schools by all science teachers.

Can(2015)

Science Olympiad has become an integral part of Russian education. In the last decades various steps have been taken to improve various aspect of Science Olympiad. Politicians, administrators and teachers are looking for a better alternative to increase participation and improve the quality of Olympiads. With the development of new technologies eLearning is becoming increasingly important in Science Olympiads. The aim of this research was to investigate teacher's use of eLearning in Science Olympiad in Russian Schools. For the purposes of this study, in 2013 an on-line survey was conducted to collect data from the Chelyabinsk state secondary schools in Russian Federation. A total of 433 teachers from the Chelyabinsk State secondary schools participated in the survey. Data analysis was done using T-test, descriptive statistics, ANOVA and Pearson Correlation. According to the result, science Olympiad teachers have positive opinion toward using eLearning in science Olympiad. A significant difference was found between teachers' opinion about using eLearning in Science Olympiads and variables such as subject, teacher's educational qualifications and location of school (p0.05). Based on the results of the survey this researcher created a website, a repository to provide a variety of resources to facilitate training

Dhawan (2020)

Educational institutions (schools, colleges, and universities) in India are currently based only on traditional methods of learning, that is, they follow the traditional set up of face-to-face lectures in a classroom. Although many academic units have also started blended learning, still a lot of them are stuck with old procedures. The sudden outbreak of a deadly disease called Covid-19 caused by a Corona Virus (SARS-CoV-2) shook the entire world. The World Health Organization declared it as a *pandemic*. This situation challenged the education system across the world and forced educators to shift to an online mode of teaching overnight. Many academic institutions that were earlier reluctant to variable their traditional pedagogical approach had no option but to shift entirely to online teaching-learning. The article includes the importance of online learning and Strengths, Weaknesses, Opportunities, & Challenges (SWOC) analysis of e-learning modes in the time of crisis. This article also put some light on the growth of EdTech Start-ups during the time of pandemic and natural disasters and includes suggestions for academic institutions of how to deal with challenges associated with online learning.

(trwan,2020)

The current research aims to identify the reality of applying e-learning in the teaching of science from the point of view of students in light of the Corona-Covid 19 epidemic from the students' point of view according to the following variables (gender, school year, cumulative rate, place of residence). The researcher used the descriptive curriculum in order to suit the objectives of the study, and the community of study on all high school students was selected random sample (366) students, and one of the most important findings of the researcher the reality of e-learning in the teaching of science subject was a large degree, and that there are no statistically significant differences at the level of significance ($0.05 \geq \alpha$) the reality of applying e-learning in the teaching of science subject from the point of view of students in light of the outbreak of the Corona-Covid 19 epidemic from the point of view of the corona-covid 19 epidemic Students according to the following variables (Gender, school year, cumulative rate, place of residence)

(Aljaser,2019)

study aims to identify the effectiveness of the e-learning environment in developing academic achievement in the trend towards Learning English among fifth-graders. The e-learning environment was designed and a test and scale was prepared to assess the trend towards English learning, and the semi-experimental curriculum was applied to a sample of fifth graders, divided into a controlled group taught through the traditional method, and an experimental group taught through the e-learning environment. The results of the study showed statistically significant differences in favour of the pilot group in both the post-achievement test and the trend measure towards learning English.

(Bashir,2019)

study aimed to model e-learning interaction, learner satisfaction and continuing learning intentions in Ugandan higher education institutions, based on the survey curriculum, examined the effectiveness of e-learning that was linked to learner satisfaction and continuing learning intentions, and collected data using a 28-paragraph questionnaire, applied to 232 learners. The results revealed that e-learning interaction consists of a three-factor structure: learner interface, feedback interaction, as well as learning content.

Study methodology:

In order to achieve the objectives of the study, the descriptive field approach, which is defined as a method of research, was used to explain the status quo of the phenomenon or problem by identifying its circumstances and dimensions and characterizing the relationships between them in order to conclude a thorough and integrated practical description of the phenomenon or problem based on the facts associated with it.

Community and sample study:

The study community is made up of all science teachers in secondary school during the first quarter of the 2021-2022 academic year, where they numbered about (3,000) teachers in Nablus, Amman and Baghdad schools, according to the records of the Directorate of Education in Nablus and the capital Amman and Baghdad, from which a sample was selected in the

available manner of the size (210) and recovered from it (200) a questionnaire valid for analysis, while describing the characteristics of the

sample of the study according to its independent variables:

Table (1) Distribution of the sample of the study according to its variables

Variable	Type	Number	Percentage%
Gender	Male	108	54%
	Female	92	46%
	Total	200	%100
Country	Palestine	76	%38
	Amman and Baghdad	124	%62
	Total	200	%100
Qualification	Diploma	22	11%
	BA	94	47%
	MA	116	58%
	Total	200	100
Specialization	Physics	49	24.5%
	Chemistry	61	30.5%
	Biology	48	24%
	science methods	42	21%
	Total	200	100

Study tool:

The researchers developed a tool for the study after reviewing the literature of the study and previous relevant studies where the honorary study (2021), the Smikala study (2021), the Beydoun study (2020) and the Strukly study (Strwakly,202) were relied upon 1) It consisted of (40) paragraphs spread over three areas, and the first area was related to curriculum planning and consisted of (15) paragraphs and the second area relates to the method of teaching and consists of (15) paragraphs, and the third area relates to the role of the learner and consists of (10) paragraphs, and the study tool was designed Based on the five-dimensional Likert Scale, the paragraphs were built in a positive direction, and weights were given to paragraphs as follows: strongly ok: five degrees, ok: four degrees, neutral: three degrees and not ok: two degrees, and totally disapproving: one degree.

tool validity

was verified by presenting it to a group of arbitrators with competence and experience in the field of teaching methods and asked them to express an opinion on the resolution paragraphs by deleting, amending and proposing new paragraphs and appropriate tool for the subject of the study, and based on the observations of the arbitrators the study tool was amended, consisting of (30) paragraphs without areas and its final form became a paragraph divided into three areas, and accordingly the tool enjoys the sincerity of the content.

Stability of the tool:

In order to extract the stability factor, the researchers used the Alpha Kronbach equation, the stability factor for the first area of curriculum

planning was 0.84, the stability factor for the second area related to the teaching method (0.87) was a paragraph, the stability factor for the third area related to the role of the learner was 0.88, the stability factor for the total grade (0.92) and this value reached was a suitable stability factor and fulfilled for the purpose of study.

Statistical processing:

After collecting, coding and processing data by appropriate statistical methods, using the SPSS statistical program, the researchers used repetitions, arithmetic averages and standard deviations, the Kronbach Alpha equation, the (t) test of two independent samples, and the analysis of mono contrast.

Results

This study aims to identify the Degree Of Use Of E-Learning Science Teachers In Public High

Schools In During The Corona-Covid 19 Pandemic, and in order to achieve this, the researchers used a questionnaire consisting of 40 paragraphs distributed to a sample of (200) science teachers in public high schools, and to explain the results of the study the researchers used the following mathematical averages:

- Less than 2.5 degrees applying a few
- 2.5-3.5 medium application degrees
- Greater than 3.5 degrees large application

Question 1: What is the degree of use of e-learning among science teachers in public secondary schools in Nablus, Amman and Baghdad during the Corona-Covid 19 pandemic?

In order to answer this question, the arithmetic averages and standard deviation of each area of study and table 2 are extracted.

Table 2 Arithmetic averages and standard deviations of the degree of use of e-learning among science teachers in public secondary schools in Nablus, Amman and Baghdad during the Corona-Covid 19 pandemic

No	Items	Means	standard deviation	Degree
second field	Teaching method	4.40	1.871	High
third field	Learner's role	4.38	0.783	High
first field	Curriculum planning	4.19	0.673	High
total		4.32	0.631	High

It is clear from the data in the previous table that the degree of use of e-learning among science teachers in public secondary schools in Nablus, Amman and Baghdad is large, and all areas have received a large degree, and the computational averages ranged from (4.40) to (4.19), and in terms of areas where the field was acquired The second related to the method of teaching on the first place with an average calculation (4.40) and standard deviation (1.871), and the third area related to the role of the learner was ranked second with an average calculation (4.38) and a

standard deviation (0.783), The first area of curriculum planning was ranked third and last with an average calculation (4.19) and standard deviation (0.673), with regard to the overall score, which reached an average account (4.32) and a standard deviation (0.631), which confirms that the degree of use of e-learning among science teachers in public high schools in Nablus, Amman and Baghdad is high.

Question 2: Are there statistically significant differences at the level ($0.05\alpha \leq$) between the

average responses of the study sample members in the degree of use of e-learning in public secondary schools in Nablus, Amman and Baghdad by gender variable?

In order to answer this question concerning the Gender variable r , a test (t) was used for two independent samples and table 3 explains this:

Table (3) Test (t) of two independent samples to determine the differences between the average responses of the study sample members on the degree of use of e-learning in science teachers in public high schools Nablus, Amman and Baghdad during the Corona-Covid 19 pandemic by Gender variable

Variable	Group	Number	Average	Standard deviation	(T)	Variable
Gender	Male	108	4.230	0.7842	1.0953	0.36
	Female	92	4.419	0.8963		

It is noted from the data in the previous table that there are no statistically significant differences at the level ($0.05\alpha \leq$) between the average responses of the study sample members in the degree of use of e-learning in public high schools in Nablus, Amman and Baghdad by Gender variable. The value of the level of significance (0.36) and this value is greater than (0.05) and this result confirms that the responses of male and female science teachers did not reach differences, which confirms that there are no significant differences Statistics at the level ($0.05\alpha \leq$) among the average responses of the study sample members in the degree of use of e-learning in public secondary schools Nablus, Amman and Baghdad by gender variable.

Question 3: Are there statistically significant differences at the level ($0.05\alpha \leq$) between the average responses of the study sample members in the degree of use of e-learning in public secondary schools in Nablus, Amman and Baghdad according to the state variable.

In order to answer the question concerning the state variable, he used the T test for two independent samples and table 4 explains this:

Table (7) Test (t) of two independent samples to identify the degree of use of e-learning in science teachers in public high schools in Nablus, Amman and Baghdad during the Corona-Covid 19 pandemic according to the state variable

Variable	Group	Number	Average	Standard deviation	(T)	Variable
Country	Palestine	76	4.3401	0.7853	1.9842	0.201
	Jourdan and Iraq	124	4.2790	0.7317		

It is noted from the data in the previous table that there are no statistically significant differences at the level ($0.05\alpha \leq$) in the degree of use of e-learning among science teachers in public high schools in Nablus, Amman and Baghdad during the Corona-Covid 1 pandemic. 9 According to the variable of the state, the value of the level of

significance (0.21) and this value is greater than (0.05) and this result means that science teachers in Nablus, Amman and Baghdad have similar responses with regard to the degree of use of e-learning, and this confirms the lack of Statistically significant differences at the level ($0.05\alpha \leq$) between the average responses of the

study sample members in the degree of use of e-learning in public secondary schools in Nablus, Amman and Baghdad by state variable.

public secondary schools in Nablus, Amman and Baghdad according to the variable specialization?

Question 4: Are there statistically significant differences at the level ($0.05\alpha\leq$) between the average responses of the study sample members in the degree of use of e-learning in

In order to answer this question concerning the specialty variable, a test (t) was used for two separate samples and table 3 explains this:

Table 4 Analysis of monogamy to indicate differences in the degree of use of e-learning among science teachers in public secondary schools in Nablus, Amman and Baghdad by specialization variable

Variable	Source of contrast	Total squares	Degrees of freedom	Average squares	Value (P)	Level of significance
Specialization	Squares between categories	1.0437	3	0.347	1.482	0.151
	Inner squares	45.891	196	0.234		
	Total	47.328	199			

It is noted from the data in the previous table that there are statistically significant differences at the level ($0.05\alpha\leq$) between the average responses of the study sample members in the degree of use of e-learning in public secondary schools Nablus, Amman and Baghdad according to the variable specialization, The value of the level of significance (0.15) and this value is greater than (0.05) and means that science teachers from different disciplines, whether they specialize in physics, chemistry, biology or science methods, have no difference in their responses statistically. This confirms that there are no statistically significant differences at the level ($0.05\alpha\leq$) between the average responses of the study sample members in the degree of use of e-learning in public secondary schools in

Nablus, Amman and Baghdad depending on the variable of specialization.

Question 5: Are there statistically significant differences at the level ($0.05\alpha\leq$) between the average responses of the study sample members in the degree of use of e-learning in public secondary schools in Nablus, Amman and Baghdad according to the variable of scientific qualification?

In order to answer this question concerning the variable of scientific qualification, the single variance analysis test and table 6 were used to illustrate this.

Table (6) Analysis of monogamy to indicate differences in the degree of use of e-learning among science teachers in public secondary schools in Nablus, Amman and Baghdad by variable scientific qualification

Variable	Source of contrast	Total squares	Degrees of freedom	Average squares	Value (P)	Level of significance
Specialization	Squares between categories	0.673	2	0.336	0.584	0.10

	Inner squares	41.810	197	0.212		
	Total	32.712	199			

*(D statistical at the level of significance ($\alpha = 0.05$))

It is noted from the data in the previous table that there are no statistically significant differences at the level ($0.05\alpha \leq$) in the degree of use of e-learning among science teachers in public secondary schools in Nablus, Amman and Baghdad during the Corona-Covid 19 pandemic. According to the variable of scientific qualification, the value of the level of significance (0.10) and this value is less than (0.05) and this result means that the responses of the members of the study sample, whether their scientific qualification is diploma, bachelor's degree or postgraduate there is no There are significant differences in their responses, which confirms that there are no statistically significant differences at the level ($0.05\alpha \leq$) between the average responses of the study sample members in the degree of use of e-learning in public high schools in Nablus, Amman and Baghdad according to the variable scientific qualification.

Recommendations

Based on the results of the study, a number of recommendations were reached:

1. Science teachers should choose multimedia programs that contain sound, video, animation, and static so that they are linked to the behavioral goals and topics chosen when teaching.
2. Science teachers should continue to take into account the needs of learners while studying skills during e-learning.
3. Science teachers should focus heavily on being able to meet the demands of e-learning.
4. Science teachers should continue to evaluate educational activities using e-learning.
5. Science teachers should motivate students to use e-learning.
6. Science teachers should work to take into account the practical aspect of e-learning.

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