



USING STATISTICAL METHODS TO DETERMINE THE IMPORTANCE OF E-LEARNING BETWEEN UNIVERSITY OF MISAN TEACHERS FOR ACADEMIC YEAR (2021-2022)

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Article history:	Abstract:
<p>Received: 20th January 2023 Accepted: 20th February 2023 Published: 28th March 2023</p>	<p>The rapid development in information and communication technology has considerably affected all scientific, service, health, media fields as well as government institutions services. The field of education comes at the forefront of the areas that have greatly been impacted in a positive way, as scientific resources and electronic books have become accessible to learners and researchers thanks to their availability on the websites of governmental and non-governmental scientific institutions. Moreover, researchers have also received a bonus of being granted a scientific status and material and moral rewards when they publish research and scientific articles. This has paved the way for learners to reach their goals.</p> <p>The outbreak of the Coronavirus has been an incentive for educational institutions to adopt e-learning in the world in general and in Iraq in particular, in the sense that pandemic has geared the attention of researchers and decision-makers of educational institutions towards e-learning and making it part of the learning methods for learners. E-learning can be defined as one of the methods of education, which depends on the presentation of educational content and the delivery of skills and concepts to the recipients through communication and information technology. It is one of the most important types of education at present. Information and communication technology is the language of modernity as e-learning technology has become one of the basic necessities for the development of educational systems. It is necessary to educate teaching staff, undergraduate and postgraduate students about the importance and role of e-learning and how to benefit from it. It is also important to stress the need to overcome obstacles and difficulties facing teaching staff and students when using e-learning and providing the necessary supplies for them.</p>

Keywords: e-learning Teaching staff , Electronic platforms , statistical significance.

THE STUDY PROBLEM

1. Through the researcher's teaching practice during the period of the Corona pandemic (COVID-19) and his reliance on electronic platforms such as the Moodle program, Google Classroom, Edmodo program, as well as the Zoom program and the FCC Free Conference Call program, as a means of e-learning, the problem was formulated through the following questions:
2. Are there positive attitudes when using e-learning during the study period?
3. What are the obstacles to using the electronic platforms used during the study period?
4. Are there statistically significant differences between the average scores of the attitudes of the study sample towards the use of e-learning due to the variables (gender, specialization, program)?

THE IMPORTANCE OF THE STUDY

The researcher hopes that the results of this study will contribute to the following:

- 1- Highlighting the importance of e-learning through the use of electronic platforms in the teaching and learning process.
- 2- Contributing to monitoring and overcoming obstacles to the use of e-learning in order to provide an interactive multi-source learning environment.
- 3- Contributing to enhancing the capabilities of teaching staff in using the new style of education.

OBJECTIVES OF THE STUDY:

- 1- Identifying the attitudes of teachers towards the use of e-learning.



- 2- Identifying the obstacles to the use of e-learning by conducting a field analysis to explore the virtual environment in which the aforementioned electronic platforms are used.
- 3- Identifying the statistically significant differences between the average scores of the attitudes of the study sample towards the use of e-learning.

STUDY HYPOTHESIS:

The study is based on the premise that (there are positive trends among the teaching staff at University of Maysan in the use of e-learning, which contributes to improving the academic performance of the teaching staff).

STUDY POPULATION:

The sampled community of professors of all faculties at University of Misan for the academic year 2021-2022, totalled (882) professors in all disciplines and of different qualifications according to gender, which given in the following table:

Table (1): Gender & Qualification Differences

Qualification	Gender		Total
	females	males	
Ph.D	200	282	482
Master's	120	280	
Total	320	562	882

Source: Department of Studies and Planning / Presidency of University of Misan

From the above table, the following can be noted:

- The total number of teachers of the University of Misan is (882) professors.
- The statistics for the teaching staff of the University of Maysan, were categorised according to the variable of Qualification, were as follows:
 First: - The number of teachers who hold a doctorate degree is (482), divided according to gender into (282) male teachers and (200) female teachers.

Second: - The number of teachers who hold a master's degree is (400) divided according to gender into (280) male teachers and (120) female teachers.

The study sample:

A simple random sample was used, where (60) questionnaires were distributed to the study sample, of which 50 questionnaires valid for statistical analysis were retrieved. Table (2) shows the study sample according to the statistical description according to the demographic variables.

Table (2): The study sample according to the statistical description according to the demographic variables

	Demographic variables	Category	Number	Percentage
1	Gender	Male	33	66.0
		Female	17	34.0
		Total	50	100%
2	Specialization	Scientific	21	42.0
		Humanities	29	58.0
		Total	50	100%
3	Qualification	Ph.D	18	36.0
		Master's	32	64.0
		Total	50	100%

The above table shows that 66% of the sample were males while the remainder 34% were females, of whom 42% of the sample had a scientific specialization and 58% had humanitarian specializations. The table also shows that 18% of the study sample were PhD holders and 32 % were holders of a master's degree.

Study tool

The questionnaire was used as a research tool in collecting data, as it was designed electronically to identify the attitudes of the study sample of teachers (professors of the University of Misan) towards the use of electronic platforms, and then access to the results.



The study questionnaire consists of the following sections:

- The first section: personal data (respondent's personal data), which are as follows:
 - 1- Gender
 - 2- Specialization
 - 3- Educational Qualification

- The second section: fields of study on the attitude of the University of Maysan professors (teachers) towards the use of electronic platforms in teaching, where (27) items were formed, distributed into two main axes, according to the following table:

Table (3): Axes of the questionnaire

Axis	Obstacles to the use of e-learning	Teaching attitude towards the use of e-learning	Total
Item	12	15	27

Approved study standards

The researcher used five-point Likert scale to know the response points of studied sample on the questionnaire items to correct the study tool. The score is close to (5),

which means that the level of approval is high, and if it is close to (1), this means that the level of approval is low or disapproval, as shown in the table below:

Table (4): The Weights and the weighted mean of the study

Scale	Weight	Weighted average
Very small	1	1.79-1
Small	2	2.59-1.80
Medium	3	3.39-2.60
Big	4	4.19- 3.40
Very big	5	5- 4.20

As we can notice in Table (4), there are different levels through which more accurate results can be reached and in which the scale used is corrected, which depends on the specific level. Thus, we can distinguish between these levels as follows:

- 1- If the level is greater than 4, then this means a high degree of agreement, i.e. completely agree.
- 2- If the level is from 4 to 3.5, then this means a good degree of agreement, i.e. strongly agree.
- 3- If the level is from 3.5 to greater than 3, then this means a medium degree of approval, i.e. agree.
- 4- If the level is from 3 to greater out of 2.5, it means a medium degree of disagreement, i.e. disagree.
- 5- If the level is from 2.5 to greater than 2, then this means a high degree of disagreement, i.e. strongly disagree.
- 6- If the level is from 2 or less, then this means a completely high degree of disagreement, completely disagree.

The admissibility of a study questionnaire

The admissibility of a study questionnaire means that it is the validity of the measurement tool used to measure

what was set for it. The validity of the study questionnaire was confirmed as follows:

- 1- The validity of the questionnaire from the point of view of the arbitrators with specialization:

The questionnaire was presented after its preparation in its final form to five specialized arbitrators in order to ensure the integrity of its linguistic and objective formulation in terms of proportion, harmony and conformity of its items with the dimensions of the studied questionnaire. This was done by taking all the suggestions and recommendations of the arbitrators to reach the objectives associated with this study.

2- The validity of the scale

- Internal consistency validity :

Internal consistency is a extent in which any item of a studied questionnaire is homogenous with a domain where this item exists. It has been evaluated by finding correlation coefficients between each item of this questionnaire domains and total score for same domain, as shown in Table (5).

Table (5): Correlational coefficients between each item of the questionnaire domains

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	Item
**0	**0	**0	**0	**0	**0	**0	**0	**0	**0	**0	**0	**0	**0	**0	Corre
.53	.53	.56	.63	.61	.54	.54	.69	.58	.61	.48	.59	.56	.69	.65	lation
3	6	0	9	5	1	0	1	6	9	4	6	3	1	7	coeffi
															cient



	12	11	10	9	8	7	6	5	4	3	2	1	Item
	**0 .57 2	**0 .59 6	**0 .42 9	**0 .61 2	*0. 331	**0 .53 4	**0 .52 5	**0 .57 1	**0 .68 3	**0 .61 7	**0 .73 4	**0 .49 9	of teachers' attitude of using e-learning
													Correlation coefficient of obstacles to the use of e-learning

* The correlation is statistically important at the significance level (≥ 0.05). α

** The correlation is significant in statistical terms at the significance threshold of ($0.01 \geq \alpha$)

We can note in Table (5) that the correlation coefficient estimated from 0.734 to 0.331.

It also appears that all correlation coefficients were significant in statistical terms at the threshold of ($0.05 \geq \alpha$) or ($0.01 \geq \alpha$) This means the validity of the measurement tool that was developed for the study in question.

- Structure Validity

It is one of the measurements of the validity of a tool through which it is possible to measure the extent of achieving the goals that the tool seeks to reach. It was shown from Table (6) that all correlation coefficients are significant in statistical terms at the significance threshold of (≥ 0.05). α . In this case, it can be considered that all domains of the questionnaire are confirmed (true) in the measuring tool

Table (6): the correlation coefficients with each item of the questionnaire items with the total score of the questionnaire

Arrangement	1	2
The item	Teachers' attitude of using e-learning	Obstacles to the use of e-learning
Spearman correlation coefficient	**0.754	**0.000
probability value (Sign)	**0.712	**0.000

* The correlation is significant in statistical terms at the significance threshold of (≥ 0.05). α

** The correlation is significant in statistical terms at the significance threshold of ($0.05 \geq \alpha$)

In the table above, it was found that all the axes of the questionnaire have validity, statistical significance, and are suitable for the study.

The reliability of the study tool

The reliability of the study tool means that if the tool was re-applied again on the same group under the same conditions from the studied sample, it would give the same results. This means that the results are reliable for the questionnaire and do not change at all, and the researcher used the coefficient Cronbach's Alpha (coefficient) to ensure that the reliability of the



questionnaire is measured, as given in the following table:

Table (7): the measurement of the reliability of the questionnaire using (Cronbach's Alpha)

the item	Obstacles to the use of e-learning	Teaching attitude towards the use of e-learning	Total
The number of items	12	15	27
Cronbach's alpha coefficient	0.764	0.865	0.879
Half segmentation	0.875	0.917	0.925

Through the results shown in Table (7) above, it was found that Cronbach's alpha coefficient had a high value for each domain of the questionnaire, as its value ranged between (0.764-0.865), and its value at the level of all items of the questionnaire was (0.879). This indicates a high reliability coefficient. Also, the value of reliability using the mid-section for each item of the questionnaire was (0.925). This gave the researcher confidence and certainty in terms of, reliability and validity of the measurement tool used in the study as it was found that it is valid for analyzing the results of this study.

The use of statistical treatments of the study

After the data is unloaded and analyzed in the Static Package for Social Science (SPSS) version 2022 by the following statistical methods:

- The researcher sought to describe the study sample to find out the frequency of categories for the studied variables by finding percentages, frequencies, and the arithmetic mean.
- The researcher determined the reliability of the items of the questionnaire using the test (Cronbach's Alpha) and the (Split Half method) test.
- The researcher calculated the structural validity and internal consistency and studied the

relationship between two variables using the Pearson correlation coefficient.

- The researcher checked the significance of the average for each item of the study questionnaire by using (One Sample T-Test), and to see if the average score of the response has reached the average score, which is (3), or decreased or increased.
- The researcher checked whether there were statistically significant differences between the data of two independent groups in the study using (Two Independent Sample T-test).

Presentation of study data & discussion and interpretation of results

1- The first hypothesis: The first hypothesis states the following: (There is a positive attitude towards the use of e-learning).

This hypothesis was tested to know if the average response score reached the average approval score, which is (3). This score is considered a degree of neutrality or not, by using the following statistical measures:

- SMA
- Standard deviation
- Relative weight
- T-test

As it is obvious in the following table:

Table (8): Use of statistical measures

	Item	Significance level	T-test	standard deviation	relative weight	SMA	Arrangement
1	E-learning contributes to increasing the knowledge balance of the student	0.000	10,474	0.764	82.9	4.14	11
2	I prefer e-learning over urban education	0.000	5,018	0.883	72.7	3.63	15



3	I see that the use of e-learning develops students' computer skills	0.000	11,817	0.677	82.9	4.14	10
4	E-learning helps me increase student activity in scientific research	0.000	13,218	0.670	85.3	4.27	6
5	E-learning reduces the student's effort in scientific research	0.000	11,606	0.751	84.9	4.24	7
6	E-learning helps students follow up on modern scientific research	0.000	14,220	0.663	86.9	4.35	3
7	E-learning contributes to solving the lack of resources	0.000	11,044	0.763	84.1	4.20	9
8	I see that the use of e-learning reduces the financial cost	0.000	13,293	0.731	87.8	4.39	2
9	I see that the use of e-learning assists students' e-learning	0.000	8,825	0.777	79.6	3.98	14
10	Electronic lessons are protected from loss	0.000	13,480	0.645	85.7	4.29	5
11	E-learning saves time for the researcher more than that spent in face-to-face education	0.000	13,587	0.736	88.6	4.43	1
12	The process of searching for information in the e-learning lecture is easier than the paper lecture transferred from face-to-face learning	0.000	12,060	0.689	86.5	4.33	4
13	The electronic lecture extensions are small and easy to download for the student	0.000	18,961	0.777	80.4	4.02	13
14	Navigating the electronic lecture is easier than the paper lecture transferred from face-to-face learning	0.000	9,040	0.723	84.9	4.24	8
15	E-learning is characterized by interaction by students	0.000	9,193	0.838	81.6	4.08	12
	Teachers' attitudes about the use of e-learning	0.000	18,961	83.6	0.43648	4.1823	

- We note that Item (11), which states ((e-learning saves time for the researcher more than that spent in face-to-face education)), had

the highest weight in percentages, which is 88.6%, and the arithmetic mean was 04.43.



Item (8) had a weight average of 87.8 and arithmetic mean 04.39.

- We can also note from the above table that items (2) and (9) had the lowest relative weights and arithmetic mean values among the items, as Item (2) had a relative weight of 72.7 %, which is the lowest in relative weights, with an arithmetic mean of 03.63. Item (9), which states ((I see that the use of e-learning assists students' e-learning)) got a relative weight of 79.9% and a mean of 3.98%.
- It also appears from the table that the general average of the teachers' attitudes about the use

of e-learning was 4.18, and it obtained a relative weight of 83.6%. practical side.

2- The second hypothesis: The second hypothesis states the following: (The obstacles to the use of e-learning have been achieved to a high degree). In this hypothesis, the arithmetic mean, standard deviation, relative weights and (T-TEST) were used to calculated the degree of response whether it has reached the degree of approval or the degree of neutrality, which is (3) or not. As shown in Table (9), which shows the analysis of the outcomes of the second survey to check the obstacles to the use of e-learning:

Table (9): the analysis of the outcomes of the second survey to investigate the obstacles to the use of e-learning

	Item	T-test value	Relative weights %	Standard deviation	SMA	((Sig)	arrangement
1	Lack of experience of students in dealing with electronic devices	8,159	78.0	0.770	3.90	0.000	7
2	Students' lack of experience in accessing lectures or e-books	10,372	79.6	0.661	3.98	0.000	4
3	Students' lack of confidence in e-book sources	5,911	73.9	0.822	3.69	0.000	12
4	Poor and weak internet networks	9,478	84.1	0.889	4.20	0.000	1
5	Students do not have the devices that enable them to obtain electronic books	7,762	79.2	0.865	3.96	0.000	6
6	Continuous use of e-learning may cause vision problems	8,825	79.6	0.777	3.98	0.000	5
7	Difficulty reading the e-book from the screen of the mobile phone due to the small size of the letters compared to the paper book	10,474	82.9	0.764	4.14	0.000	3
8	Lack of availability of subjects with the required specialization	7,049	74.7	0.730	3.73	0.000	11
9	Some students' reluctance to deal	7,854	76.7	0.746	3.84	0.000	8



	with electronic books and lectures						
10	electric current instability	8,634	83.3	0.943	4.16	0.000	2
11	Downloading books and resources from digital libraries imposes financial costs on students	6,223	75.5	0.872	3.78	0.000	9
12	The lack of clarity of the lectures or textbooks as a result of the poor survey	7,302	75.5	0.743	3.78	0.000	10
		15,371	78.6	0.42287	3.9286	0.000	0

From Table (9) above, the following can be noticed:

- Item (4), which states ((poor or weak Internet networks)), got the highest relative weight of 84.1%, and an arithmetic mean value of 04.20, while Item (10) which states ((the instability of the electric current)) had a relative weight value of 83.3% and an arithmetic mean of 04.16.
- It can also be seen from the table that the lowest two items are (3) and (8), where the former, which states ((weak confidence of researchers in the e-book sources)) got the lowest relative weight of 73.9% and an arithmetic mean of 03.69, while the latter, which states ((Lack of availability of subjects with the required specialization)) with a relative

weight of 74.7% and an arithmetic mean of 03.73.

- It was found that the general average of the axis of obstacles to the use of e-learning was 3.92, and the relative weight was 78.6%, and the estimated score was high.

The third hypothesis: The third hypothesis states the following: (There are no statistically significant differences at the threshold of $(0.05 \geq \alpha)$ between the average attitudes of the study sample towards the use of e-learning according to gender).

To know whether there are statistically significant differences, a T-test was used to compare the averages for two sets of data for two independent samples.

Table (10): the values of the t-test outcomes and the arithmetic mean and standard deviation of the Gender variable

Type	Female	Male
The number	16	33
Arithmetic mean	4,071	4.24
standard deviation	0.427	0.436
T-test value	1.25	
Sig. Value	0.217	

Table (10) shows that the mean of the study sample towards the use of e-learning for males amounted to 4.234, with a standard deviation of 0.436. The average of the study sample towards the use of e-learning for females amounted to 4.071, with a standard deviation of 0.427. We can notice that the two averages are close in values.

T-test was used for two independent samples to test the study of this hypothesis and it was found from the value of the test that there are no statistically significant differences in the degrees of attitudes of the study sample using e-learning, which is attributed to the gender variable, and the value of $0.217 = sig$ and the

value of the test $t = 1.25$ and that this result is statistically insignificant at the level of morality 0.05.

It is clear from these results that females and males are the same positive attitude towards e-learning, as they all have the same rush towards it regardless of their gender.

4. The fourth hypothesis: this states the following: (There are statistically significant differences at the level of $(0.05 \geq \alpha)$ between the average attitudes of the study sample towards the use of e-learning attributed to human specialization).

To find out whether there were significant differences in statistical terms, a parametric test was used to



compare the averages of two sets of data, where (T-Test) was used for two independent samples.

Table (11): The Results of the T-test (t) and the arithmetic mean and standard deviation of the specialization variable

Specialization	Humanities	Science
The number	29	21
Arithmetic mean	4.13	4.26
standard deviation	0.397	0.503
T-test value	0.976	
Sig. Value	0.335	

Table (11) above shows that the average score of the study sample's attitudes towards the use of e-learning for teachers with a science major is 4.26, and the standard deviation was 0.503.

On the other hand, the average score of the study sample's attitudes towards the use of e-learning among teachers with a humanities specialization was 4.13, with a standard deviation of 0.397, as we can notice that the two averages are almost similar in values.

T-test was used for two independent samples to test the study of this hypothesis and it was found from the value of the test that there are no significant differences in statistical terms about the degrees of attitudes of the study sample using e-learning. This can be attributed to the variable of specialization (Science, Humanities), and the value of 0.335 = sig and the value of the test $t=0.976$. This result is statistically insignificant at the level of significance of 0.05.

It can be noted that the interest of almost all countries of the world in e-learning was caused by the spread of the Corona virus, as before that, e-learning was the monopoly of the developed countries only. This can be considered a step forward for the progress and development of education in general.

The fifth hypothesis: The fifth hypothesis states the following: (There are statistically significant differences at the level of $(0.05 \geq \alpha)$ between the average attitudes of the study sample towards the use of e-learning due to the type of educational qualification.

To find out whether there are statistically significant differences, a parametric test was used that has the ability to compare three averages or more, by using the one-way variance test (One Way Anova) and as shown in Table (12).

Table (12): The results of the unilateral variance for the educational qualification variable

source of contrast	within groups	between groups	Total
sum of squares	8,553	0.735	9,288

degrees of freedom	47	2	49
Square averages	0.182	0.368	
T-test value	2,020		
Sig. Value	0.144		

From the table above, it is clear from the value of the test that there are no statistically significant differences in the degrees of attitudes of a sample of the study of the use of e-learning. This is attributed to the educational qualification variable. The value was = 0.114sig while the value of the test was $F = 2.02$, and this result is not statistically significant at the level of significance 0.05. This can be translated as that there is no effect on the respondents' attitudes towards the use of e-learning. It has become a reality in our time, as well as it has become common and familiar to use it at any stage of study and at any time for undergraduate and postgraduate studies.

RESULTS

- 1- It was found that there are positive attitudes among the teachers at the University of Maysan when using e-learning, with an arithmetic mean of 4.18 and a high degree of appreciation.
- 2- The obstacles to the use of e-learning were achieved by teachers of academic subjects at the University of Maysan, with an arithmetic mean of 3.92, with a high degree of appreciation.
- 3- There are no statistically significant differences between the mean scores of the study sample's attitudes towards the use of e-learning due to type or specialization.

RECOMMENDATIONS

- 1- The need to educate the teaching staff and students of postgraduate studies and undergraduate university studies of the importance, role and how to benefit from e-



learning, through holding seminars, workshops and training courses in this regard.

- 2- The need to overcome the obstacles and difficulties facing the teaching staff and students of postgraduate and undergraduate studies in the use of e-learning.
- 3- The necessity of providing electronic libraries at the university and providing all requirements to facilitate the process of e-learning.
- 4- Providing books and electronic resources and instructing students to adopt them.

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