

***Distance learning/E learning and the quality of the educational process  
-Study of a sample of students and professors .***

Dr. Nadjia Salhi<sup>1</sup>, Dr. Sara lehimeur<sup>2</sup>, Dr. Safaa BenMoussa<sup>3</sup>, Dr.Assia baadi<sup>4</sup>, Dr.khalidi farah<sup>5</sup>

1. Faculty of Economic Sciences, Management, and Commercial Sciences, Martyr Hamma Lakhdar University, El-Oued- Algeria, [salhi-nadjia@univ-eloued.dz](mailto:salhi-nadjia@univ-eloued.dz)
2. University Kasdi Merbah Ouargla- Algeria, [sara.4mjn@yahoo.fr](mailto:sara.4mjn@yahoo.fr)
3. University of El Oued- Algeria, [benmoussa-safa@univ-eloued.dz](mailto:benmoussa-safa@univ-eloued.dz)
4. University of El Oued- Algeria, [baadi-assia@univ-eloued.dz](mailto:baadi-assia@univ-eloued.dz)
5. Larbi Ben M'aidi university oum El boueghi- Algeria, [farah.khalidi@univ-oeb.dz](mailto:farah.khalidi@univ-oeb.dz)

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**Abstract:**

This study aimed to investigate the impact of distance education on the quality of the educational process for university the researchers employed a descriptive-analytical approach, utilizing a survey as the primary data collection tool. The survey was distributed to a sample of faculty members and students at Eloued University, totaling 378 respondents. The data was analyzed statistically using SPSS version 22. The study revealed a statistically significant impact of distance education on the quality of the educational process for university students, according to both faculty members and students involved in the study. The study recommended the integration of distance education into higher education institutions, emphasizing its potential scientific and economic benefits.

**Keywords:** Distance education, e-learning, traditional education, educational quality.

**Introduction:**

With the increasing problems of the outcomes of the educational process in Algeria and the low level of university graduates, interest in ways to improve the quality of university education has increased, including the application of the distance learning system, as this trend has begun to witness widespread acceptance.

This trend has clearly appeared in Algerian universities and universities around the world in light of the Covid-19 pandemic, as this pandemic necessitated the suspension of studies and the adoption of special measures by issuing an instruction by the Minister of Higher Education and Higher Research on February 12, 2020 in order to avoid the blank year and take the available solutions and possibilities, and this was achieved by resorting to distance education as an alternative to ensure the continuation of the university year and successful university entry.

To shed light on this topic, we decided to address it by raising the following problem: To what extent does distance education affect the quality of the educational process on university students?

We have overcome this problem with a set of sub-problems related to the subject of the study, namely:

- 1- Is there a statistically significant effect of the effectiveness of distance education on the quality of the educational process?
- 2- Is there a statistically significant effect of raising the level of academic achievement among students on the quality of the educational process?
- 3- Is there a statistically significant effect of the ease of monitoring and evaluating students on the quality of the educational process?

From these problems, we put forward the following hypotheses:

**Main hypothesis:** "There is a statistically significant effect of the impact of distance education on the

quality of the educational process on university demand from the point of view of professors and students of the university under study.

It branches into:

- 1- There is a statistically significant effect of the effectiveness of distance education on the quality of the educational process
- 2- There is a statistically significant effect of raising the degree of academic achievement among students on the quality of the educational process
- 3- There is a statistically significant effect of the ease of follow-up and evaluation of students on the quality of the educational process

Study objectives: Through this study, we seek to:

- Know the effect of using information technology in improving the quality of the educational process.
- Highlight the most important challenges that hinder the implementation of the distance university education system in Algeria.

**Study method:** To achieve the goal of this study, we relied on the descriptive analytical method as it is appropriate for describing and reviewing the basic concepts of distance education and the quality of the educational process, by collecting various information and analyzing it for the purpose of understanding the theoretical aspects of the study, as for the practical aspect, the questionnaire was relied upon to obtain the opinions and viewpoints of students and professors of the university under study to process and analyze them And extract a set of results.

### **The first axis: The theoretical aspect**

Distance education provides opportunities for flexible and continuous learning, and allows students to develop self-organization and self-learning skills.

First: Concepts of study variables

#### **1- Traditional education**

The concept of traditional education refers to the educational process that takes place directly between the teacher and students and requires their physical presence in the same place and time during the semester. Traditional education is the most famous and most common education system around the world; The progress of learning is monitored periodically, in addition to conducting an oral or written exam for students at the end of the semester, and the teacher is the center of the educational process in traditional education (Hassan, 2019, p. 50)

#### **2- Distance education**

Distance education is a type of education characterized by the lack of daily attendance at the university educational institution, but rather the educational content and interaction between the professor and students are provided through technological means via the Internet via smartphones and computers, as distance education includes the use of multimedia to present educational content in a diverse and attractive way, and encourages interaction and communication between the professor and students via e-learning platforms (Seela, 2022, p. 96).

Distance education is considered one of the methods of providing educational opportunities and providing experiences, and therefore it is one of the flexible educational methods for studying via the Internet (Al-Khafaji, 2015, p. 14)

It is defined by the American Society of Training and Education (ASTD) as: "Learning process for learners applying digital media" (Lazhari, 2022, p. 703)

#### **3-E-learning**

The concepts of the term e-learning have varied, and we will try to mention some of them below:

"E-learning or online education is interactive education that follows through computers and the Internet, combining the positives of in-person education (interactive and collaborative) and distance education (flexible)" (Walckiers, 2004, p. 14).

Mank also defined it as: "That type of education that depends on the use of multimedia and information and communication networks (the Internet) which has become an effective medium for e-learning and education is carried out through communication and contact between the teacher and the student, and through interaction between the student and other e-learning means, such as e-lessons, the

e-library, the e-book, etc." (Amer, 2015, pp. 4-5).

Distance e-learning in the Algerian university is one of the priorities of the Algerian state through the launch of the national project for e-learning at the university.

The experience of the National Center for Distance Vocational Education (CNEPD) is the first experience in the field of virtual education, which is still ongoing, and is supervised by the University of Continuing Education.

## **Second: Previous Studies**

We discussed some previous studies related to the subject of the study, and the following is a presentation of the most important of these studies:

(Naima, 2020) conducted a study aimed at clarifying e-learning and virtual education and contemporary global trends for it and identifying the factors that enhance and discourage faculty members from participating in distance education programs. The results of the study revealed the most important obstacles facing faculty members in distance education, which were the lack of financial, administrative and technological support, and weak training in the technologies necessary for e-learning.

The study (Al-Rahim, 2022) aimed to clarify the impact of e-learning on the quality of teaching at the university through the Moodle platform and reached results that clarify the degree of use of e-learning showed an impact on the quality of teaching at the university through the Moodle platform to an acceptable degree.

(Al-Aswad, 2022) conducted a study aimed at revealing the difficulties of implementing distance education in light of the Covid-19 pandemic from the point of view of a sample of professors and students at Al Wadi University. The results of the study showed that all the difficulties fall within three main axes: difficulties related to professors, difficulties related to students, and difficulties related to physical conditions. Through this study, some factors were proposed to help make the distance education system successful at the university level.

The study (Lazhari, 2022) also stated that distance e-learning in universities requires the acquisition of new skills by both faculty members and students. These skills include the shift from the traditional teacher-based education model to a learner-centered model, where the professor assumes the role of facilitator of the educational process.

(Walckiers, 2004) conducted a study on "l'apprentissage collaboratif en ligne" (online collaborative learning): This study showed that the most prominent obstacles facing e-learning are related to faculty members and how to prepare for e-lessons, in addition to the need for certain computer skills among faculty members to implement this type of education effectively. (Barak, 2024) Academic production of university professors and their obstacles in the context of distance education "a theoretical reading of the subject", where the results of the study showed the possibility of increasing office work hours and their need for additional time to develop and design e-courses, and faculty expressed concerns about the skills they must acquire to implement this type of education, in addition to the lack of confidence in the administrative support provided for e-learning programs and the lack of technical support available, and this study clarified an important point regarding the integrity of tests in the e-learning environment, as it raised a question about how to ensure that the student registered on educational platforms is the same one who will take the test. The study (Al-Hazmi, 2024) aimed to identify the future of distance education through extended reality applications, especially after the occurrence of many crises in the global community, including the development of technology in the field of education, as well as the emergence of Covid-19, which halted studies for a long time, and to know the relationship between the future of distance education through extended reality applications, which is a comprehensive term that includes virtual reality (VR), augmented reality (AR), and mixed reality (MR).

## **The second axis: the applied aspect**

### **1-Methodological procedures of the study:**

□ Study tool: A set of tools were relied upon to collect information and data related to the study topic, and due to the nature of the topic that includes two variables, distance education and the quality of the educational process, the questionnaire was distributed electronically to an individual from the study community, all questionnaires were valid for the study and their number was (378) questionnaires.

The questionnaire was divided into three axes as follows:

-Personal information axis: It includes general information about the sample members represented by the title, college, academic year (if you are a student), and the teacher scale (if you are a professor).

-**The first axis:** Distance education: It consists of 03 dimensions distributed as follows:

The first dimension: The effectiveness of distance education, which consists of 10 paragraphs numbered from 01 to 10.

The second dimension: Raising the level of academic achievement of the researcher, which consists of 07 paragraphs numbered from 11 to 17.

The third dimension: Ease of follow-up and evaluation of the researcher, which consists of 04 paragraphs numbered from 18 to 21.

-**The second axis:** The quality of the educational process: It consists of 03 dimensions distributed as follows:

The first dimension: The suitability of the educational process, which consists of 08 paragraphs numbered from 01 to 08.

The second dimension: The availability of material and laboratory capabilities for learning, which consists of 08 paragraphs numbered from 09 to 16.

The third dimension: The environment of the educational process, which consists of 05 paragraphs numbered from 17 to 21.

The study was conducted at the University of Martyr Hama Lakhdar in El Oued during the period (April 20, 2024 to June 16, 2024), where the study included the impact of distance education on the quality of the educational process on university demand - a study of a sample of students and professors of El Oued University. The study was limited to professors and students affiliated with it.

□ Study community: It represents the group that the researchers are interested in, and to which he wants to generalize the results he reaches from the sample, as the research community is all professors and students of the University of Martyr Hama Lakhdar in El Oued.

□ Study sample: In our study, we relied on a simple random sample, given that the vocabulary of the research community is known and homogeneous and so that the study is more objective and more expressive of the impact of distance education on the quality of the educational process, The questionnaire was distributed to members of the study community, the number of which was (378) questionnaires.

□ Correction method: A five-point Likert scale was used to measure the respondents' responses to the questionnaire paragraphs on the impact of distance education on the quality of the educational process, and to give graded scores from 01 to 05 in the paragraphs. The following table illustrates this:

**Table No. (01): Five-point Likert test scores**

Responses	Strongly disagree	disagree	sometimes	agree	Strongly agree
Degree	1	2	3	4	5

## 2-Validity and reliability of the study tool

The electronic questionnaire was distributed to (378) professors and students from the University of Martyr Hama Lakhdar in El Oued, and they were all valid for analysis, i.e. (100%), as the simple random method was adopted in selecting the sample, and below we will discuss the results of reliability and validity as this study resulted.

### A- Apparent validity:

To ensure the validity of the questionnaire on the impact of distance education on the quality of the educational process for the designed university student, we presented it in its initial form to a group of refereed professors from El Oued University and outside it.

### B- Structural validity (internal consistency):

The validity of the questionnaire was also calculated through internal consistency (construct validity), by calculating the linear correlation coefficient of Pearson between the questionnaire and the degrees of dimensions and its paragraphs, as well as between the axes and the total degree of the questionnaire. The results were as shown in the following tables:

### Distance education axis :

**Table No. (02): Shows the correlation coefficients between the paragraph scores and the dimensions to which they belong.**

Significance level	Correlation coefficient	Paragraph	Dimension	Significance level	Correlation coefficient	Paragraph	Dimension
0.01	0.595	11	Raising the level of academic achievement among students	0.01	0.656	01	Distance learning effectiveness
	0.744	12			0.698	02	
	0.750	13			0.803	03	
	0.649	14			0.720	04	
	0.979	15			0.798	05	
	0.774	16			0.697	06	
	0.770	17			0.800	07	
0.01	0.759	18	Easy to follow and evaluate students		0.790	08	
	0.772	19			0.259	09	
	0.732	20			0.737	10	
	0.713	21					

**Source: Prepared by the researchers based on SPSS.V22 outputs.**

It is clear from Table (02) that the correlation coefficients of the paragraphs with their dimensions to which they belong are positive and statistically significant at the level of (0.01), as the correlation coefficient between the distance education effectiveness dimension and its paragraphs ranges between (0.259-0.803) and they were all significant. As for the dimension of raising the degree of academic achievement among students, the correlation coefficients of its paragraphs with the dimension range between (0.595-0.979) and they were all significant. As for the dimension of ease of follow-up and evaluation of students, the correlation coefficients of the paragraphs with the dimension range between (0.713-0.772) and they were all significant.

**Table No. (03): Shows the correlation coefficient between the scores of each dimension and the total score for the distance education axis.**

Significance level	Correlation coefficient	Dimension
at 0.01	0.899	Distance learning effectiveness
	0.913	Raising the level of academic achievement among students
	0.826	Easy to follow and evaluate students

**Source: Prepared by the researchers based on SPSS.V22 outputs.**

We note from Table (03) that the dimensions of the distance education axis are significantly related to the total score, extending between (0.826 and 0.913), and the highest correlation coefficient was recorded between the dimension of raising the degree of academic achievement among students and the total score, at (0.913), followed by the correlation between the dimension of the effectiveness of distance education and the total score (0.899), then the correlation between the dimension of ease of follow-up and student evaluation and the total score (0.826), which are significant values at the level (0.01), and this indicates that the dimensions of the distance education axis are consistent with the total score. - The axis of the quality of the educational process

**Table No. (04): Shows the correlation coefficients between the paragraph scores and the dimensions to which they belong.**

Significance level	Correlation coefficient	Paragraph	Dimension	Significance level	Correlation coefficient	Paragraph	Dimension
Not significant	0.038	09	ial and laboratory facilities	0.01	0.749	01	for the education al

0.01	0.228	10			0.656	02	
	0.283	11			0.760	03	
	0.328	12			0.738	04	
	0.233	13			0.749	05	
	0.355	14			0.784	06	
	0.238	15			0.724	07	
	0.344	16			0.661	08	
Educational process environment							
0.01	0.838	20	0.01	0.782	17		
	0.824	21		0.821	18		
				0.823	19		

**Source: Prepared by the researchers based on SPSS.V22 outputs.**

It is clear from Table (04) that the correlation coefficients of the paragraphs with their dimensions to which they belong are positive and statistically significant at the level of (0.01), as the correlation coefficient between the dimension of the suitability of the educational process and its paragraphs ranges between (0.656-0.784) and all of them were significant. As for the dimension of the availability of material and laboratory capabilities for learning, the correlation coefficients of its paragraphs with the dimension range between (0.228-0.355) and all of them were significant except for paragraph No (09) which was not significant. As for the dimension of the educational process environment, the correlation coefficients of the paragraphs with the dimension range between (0.782-0.838) and all of them were significant.

**Table No. (05): Shows the correlation coefficient between the scores of each dimension and the total score of the educational process quality axis.**

Significance level	Correlation coefficient	Dimension
signifiant at 0.01	0.790	Suitable for the educational process
	0.882	Availability of material and laboratory facilities for learning
	0.911	Educational process environment

**Source: Prepared by the researchers based on SPSS.V22 outputs.**

We note from Table (05) that the dimensions that make up the axis of the quality of the educational process are significantly related to the total score, extending between (0.790 and 0.911), and the highest correlation coefficient was recorded between the dimension of the educational process environment and the total score, at (0.911), followed by the correlation between the dimension of the availability of material and laboratory capabilities for learning and the total score (0.882), then the correlation between the dimension of the suitability of the educational process and the total score (0.790), which are significant values at the level (0.01), and this indicates that the dimensions of the axis of the quality of the educational process are consistent with the total score.

**Table No. (06): Correlation coefficient between the axes and the questionnaire as a whole**

Significance level	Correlation coefficient	Dimension
signifiant at 0.01	0.884	Distance learning axis
	0.910	The axis of the quality of the educational process

**Source: Prepared by the researchers based on SPSS.V22 outputs.**

It is clear from this table that the correlation coefficient between each axis and the questionnaire as a whole is significant at the level of (0.01), i.e. the number of significant axes is (02/02) of the total

representing the questionnaire of the impact of distance education on the quality of the educational process on university students, and this is evidence of the existence of internal consistency of the questionnaire.

### C- Calculating the Cronbach's Alpha Reliability Coefficient:

Through this section, we will try to show the extent of the questionnaire's stability and credibility for work on the subject by calculating the Cronbach's Alpha coefficient, where the greater the Alpha coefficient is than (0.600), the more valid the questionnaire is for study

**Table No. (07): Cronbach's alpha coefficient for the study tool**

Cronbach's alpha coefficient	Dimensions and axes of the questionnaire
0.938	After the effectiveness of distance education
0.932	After raising the level of academic achievement among students
0.936	After the ease of monitoring and evaluating students
0.929	The axis of distance education
0.931	After the suitability of the educational process
0.942	After the availability of material and laboratory capabilities for learning
0.935	After the environment of the educational process
0.926	The axis of the quality of the educational process
0.939	Questionnaire of the impact of distance education on the quality of the educational process for university students

**Source: Prepared by the researchers based on SPSS.V22 outputs.**

It was found that the reliability coefficient (Cronbach's alpha) equals (0.939) for the entire questionnaire, which is greater than the coefficient (0.60), which indicates the reliability of the study tool. This means that there is reliability in the axes, and therefore it can be said that the questionnaire is characterized by reliability.

2-Analysis of the characteristics of the studied sample:

**Table No. (08): Distribution of the study sample according to the characteristic variable.**

The attribute	%	Repetitions
student	69	260
professor	31	118
the total	% 100	378

**Source: Prepared by the researchers based on SPSS.V22 outputs.**

We notice from the table above that shows the distribution of the study sample according to the characteristic variable, where the individuals of the research study sample are more and their number is 260 at a rate of 69%, followed by the professor's category where their number was 118 at a rate of 31%.

### Second: Results of testing the study hypotheses

After analyzing the initial data from the questionnaire, this section will test the validity of the study hypotheses by showing the extent of their acceptance or rejection, using appropriate statistical methods.

#### 1-Results of testing the general hypothesis

Text of the general hypothesis: There is a statistically significant effect of the impact of distance education on the quality of the educational process for university students from the point of view of professors and students of the university under study at a significance level of  $0.05 \geq \alpha$ .

**Table No. (09): Summary of the simple linear correlation for the general hypothesis.**

Anova (F)	Sig	Correlation coefficient (R)	Explanation coefficient (R)	Sig	T-test	Regression coefficient (B)	
224.73	0.00	0.612	0.374	0.00	4.784	0.763	Stability Amount (B0)
				0.00	14.991	0.689	Independent variable (B1)

**Source: Prepared by the researchers based on SPSS.V22 outputs.**

From the table above, we find that the value of the regression coefficient reached (0.689B=) which is

significant at the level of (0.01), and the coefficient of determination reached ( $R^2=0.374$ ), which indicates that the independent variable (distance education) affects the dependent variable (quality of the educational process) according to the answers of the study sample. The value of the variance (F) was estimated to have reached (224.73), which is significant at the level of significance (0.01). Based on the simple linear regression model in order to predict the future outcome of the relationship between the two variables, in order to measure the value of the levels that will improve the quality of the educational process in the future if the institution increases the levels of distance education or makes improvements to it, we use the following equation:

$$Y = b_0 + b_1 x$$

Quality of the educational process for the university student = (0.763) + (0.689) Distance education

□ Based on the decision to test the hypothesis: We accept the alternative hypothesis (1H) and reject the null hypothesis (0H), i.e. there is a statistically significant effect of the impact of distance education on the quality of the educational process for the university student from the point of view of professors and students of the university under study at a significance level of  $0.05 \geq \alpha$ .

## 2-Results of testing the first sub-hypothesis

Text of the hypothesis: There is a statistically significant effect of the effectiveness of distance education on the quality of the educational process at a significance level of (0.05)

**Table No. (10): Summary of the simple linear correlation for the first sub-hypothesis.**

Anova (F)	Sig	Correlation coefficient (R)	Explanation coefficient (R)	Sig	T-test	Regression coefficient (B)	
102.231	0.00	0.462	0.214	0.00	10.839	1.630	Stability Amount (B0)
				0.00	10.111	0.445	Independent variable (B1)

**Source: Prepared by the researchers based on SPSS.V22 outputs.**

From the table above, we find that the value of the regression coefficient reached (0.445B=) which is significant at the level of (0.01), and the coefficient of determination reached ( $R^2=0.214$ ), which indicates that the independent variable (effectiveness of distance education) affects the dependent variable (quality of the educational process) according to the answers of the study sample. The value of the variance (F) was estimated to have reached (102.23), which is significant at the level of significance (0.01). Based on the simple linear regression model in order to predict the future outcome of the relationship between the two variables, in order to measure the value of the levels that will improve the quality of the educational process in the future if the institution increases the levels of effectiveness of distance education or makes improvements to it, we use the following equation:

$$Y = b_0 + b_1 x$$

Quality of the educational process for university students = (0.763) + (0.689) Effectiveness of distance education

□ Based on the decision to test the hypothesis: We accept the alternative hypothesis (1H) and reject the null hypothesis (0H), i.e. there is a statistically significant effect of the effectiveness of distance education on the quality of the educational process at a significance level of (0.05).

## 3- Results of testing the second sub-hypothesis

Text of the hypothesis: There is a statistically significant effect of raising the degree of academic achievement among students on the quality of the educational process at a significance level of (0.05).

**Table No. (11): Summary of the simple linear correlation for the second sub-hypothesis.**

Anova (F)	Sig	Correlation coefficient (R)	Explanation coefficient (R)	Sig	T-test	Regression coefficient (B)	
198.114	0.00	0.587	0.345	0.00	8.664	1.204	Stability Amount (B0)
				0.00	14.075	0.582	Independent variable (B1)

**Source: Prepared by the researchers based on SPSS.V22 outputs.**

From the table above, we find that the value of the regression coefficient reached (0.582B=) which



is significant at the level of (0.01), and the coefficient of determination reached ( $R^2=0.345$ ), which indicates that the independent variable (raising the level of academic achievement) affects the dependent variable (quality of the educational process) according to the answers of the study sample. The value of the variance (F) was estimated to have reached (198.114), which is significant at the level of significance (0.01).

Based on the simple linear regression model in order to predict the future outcome of the relationship between the two variables, in order to measure the value of the levels that will improve the quality of the educational process in the future if the institution raises the degree of academic achievement or makes improvements to it, we use the following equation:

$$Y = b_0 + b_1 x$$

Quality of the educational process for university students = (1.204) + (0.582) Raising the degree of academic achievement

□ Based on the decision to test the hypothesis: We accept the alternative hypothesis (1H) and reject the null hypothesis (0H), i.e. there is a statistically significant effect of raising the degree of academic achievement among students on the quality of the educational process at a significance level of (0.05).

#### 4- Results of testing the third sub-hypothesis

Text of the hypothesis: There is a statistically significant effect of ease of follow-up and student evaluation on the quality of the educational process at a significance level of (0.05).

**Table No. (12): Summary of the simple linear correlation for the third sub-hypothesis.**

Anova (F)	Sig	Correlation coefficient (R)	Explanation coefficient (R)	Sig	T-test	Regression coefficient (B)	
179.026	0.00	0.568	0.323	0.00	6.292	1.008	Stability Amount (B0)
				0.00	13.380	0.581	Independent variable (B1)

**Source: Prepared by the researchers based on SPSS.V22 outputs.**

From the table above, we find that the value of the regression coefficient reached (0.581B=) which is significant at the level of (0.01), and the coefficient of determination reached ( $R^2=0.323$ ), which indicates that the independent variable (ease of follow-up and evaluation of students) affects the dependent variable (quality of the educational process) according to the answers of the study sample. The value of the variance (F) was estimated to have reached (179.026), which is significant at the level of significance (0.01). Based on the simple linear regression model in order to predict the future outcome of the relationship between the two variables, in order to measure the value of the levels that will improve the quality of the educational process in the future if the institution increases the ease of follow-up and student evaluation or makes improvements to it, we use the following equation:

$$Y = b_0 + b_1 x$$

Quality of the educational process for university students = (1.008) + (0.581) Ease of follow-up and student evaluation

□ Based on the decision to test the hypothesis: We accept the alternative hypothesis (1H) and reject the null hypothesis (0H), i.e. there is a statistically significant effect of the ease of follow-up and student evaluation on the quality of the educational process at a significance level of (0.05)

#### Third: Discussion and interpretation of the results of the study

1-Discussion and interpretation of the results of the general hypothesis:

The general hypothesis states that: There is a statistically significant effect of the impact of distance education on the quality of the educational process for university students from the point of view of professors and students of the university under study at a significance level of  $0.05 \geq \alpha$ .

Through Table No. (11), which proves the validity of the general hypothesis, i.e. there is a statistically significant effect of the impact of distance education on the quality of the educational process for university students from the point of view of professors and students of the university under study at a significance level of  $0.05 \geq \alpha$ . Distance education has a great impact on the quality of the educational process, and this quality is affected by many integrated factors, as quality depends largely on the technology and available infrastructure. Providing high-speed internet and appropriate devices, as this does not hinder students' ability to participate effectively in lessons and interact with professors and colleagues. Using advanced and reliable educational

platforms contributes to improving the distance learning experience by providing interactive tools such as e-books, videos, and electronic tests. Students' response and interaction with distance learning greatly affects its quality, and the ability to self-organize and manage time effectively are critical factors for students' success in this type of education. In addition, effective and continuous interaction and communication enhances students' understanding and increases their motivation through the multiple interactive opportunities provided by distance learning such as virtual discussion rooms, forums, and other interactive activities that encourage students to participate and interact. The results of this study were consistent with the study (Barak, 2024) which emphasizes the use of technology to enhance learning that contributes to increasing immersion, interaction and creativity among learners, as well as the study of jurists (Amer, 2015) which concluded that there is an impact of teaching using computers on the quality of higher education in private and public universities, and the study (Al-Rahim, 2022), (Walckiers, 2004) and the study (Krainov, 2021), (Lazhari, 2022).

## **2-Discussion and interpretation of the results of the first sub-hypothesis:**

The first sub-hypothesis states that: There is a statistically significant impact of the effectiveness of distance education on the quality of the educational process for university students from the point of view of professors and students of the university under study at a significance level of  $0.05 \geq \alpha$ .

Through Table No. (12), which proves the validity of the first sub-hypothesis, i.e. there is a statistically significant effect of the effectiveness of distance education on the quality of the educational process for university students from the point of view of professors and students of the university under study at a significance level of  $0.05 \geq \alpha$ .

The ease of dealing with distance learning tools plays an important role in improving the quality of the educational process. When these tools are simple and easy to use, they enable students and teachers to focus on the educational process instead of being preoccupied with solving technical problems. This enhances interaction and participation between students and teachers, which increases understanding of the educational content. In addition, it reduces frustration and helps students achieve better results. Distance learning helps the teacher explain complex concepts in simple and easy-to-understand ways, using real-life examples and visual aids such as videos. The teacher also encourages interaction and participation by asking questions and discussions, and allows for immediate and personalized feedback for each student, which enhances and helps with further comprehension. Distance learning provides great flexibility in terms of time and place, allowing students to study according to their own schedule and in an environment that suits them. This requires them to take responsibility for their learning and organize their time effectively, enhances their independence and makes them more prepared to face academic and professional challenges in the future. The use of advanced technology such as e-learning platforms, interactive videos, and virtual simulations makes educational content more attractive and interactive. These tools help explain difficult concepts in visual and simplified ways, which enhances students' understanding. And their comprehension of the material, as distance education provides access to various educational resources from anywhere and at any time, as well as continuous communication and interaction between students and professors through digital tools such as e-mail, forums, and forums. This provides great flexibility for students in their learning, as they can review lessons, watch recorded lectures, and conduct research at a time that suits them. Which contributes greatly to improving the quality of the educational process and developing their self-learning skills, which was confirmed by (Vagner Bernal Barbeta, 2006), who indicated that these technological tools can help teachers prepare and follow up on students outside the university campus, make information widely available, create new connections, and help faculty members rethink their educational role. The study (HAMDANI, 2006) also recommended equipping all university institutions with the necessary digital means, such as e-learning centers and recording studios, with the aim of contributing to improving the quality of teaching and learning. 1- Discussion and interpretation of the results of the second sub-hypothesis:

The second sub-hypothesis states that: There is a statistically significant effect of raising the degree of academic achievement among students on the quality of the educational process for university students from the point of view of professors and students of the university under study at a significance level of  $0.05 \geq \alpha$ .

Through Table No. (13), which proves the validity of the second sub-hypothesis, i.e. there is a statistically significant effect of raising the degree of academic achievement among students on the quality of the educational process for university students from the point of view of professors and students of the university under study at a significance level of  $0.05 \geq \alpha$ .

By students' use of modern technology and digital learning tools, this is positively reflected in multiple aspects of the educational process, as they are more motivated to participate in activities and interact with study materials, and good achievement results indicate the effectiveness of the distance teaching methods used and the curricula that suit their needs, and this also helps develop mental skills, as distance education provides various educational tools and resources, such as recorded lectures and project-based lessons, which enhances the development of

critical thinking and problem-solving skills.

By analyzing content and applying it in different contexts such as critical thinking and problem solving, students learn how to analyze and evaluate information effectively, which enhances their ability to think independently and make decisions. Activities that encourage creativity and innovation also contribute to the development of creative thinking skills, the educational process by improving interaction, and developing curricula, leading to a more effective and successful educational experience.

Distance learning programs also contribute to making information clearer thanks to the advanced educational technologies they provide, and through the use of tools such as interactive videos, digital resources in visual and audio ways, and e-books, which allows students to view texts, references, and recent studies flexibly and at any time, and information becomes easier to access and understand. These tools work in an integrated manner to expand the scope of knowledge and enhance the distance learning experience, and obtain diverse and comprehensive educational resources. This is what (Al-Aswad, 2022) confirmed in her study, where she indicated that all different educational institutions have become obligated to integrate distance learning programs into their system due to the multiple benefits that benefit the individual and society and contribute to developing educational systems, improving their outputs, and acquiring lifelong learning skills. Al-Hazmi (2024) also confirms that virtual reality helps provide more training and practical learning opportunities for students anywhere and develop the educational system in the future. 1- Discussion and interpretation of the results of the third sub-hypothesis:

The third sub-hypothesis states that: There is a statistically significant effect of the ease of follow-up and student evaluation on the quality of the educational process for university students

Educational platforms from the point of view of professors and students of the university under study at a significance level of  $0.05 \geq \alpha$ .

Through Table No. (14), which proves the validity of the third sub-hypothesis, i.e. there is a statistically significant effect of the ease of follow-up and student evaluation on the quality of the educational process for university students from the point of view of professors and students of the university under study at a significance level of  $0.05 \geq \alpha$ .

It provides advanced tools that allow professors to follow up on students' progress and evaluate them accurately and effectively. These tools include data analysis, short tests, and electronic assignments, where exam dates are determined based on the general academic schedule and announced to students in advance through e-learning platforms and e-mail, while ensuring that exams are conducted remotely in an organized and effective manner, which enhances the credibility and success of the educational process. Evaluations in distance education vary based on the nature of the course and its objectives. These methods include electronic tests conducted via e-learning platforms and include multiple-choice and diverse questions. They also include continuous assessment that includes daily activities, participation in discussions, and also includes research projects and homework. In addition, presentations and electronic forums provide effective tools for assessing research and communication skills, and the level of understanding and participation, which provides a comprehensive picture of students' performance and academic progress. Distance learning also helps in easily viewing results and the ability to appeal exam results when needed, as exams are corrected electronically in detail in each part and results are announced quickly via e-learning platforms. Through these procedures, transparency and credibility are enhanced in the electronic evaluation system, which guarantees students' rights and enhances their confidence in the educational process. This was confirmed by (Abu Amer) in his study, where he indicates that among the characteristics and features of distance learning is that university students, especially those who live far from their universities or students who do not attend regularly, can receive announcements or urgent administrative decisions, such as canceling a specific exam date or apologizing for attending a class, or advancing the deadline for submitting student projects or lecture or exam schedules. He also adds that distance learning allows students to review their assignments and work, and the student can also know the results of the evaluation of those assignments and work.

## Conclusion

The Ministry of Higher Education and Scientific Research in Algeria has become increasingly interested in applying distance education at the university in order to improve the quality of the educational process. The study concluded that:

-There is a statistically significant effect of the impact of distance education on the quality of the educational process for university students from the point of view of professors and students of the university under study.

-There is a statistically significant effect of the effectiveness of distance education on the quality of the educational process;

- There is a statistically significant effect of raising the degree of academic achievement among students on the quality of the educational process;
- There is a statistically significant effect of the ease of follow-up and evaluation of students on the quality of the educational process.
- The study recommended:
- The necessity for Algerian universities to hold training courses for faculty members.
- The necessity of accelerating the introduction of e-learning at the level of higher education institutions and increasing its effectiveness for its scientific benefits.
- Establishing an independent department specialized in e-learning at the local level (universities and higher education institutions) and at the central level (ministerials of higher education) to follow up on its implementation. □ Benefiting from the experiences of leading e-universities in providing an environment that enables commitment to the quality standards of e-university education, and in a way that contributes to improving the quality of education in Algeria.

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