Factors Affecting The Quality Of E-Learning During The COVID-19 Pandemic From The Perspective of U.C.Maghnia Student

دراسة استكشافية للعوامل المؤثرة عل جودة التعليم عن بعد خلال جائحة كوفيد–19 من وجهة نظر طلبة المركز الجامعي (مغنية)

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Received: *30/03/2023 ;* ***Accepted :*** *11/06/2023;* ***Published:*** *30/06/2023;*

Abstract:

This study aims to test the role that independent factors can play: administrative support, course content, course design, teacher characteristics, learner characteristics, social support, and technical support on the quality of e-learning at the university center Maghnia, during the COVID -19 corona virus period. The study sample consisted of 82 students at the institute of economics, where the identification was used as a data collection tool, and we relied on the data analysis on the PLS Smart program. The study found a number of findings, the most important of which was the existence of a positive and statistically significant impact relationship between administrative support, course design and the quality of e-learning. The study also did not show statistically significant in the responses of sample members to the variable seven factors on the quality of e-learning.

Keywords*: E-Learning, Quality of E-Learning; Covid-19, Maghnia Center's Students*
Jel Classification Codes: *I21, I23, J24*

الملخص:

تهدف هذه الدراسة إلى إلى اختبار الدور الذي يمكن أن تلعبه العوامل المستقلة: الدعم الإداري، محتوى الدورة، تصميم الدورة، خصائص المعلم، خصائص المتعلم، الدعم الإجتماعي، والدعم التقني على جودة التعليم عن بعد بالمركز الجامعي مغنية، خلال فترة كورونا. حيث تكونت عينة الدراسة من 82 طالبا من معهد العلوم الاقتصادية، حيث استخدمت الاستبانة كأداة لجمع البيانات، وقد اعتمدنا في تحليل البيانات على نمذجة البنائية الهيكلية. وقد توصلت الدراسة إلى جملة من النتائج أهمها وجود علاقة تأثيرية إيجابية ذات دلالة إحصائية بين الدعم الإداري، تصميم الدورة وجودة التعليم عن بعد، كما لم تظهر الدراسة وجود تأثير ذات دلالة إحصائية في إجابات أفراد العينة حول متغير العوامل السبعة على جودة التعليم عن بعد.

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Introduction:

Education is the primary concern of individuals, institutions and countries for their development. It is a system that helps to build a relationship between institutions and different countries. The outcome of the education system is the critical factor that determines the quality of education. Moreover, there must be clarity in the curriculum for a deep understanding of the content of the courses offered to the learner. That is why the quality of education must be assessed from the perspective of the students because they are the end users of the courses (the product). That's why it became the total quality in higher education; it is an essential element in delivering knowledge to the learner and developing skills for the teacher. This is why it includes both visible (course materials) and invisible (hand-over to students) elements.

Accordingly, developing and developed countries need to ensure the quality of education in order to prepare students to face the environmental changes that the world is witnessing as a result of intense competition. That is why it is no longer one of the tasks of educational institutions to focus only on education, but also to involve students in research, creativity and innovation. Therefore, it is essential for educational institutions to develop a distinctive method of instruction and collaborate closely with businesses to give creative solutions for the ever-changing environment.

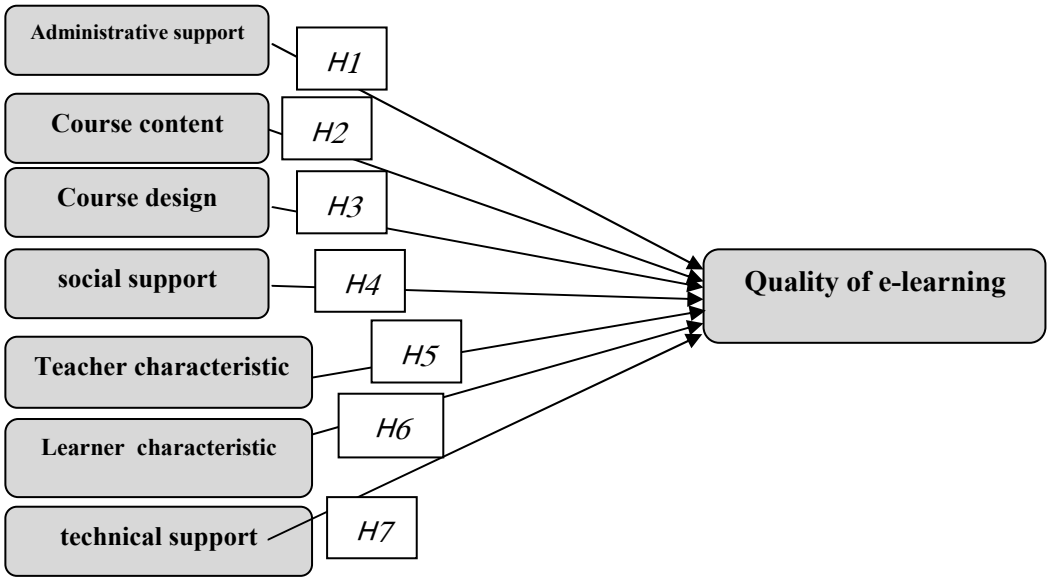
Internet technologies and mobile applications have also contributed to the transformation of the education system from the traditional structure to the modern teaching method. Teachers' self-efficacy is determined on the basis of the ability to use technology and employ it in designing and transmitting course content to students. This has become one of the most important determinants that reflect the quality of distance education.

Through the above, our study seeks to understand the reality of e-learning With its starting points and dimensions in higher education institutions, especially in light of the consequences and repercussions of the global epidemiological crisis that imposed the work of this new educational system, and which the universities of the country sought to work with this new system through organizational decisions issued by the Ministry of Higher Education and Scientific Research, for this We will try to project the dimensions of this study on the University Center Maghnia From the perspective of students of the Institute of Economic, Commercial and Management Sciences in light of the above, the research problem appears in the following main question:

What are the most important factors that can affect the quality of e-learning from the point of view of students of economic, commercial and management sciences at the university center (Maghnia)?

Based on the study problem an integrated conceptual model was developed to guide the objectives of this study. Which contains sub-variables that include: administrative support, course content, course design, social support, technical support, teacher characteristics and learner characteristics and their impact on the main variable represented in the quality of distance education as the expected relationships between these combinations are shown in the following figure:

Figure n°1: Summarize the study form



Source: **Prepared by the researchers**

Based on the above, the main hypotheses were formulated as follows:

- ✓ There is a positive effect relationship between administrative support and the quality of distance education;
- ✓ There is a positive effect relationship between course content and the quality of distance education;
- ✓ There is a positive effect relationship between course design and the quality of distance education ;
- ✓ There is a positive effect relationship between social support and the quality of distance education ;
- ✓ There is a positive influence relationship between the characteristics of the teacher and the quality of distance education ;
- ✓ There is a positive effect relationship between the learner's characteristics and the quality of distance education;
- ✓ There is a positive effect relationship between technical support and the quality of distance education.

Therefore, we seek through this study to answer the questions raised previously, as it aims to:

- ✓ Research the factors affecting the quality of distance education during a pandemic COVID-19 from the students' point of view;
- ✓ Attempt to analyze and evaluate the quality of distance education its dimensions and its impact on the degree of student satisfaction;

In order to study the subject, analyze its dimensions, debate its problematic, and verify its hypotheses, the descriptive and analytical approaches were relied upon, Where the descriptive approach was relied upon in analyzing the theoretical literature related to the study variables, quality and distance education by relying on the latest references related to the quality of distance education, by relying on the latest references and scientific and research publications classified both at the level of the local scientific research platform such as *ASJP* or at the level of specialized global websites such as *Google Scholar*...etc,. As for the analytical approach, which is related to the field study that was conducted by distributing the questionnaire to a sample of university center students (Maghnia) as a data collection tool, It was analyzed and interpreted using a statistical treatment program based on constructive averages modeling *PLS-SEM* as a tool for addressing the hypotheses of the study.

In order to conduct this study, some previous studies had to be inference which includes the following:

- ✓ **Study *(Goh & All, 2017)* titled:**

(*Students experiences achieving outcomes and satisfaction in e-learning***)**

This study is aimed to examine whether students' experiences in distance education associated with learning outcomes and satisfaction, for that three have been identified pointers Which: Course

design, interaction with the instructor, and interaction with students, as indicators of learning outcomes and satisfaction, and a questionnaire was used as a tool to collect data from students in a university in Malaysia. While it was distributed to a study sample consisting of 700 students, and only 670 questionnaires were retrieved, through the use of the statistical analysis program.(*SPSS*) based on the pearson correlation coefficient*(Pearson)*to analyze exploratory factors that include dimensions of distance education courses . The results indicated that the course design, interaction with the trainer, and interaction with the students positively associat with learning and satisfaction outcomes. Among all learning experiences, interaction with students has the strongest contributions to learning outcomes and satisfaction.

- ✓ **Study *(Murphy, 2020)* titled**

(COVID-19 and emergency e-learning: Consequences of the securitization of higher education for post-pandemic pedagogy):

this study is aimed to find out the student's attitude and satisfaction with the direction of distance education during the Corona pandemic in Malaysia, Where sample formed this is the study of 97 students from a university in Kuching to understand student attitudes and satisfaction in four main aspects: Teaching materials, assessments, communication and technology tools, user and technical support in emergency remote control. Where it showed the results of this study are that most of the students have a positive attitude towards distance education, where it revealed that the relevant implications of the approach to education and the appropriate integration of technological tools so that it can be very useful to ensure the continued success of the delivery of education content during the Corona pandemic.

I-Theoretical framework: What is the quality of distance education and its measurement criteria in light of the Covid-19 pandemic?

I-1 -Defining the quality of distance education:

There was no agreement on a unified name for distance education we find it under several names, including education mail open education, virtual education this is not to mention the consensus on a unified definition of the learning process using Internet technology. The following definitions are only evidence that there is no consensus on naming this type of education .Organization web site *UNISCO* that distance education it is the cornerstone of building inclusive knowledge societies *UNISCO* With its unique mandate to promote the free exchange of ideas and knowledge, it has played a key role in the World Summit on the Information Society, and has contributed *UNISCO* in defining the ethical, legal, social and cultural dimensions of the information society, it also helped to seize the opportunity available through information and communication technology by placing the individual at its center.*(Osman Youssef, 2020, page 12)*

But with an intensification industrial and technological competition the term quality appeared among economists with the aim of monitoring and improving the quality of production and achieving commercial goals, but this concept quickly moved to various fields, including the educational field, and quality in education is the totality of features and characteristics related to the educational service that can meet the needs of students and society, With the development of the use of technological innovations in the education system, the problem arises of the extent to which these innovative applications are activated, taking into account the required quality. What is the concept of the quality of distance education?

Quality in distance education it extends to include the quality of the learning methods used, the quality and extent of interaction of students and electronic content, experts and teaching staff to acquire knowledge.

The quality in distance education it extends to include the quality of the learning methods used, And the quality and extent of interaction of students and electronic content, experts and faculty to acquire knowledge, in addition to the quality of electronic learning management and structural

design of the learning environment and its integration with educational materials according to the diversity of students' desires and needs. .*(Qureshi and Rifaa, page 227)*

It can also be said that the quality of distance education it is the discrepancy between the learners' expectations or their experience and the reality of the e-learning service with its variables, in terms of content and design provided by a particular institution. It must be emphasized that the quality of e-learning did not receive the attention of researchers to the extent commensurate with the growth in the e-learning market, and that finding an appropriate measure to evaluate the quality of this service is still in its infancy.*(Qasim Al-Shuaibi and Abu Bakr Atiko, 2021, p. 181)*

I-2-Standards for measuring the quality of distance education in light of the Covid-19 pandemic

The health crisis *COVID-19* affected *education* in all its forms all over the world. Universities and schools remained closed *(Murphy, 2020, p. 499)*. Which is what made the learning from afar an absolute necessity in the education system *(Bozkurt & all, 2020, p. 119)*. Although online learning helps in teaching or learning during the pandemic period, the implementation of this type of online learning needs to be planned and organized by various actors to have a successful e-learning system. Many universities have already undergone a major transition to learning distance during the epidemic period, by relying on a set of indicators, the most important of which are:

A. E-learning and administrative support: Administrative support is a pivotal factor in implementing an innovative e-learning system in higher education *(Meyer & Barfield, 2010, p. 49)*. Where the administrative apparatus of higher education institutions is an important axis in achieving administrative support by contributing to the drawing and setting of policies on which the curricula of higher education systems are based, as well as the appointment of mentor teachers and the provision of environment learning for students.*(Strike, 2018)*. Where the administrative officials have a strong influence on achieving the comprehensive development of university institutions *(Yang, 2010)* because they have a strong participation in the preparation and management of the online program to ensure the quality of e-learning. Given that the adoption of technology in higher education today has become an inevitable imperative in online training courses, especially in light of the conditions that have become imposed by health crises such as quarantine and the achievement of divergence, which requires the presence of a support structure for the educational environment through achieving cooperation and coordination between the various actors in University institutions. *(Bolden & all, 2015).*

B. E-learning and course content: The design of the lesson or the distance training course needs to be organized by any university educational institution that provides an environment that supports and encourage e- learning, which today takes the form of a learner-centered (student) approach rather than a teacher-centered (professor) approach *(Debattista, 2018, p. 99)*. And so that the course content is appropriate to the environment learning from afar it needs interaction and participation between the teacher (professor) and the learner (student), which is known as dynamic learning *(Ashwin & McVitty, 2015, p. 347)*. As the creation of appropriate course content with the e-learning environment has a significant impact on the improvement of education *(Little & Knihova, 2014, p. 36)*. The e-learning content should also include teaching and support materials available online for students. This enables the online course content to be framed with different types of assignments, quizzes, and projects. This feature ensures the improvement in students' analytical, critical thinking and problem-solving skills *(Akyüz & Samsa, 2009, p. 1745).*

c. E-learning and course design: So any lesson or training course can be designed by learning from afar effective and attractive to the learner the ease of flow of information to students must be ensured as if it were in the classroom *(Oh & all, 2019)*the design of the course must take into account each student's competence, level of comprehension, and online access to the course.*(Ricart & all, 2020, p. 4878)*. If these conditions are met, the learning system from afar in this case it is better than face-to-face learning in the classroom *(Ong & Manimekalai, 2015, p. 21)*In terms of time, place and self-learning *(Ahmed: all, 2018, p. 11)*. The course design is in the learning

approach from afar it also needs to use online multimedia resources that require ease of use and access by the student, ensuring easy interaction, attraction and understanding of the student's designed course through learning from afar *(Khamparia & Pandey, 2017, p. 207)*. In addition, it supports appropriate course design for learning from afar team work, where learners find a fun environment while learning *(Liao & all, 2019, p. 51)*.

D. E-learning and teacher characteristics: Trainers in general and teachers in particular must take basic measures to improve the quality of learning from afar to make it easier for students to receive the best learning during the curfew period *COVID-19 (Abbasi & All, 2020, p. 60)* as the competence of the teacher and his ability to generate information and form and integrate different ideas and practices in the development of the content of the online course to achieve distance education successful in institutions of higher education*(Kebritchi & Santiague, 2017, p. 7)*. The authors suggested *(Ellis & Goodyear, 2010)* that the teacher should provide appropriate feedback to the students on time. In turn, this approach improves the quality of learning from afar in higher education. Since the teacher is an essential element in the distance education process therefore, monitoring the performance of the teacher and following up on his performance by evaluating him with his peers is the best way to verify his competence to ensure continuous improvement of his performance, which is necessary to improve the quality of learning from afar *(Alrefaie & Al-Hayani, 2020)*. Taha and other researchers in 2020 presented a set of guidelines for creating a working group that includes experts from the curriculum committee, teaching materials committee, faculty development committee, and continuous quality improvement committee to design, implement, monitor, and evaluate learning transition from afar.*(Taha & All, 2020, p. 69)*.

E. E-learning and characteristics of the learner :For this we find that some researchers like*(Peltier & all, 2007, p. 145)* they recommended some features in order to achieve learning from afar successful, perhaps the most important: the ability to interact between students and teachers, the ability to communicate with students, course design, course content, teacher quality, and administrator support. In the traditional classroom approach, communication between teachers and students occurs directly. However, it provides learning from afar a variety of options, which include multimedia for teaching and learning to achieve learning outcomes *(Sarabadani & all, 2017, p. 43)*. Interacting with peer students in the e-learning system also enhances the quality of learning. Therefore, it is assumed that: There is a positive relationship between the learner's characteristics and the quality of learning from afar in higher education.*(Goh & All, 2017, p. 122)*

F. E-learning and social support: Social support is an important factor that has a significant impact on the quality of learning from afar. The support of the family and the social environment would provide a conducive and encouraging atmosphere in the course of learning lessons from afar *(Andersson & Gronlund, 2009, p. 10)*. In this regard, it was conducted *(Kemp & Grieve, 2014)*studies on two different groups of psychology students' activities during traditional classroom and learning sessions from afar. It was found that students feel more comfortable in face-to-face class discussions with teachers and their peers in the classroom rather than through distance learning, while the same students like to conduct their written assignments such as assessments and projects online rather than in the classroom. From here, we can consider that achieving social interaction with teachers and among students themselves is essential to achieving better quality in e-learning. This will only be achieved through intense interaction and consistent practice between teachers and learners *(Noesgaard & Orngreen, 2015, p. 281)*.

J. E-learning and technical tools: Since the design and content of the course are related to the quality of learning from afar the learning platforms from afar they are useful tools for higher education in the online classroom *(Chivu & all, 2018, p. 624)*. So that the technological platforms *(Ali & All, 2018, p. 7)*used in the distance learning environment are required to be easy to use in order to achieve learning outcomes *(Goh & All, 2017, p. 118)* it is also a must have learning applications installed and running from afar easy to use*(Kimathi & Zhang, 2019, p. 211)*. This is

why providing a coherent structure for application learning from afar makes students transition to online classes with more fun and satisfaction)*(Al-Rahmi & all, 2019, p. 99)*. Moreover, it is necessary to provide adequate technical skills training to learners and teachers before moving on to online courses.*(Shahmoradi & all, 2018, p. 4)*.

II-Applied framework: Exploratory and confirmatory study using *PLS-SEM*

II-1-The methodological framework of the study:

After defining the research problem, setting hypotheses, and defining the objectives of the study in the theoretical format, we will try through this field study to highlight the aspects related to the subject of our study. Like any other scientific research, it requires defining the methodological framework for the field study, as long as this is considered the basis for organizing ideas and information from In order to search for facts and reach results, it also allows studying the subject in an easy way. For this, we will explain:

II-1-1 Study population and sample:

Defined as a group of vocabulary linked by specific characteristics and features **.**The statistical population was determined for all students of the Institute of Economic, Commercial and Management Sciences of the University Center of Maghnia during the academic season 2021-2022, whose number is estimated at (1042) students. That is why the study sample was intentionally chosen, which mainly affected the students of the Institute of Economic, Commercial and Management Sciences at the bachelor's, master's and doctoral levels at the university center by virtue of the suitability of the study subject with the students of this institute, as well as our affiliation with this specialization, and on this basis 100 were distributed a list of a questionnaire distributed to the students of the university center. It retrieved only 82 lists of distributed questionnaires that could be processed and analyzed, that is, on average88%. While 18 lists of distributed questionnaires were not retrieved.

II-1-2-Search variables and their corresponding phrases:

In addition to the personal variables (gender, age, and educational level), the following table shows the research variables.

Table n°1: Shows the search variables and their corresponding phrases

search variables	the name	number of phrases	coding phrases
Administrative support	ad	03	ad1, ad2, ad3
Course content	CONT	03	cont1, cont2, cont3
Course design	DES	03	des1, des2, des3
social support 3	SOC	03	Soc1, Soc2, Soc
technical support	TEC	03	tec1, tec2, tec3
Teacher characteristics	TEA	03	tea1, tea2, tea3
learner characteristics	STD	03	std1, std2, std3
Distance education quality	QA	06	qa1, qa2, qa3, qa4, qa5,qa6

Source: Prepared by researchers

II-2 Exploratory and confirmatory study using PLS-SEM

The estimation model provides empirical measurements of the relationships between indicators and constructs (measurement models), as well as constructs (structural model). Empirical measurements allow us to compare the constructed theoretical scale and structural models with the reality represented by the sample data n. In other words, we can determine the suitability of the theory for the data; the results are reviewed and evaluated PLS-SEM as follows:

II-2-1 Assessment of the measurement model:

Where the field study was divided into:

- **Asymptotic honesty**:

Which measures the closeness and compatibility of the questions to each other, the most important criteria for asymptotic validity: composite reliability CR, extracted mean variance, AVE, loading coefficient, which is shown in the following table?

Table n° 02: Asymptotic honesty measure

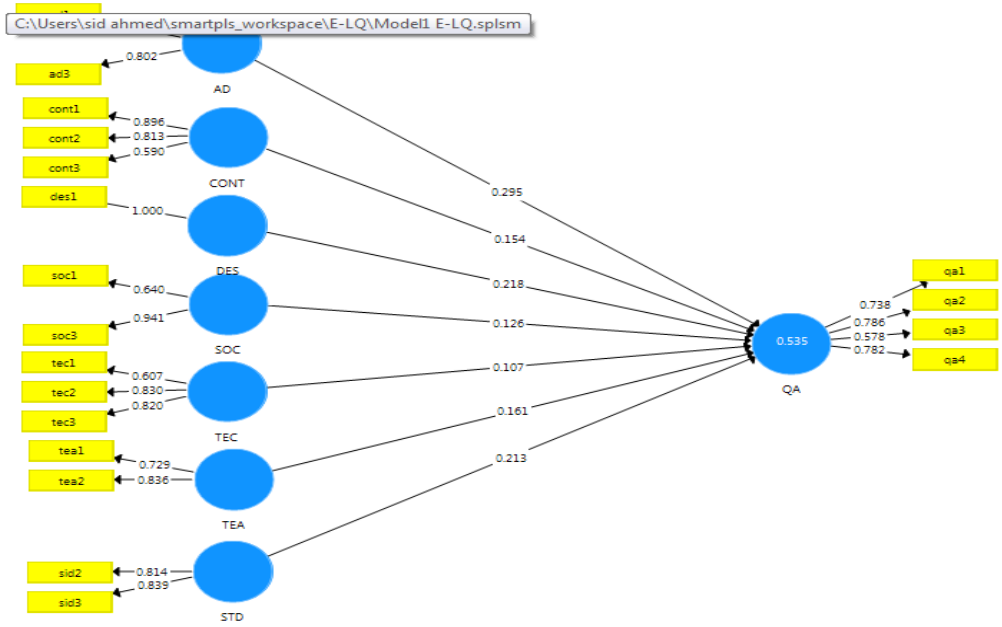
latent variables	coding	Loading	Loading*	*CR**	*AVE**
Administrative support				**0.770**	**0.626**
	Ad1	0.763	0.780		
	Ad2	0.532	-		
	Ad3	0.761	0.802		
Course content				**0.816**	**0.604**
	Cont1	0.912	0.896		
	Cont2	0.814	0.813		
	Cont3	0.551	0.590		
Course design				**1,000**	**1,000**
	Des1	0.947	1,000	**0.781**	
	Des2	0.498	-		
	Des3	0.409	-		
social support					**0.684**
	Soc1	0.669	0.640		
	Soc2	0.354	-		
	Soc3	0.923	0.941		
technical support				**0.800**	**0.577**
	Tec1	0.606	0.607		
	Tec2	0.845	0.830		
	Tec3	0.805	0.820		
Teacher characteristics				**0.761**	**0.615**
	Tea1	0.647	0.729		
	Tea2	0.831	0.836		
		*Tea3*0.535	-		
learner characteristics				**0.812**	**0.683**
	std1	0.562	-		
	std2	0.766	0.814		
	std3	0.749	0.839		
distance education quality				**0.814**	**0.527**
	Qua1	0.693	0.738		
	Qua2	0.734	0.786		
	Qua3	0.594	0.578		
	Qua4	0.805	0.782		
	Qua5	0.325	-		
	Qua6	0.408	-		

* Indicates that LOAD, CR, AVE were calculated after deleting statements

Source: Prepared by researchers based on the outputs *PLS-Smart*

Through asymptotic honesty, the study model can be developed.

Figure n°1: Summarizing the study model



Source: Prepared by the researchers based on the outputs *PLS-Smart*

- **Load coefficient:**

As it is noted from the table below that in most cases 0.70 is considered close enough to 0.708 to be acceptable as a minimum, the external loading of all indicators should be statistically significant greater than 0.7, depending on*(J. Holland, 1999)*. Accordingly, through the results of the table above, we notice that there are 07 indicators whose external loading coefficient is less than 0.708, but they may not be deleted directly except after ensuring that higher values are obtained in the criteria of the extracted average variance and the composite reliability because the common variance between the latent variable and its indicator is smaller than the variance measurement errors, so it was necessary to delete (14) Indicators represented in: Des2, Des3, Soc1, Soc2 Cont3, Ad2, Tea1, Tea3, Std1, Qua1, Qua3, Qua5, Qua6, Tec1 to ensure an increase in the composite reliability values and the extracted average variance to become higher than the proposed threshold value, for not effect on the credibility of the model.

- **Composite Reliability:**

Combined reliability values ranging from 0.6 to 0.7 may be considered acceptable in exploratory research, while in more advanced stages of research, values between 0.7 and 0.9 may be considered acceptable. Values greater than 0.9 (and definitely above 0.95) not desirable because it indicates that the indicator variables measure the same phenomenon and is therefore not likely to be a valid constructive measure). Researchers recommend reducing the number of redundant indicators.*(Hair & all, 2014, p. 136)* Whereas, through the above table, we notice that all coefficients of *CR* significant and statistically acceptable because it is greater than0.7, which indicates the existence of a correlation of the study items in measuring latent variables, and thus the reliability of the measurement model used.

- **Average variance extracted *(AVE)*:**

An AVE value of 0.5 or more indicates that construction explains, on average, more than half of the variance in its indicators. And by contrast, the value indicates *AVE* which is less than 0.5 indicates that on average there is still a greater variance in the error of the elements rather than the variance explained in the construction and accordingly through the table below, we note that all the values of the coefficients *AVE* significant and statistically acceptable because its values are greater than 0.5*(Fornell & Lacker's, 1981)* Which indicates that each latent variable explains more than half of

the variations of its indicators, and therefore the sincerity of convergence has been achieved in this model, that is, there is compatibility of the questions with each other.

- **Variation of questions:**

We verify that the questions that measure a latent variable do not measure another latent variable, by making the value of the relationship between the question and its latent variable greater than the value of its relationship with another latent variable, in order to say that the questions are independent. This is consistent with the model of our study, and the following table shows that.

Table n°2: The discrepancy between the questions

Coding	*AD*	*CONT*	*DES*	*QA*	*SOC*	*STD*	*TEA*	*TEC*
Ad1	0.780	0.195	0.151	0.296	-0.024	0.101	0.229	0.075
Ad2	0.802	0.026	0.090	0.310	-0.048	0.070	-0.115	0.021
Cont1	0.204	0.896	0.114	0.399	0.142	0.316	0.261	0.432
Cont2	0.026	0.813	0.115	0.303	0.048	0.325	0.138	0.365
Cont3	0.050	0.590	0.013	0.206	0.137	0.176	0.366	0.005
Des1	0.152	0.114	1.000	0.455	0.242	0.264	0.251	0.445
Qua1	0.258	0.209	0.169	0.738	0.225	0.369	0.342	0.300
Qua2	0.431	0.325	0.398	0.768	0.289	0.279	0.413	0.338
Qua3	0.104	0.263	0.405	0.578	0.142	0.191	0.125	0.305
Qua4	0.256	0.359	0.354	0.782	0.239	0.530	0.254	0.457
Soc1	0.019	-0.009	0.184	0.143	0.640	0.220	0.214	0.137
Soc3	-0.065	0.172	0.214	0.325	0.941	0.185	0.333	0.235
Std2	0.156	0.321	0.173	0.387	0.312	0.814	0.244	0.369
Std3	0.026	0.275	0.261	0.413	0.076	0.839	0.124	0.588
Tea1	0.069	0.153	0.142	0.282	0.254	-0.032	0.729	0.196
Tea2	0.040	0.311	0.243	0.351	0.293	0.339	0.836	0.282
Tec1	-0.169	0.267	0.139	0.212	0.104	0.443	0.088	0.607

Source: Prepared by the researchers based on the results *PLS-Smart*

- **Discriminant validity**

Is the extent to which a construct is truly distinct from other constructs according to empirical criteria, and so, validating the distinction means that the construct is unique, and captures phenomena that are not represented by other constructs in the model, and by *(Hair & all, 2014)* There are two criteria for assessing discriminatory validity.

- **According to standards *Fornell-Larcker***

Which is based on comparing the correlations between the factors with the square root of the mean variance extracted, and the results are summarized in the following table.

Table n° 3: Overlapping dimensions with each other, according to a test *Fournell-Laker*

latent variables	*ad*	*CONT*	*DES*	*QA*	*SOC*	*STD*	*TEA*	*TEC*
Administrative support	0.791							
Course content	0.138	0.777						
Course design	0.152	0.114	1,000					
quality of education	0.384	0.404	0.455	0.726				
social support	- 0.046	0.137	0.242	0.317	0.805			
learner characteristics	0.108	0.360	0.264	0.484	0.230	0.826		
Teacher characteristics	0.067	0.305	0.251	0.406	0.350	0.220	0.784	
technical support	0.060	0.392	0.445	0.486	0.241	0.583	0.309	0.759

Source: Prepared by the researchers based on the outputs *PLS-Smart*

It is clear from the above table that all the latent variables have a value of the relationship with themselves that is greater than the value of the relationship with another latent variable, and therefore we say that these latent variables are independent.

- **According to standards *Heterotrait-Monotrait Ratio***

The condition of the validity of the differentiation is fulfilled according to this test if it is values HTML do not pass0.9, and the results are summarized in the following table.

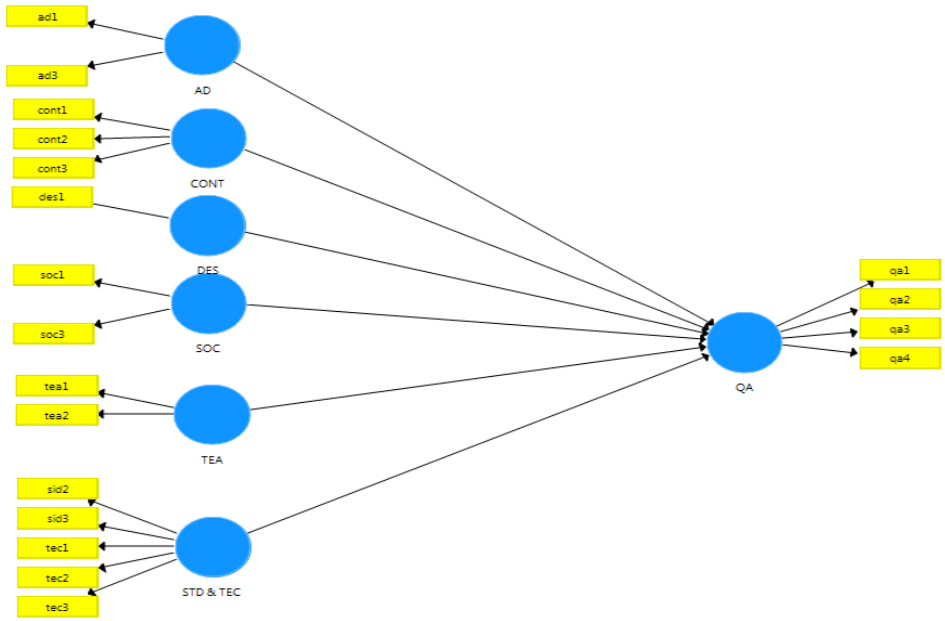
Table n°4: Overlapping dimensions with each other, according to a test *Heterotrait-Monotrait Ratio*

latent variables	*ad*	*CONT*	*DES*	*QA*	*SOC*	*STD*	*TEA*
Course content	0.313						
Course design	0.241	0.127					
quality of education	0.683	0.564	0.547				
social support	0.113	0.257	0.340	0.467			
learner characteristics	0.238	0.590	0.358	0.771	0.480		
Teacher characteristics	0.544	0.644	0.398	0.755	0.749	0.628	
technical support	0.350	0.570	0.511	0.680	0.381	1,004	0.657

Source: Prepared by the researchers based on the outputs *PLS-Smart*

It is evident from the above table that all values of latent variables do not exceed 0.9, and accordingly we say that the condition of validity of differentiation is fulfilled. Except for the technical support variable that exceeded 0.9, which requires either getting rid of it, or merging it with the learner characteristics variable, given that among the characteristics that must be available in the learner is the control of technical tools.

Figure n°2: The study model shows after merging the learner characteristics variables with the technical tools *STD & TEC*



Source: Prepared by the researchers based on the outputs *PLS-Smart*

II-2-Assessment of the structural model: Once we have confirmed that the construction measures are reliable and valid, the next step deals with evaluating the results of the structural model. This

involves examining the predictive capabilities of the model and the relationships between constructs. We will present a set of measures that should be used to evaluate the structural model.

II-2-1-Tracks and hypothesis testing:

During this stage, the significance of the supposed paths of the constructivist model is tested. Where the path coefficients are estimated by the multiple regression equation, where the multiple regression is used to obtain the standard regression parameters, which represent the standard path parameters .The closer the estimated coefficients are to zero, the weaker the relationships. Very low values close to zero are usually not significantly different from zero. The relationship is significant and statistically significant when the error percentage (P-Value) is less than 5%.*(Hair & all, 2014, p. 206)* Accordingly, it comes as a second stage to verify the significance of the values of the paths, and thus a test student is conducted depending on style *bootstrapping* with an error rate5%, the test results are shown in the following table.

Table n°5: Test of significance of path coefficients using *bootstrapping*

hypotheses	relations	*beta*	*Mean (M)*	*(STDEV)*	*T*	*P*	the decision
H1	***AD->Qua***	0.301	0.309	0.089	3,371	0.001	significant
H2	***CONT->Qua***	0.153	0.162	0.090	1,697	0.090	Not significant
H3	***DES->Qua***	0.206	0.197	0.090	2,287	0.022	significant
H4	***SOC->Qua***	0.131	0.140	0.094	1,386	0.166	Not significant
H5	***TEA->Qua***	0.156	0.151	0.096	1,624	0.104	Not
H6	***STD->Qua***	0.256	0,167	0.093	2,167	0.134	Not significant
H7	***TEC->Qua***	0.187	0.188	0.109	1,587	0.176	Not significant
Conclusion	***STD & TEC->Qua***	0.286	0.294	0.108	2,653	0.008	significant

Source: Prepared by the researchers based on the outputs *PLS-Smart*

It can be seen from the above table that all the values of the paths are significant, represented in:

- The track that connects administrative support and the quality of distance education, which track record value 0.301 at a significant level $p = 0{,}001 < 5\%$, which means H1 acceptance, that is, there is a statistically significant effect between administrative support and the quality of e-learning.
- A track that connects course content and quality of distance education that has a good track record with value 0.153 at a significant level $p = 0.090 > 5\%$, which means the rejection of H2, that is, there is no statistically significant relationship between course content and the quality of distance education from the point of view of the students of the University Center of Maghnia.
-A track that links course design and quality of distance education that has a good track record at value 0.206 at a significant level $p = 0.022 < 5\%$, which means acceptance of H3, i.e. the existence of a statistically significant relationship between the design of the course and the quality of distance education from the point of view of the students of the University Center of Maghnia
- The track that links social support and the quality of distance education, which scored a good track with value 0.131 at a significant level $p = 0.166 > 5\%$, which means the rejection of H4, that is, there is no statistically significant relationship between social support and the quality of distance education from the point of view of the students of the University Center of Maghnia.
-The course that connects the characteristics of the teacher and the quality of distance education who scored a good course with value 0.156 at a significant level $p = 0.104 > 5\%$, which means the

rejection of H5, that is, there is no statistically significant relationship between the characteristics of the teacher and the quality of distance education from the point of view of the students of the University Center of Maghnia.

-The course that connects the characteristics of the learner and the quality of distance education who scored a good course with value 0.256 at a significant level $p = 0.134 > 5\%$, which means the rejection of H6, that is, there is no statistically significant relationship between the learner's characteristics and the quality of distance education from the point of view of the students of the University Center of Maghnia.

A track that connects technical support and quality distance education with a good track record of value0.187 at a significant level $p = 0.176 > 5\%$, which means the rejection of H7, that is, there is no statistically significant relationship between technical support and the quality of distance education from the point of view of the students of the University Center of Maghnia

II-2-2-The coefficient of determination *R-Square*:

He the most commonly used metric for evaluating a structural model, this coefficient is a measure of the model's predictive power and calculates the squared correlation between the actual and predictive values of the internal structure. Where the impact strength criterion was determined by value R^2 (low, medium, large), greater than 0.67 (high effect), between 0.33 and 0.67 (medium effect) and less than 0.33 (low effect) depending on*(Miller, 1992)*, provided that it is valuable R^2 is greater than 0,1*(Hair & all, 2014, p. 209)*

Table n°6: coefficient of determination R^2

relations	R^2	R^2 *Adjusted*
E-learning quality	0.532	0.492

Source: Prepared by the researchers based on the outputs *PLS-Smart*

Through the results of the above table, we notice that the coefficient R^2 bigger 0.1. This indicates the significance of this variable in interpreting the model, as it recorded a determination coefficient of 0.532, which means that administrative support, course content, course design, social support, teacher characteristics, learner characteristics, and technical tools explain an amount of 53.7% of the change in quality E-learning, which is a medium relationship, and we also notice that the values of the modified determination are close and do not differ much from the determination values, and this indicates the quality and significance of the model.

II-2-3-Evaluate the size of the impact *f-Square*:

Which is based on the use of change in value R^2 when a specific exogenous construct is removed from the model to assess whether the deleted construct has a significant effect on the endogenous constructs? This measure is referred to as the effect size *f2* and according to standards *(J.Cohen, 1988)* assessment guidelines f^2 is that $f^2 \geq 0.35$ the size of the trace is large, $0.15 \leq f^2 < 0.35$ the size of the trace is medium, $0.02 \leq f^2 < 0.15$ the size of the trace is weak and there is no trace$f^2 < 0.02$

Table n°7: f-Square effect size

Qua	f^2
Administrative support	***0.184***
Course content	***0.038***
Course design	***0.070***
social support	***0.030***
Learner characteristics and technical tools	***0.116***
Teacher characteristics	***0.040***

Source: Prepared by the researchers, based on the outputs *PLS-Smart*

It is clear from the results of the above table that, given the relative importance of the leading building (the quality of e-learning), it turns out that the administrative support is the most important, while the other buildings: course content, course design, social support, teacher characteristics, learner characteristics and technical tools It has a weak effect on the quality of e-learning, while the effect of fear of failure has no effect. This indicates that administrative support is the origin of the quality of e-learning, and it is one of the most important forces that contribute to its success. Therefore, this is explained by the fact that our institution under study relies on improvement creativity (expanding an existing activity) and not creating methods. The educational institution develops procedures for approving distance learning programs that achieve a balance between the academic rules of higher education and the special requirements of the approved pattern of distance learning. Learning, institutional policies, teacher morale, management and various products/services did not exist before and this led to less proactive and financial support.

II-2-3-The quality of prediction*Q2:* This measure is an indicator of the out-of-sample predictive power or predictive significance. When the track form appears *PLS* predictive relationship, it predicts the accuracy of data not used in model estimation. Whereas, in the hierarchical model, they must be values*Q2*greater than zero for a given endogenous latent variable so as to indicate the predictive relevance of the path model for a dependent construct.*(Hair & all, 2014, p. 215)*

Table n°8: Prediction qualityQ2

	SSO	***SSE***	*Q2*
Ad	162,000	162,000	
CONT	243,000	243,000	
DES	81,000	81,000	
QA	324,000	252,499	0.221
SOC	162,000	162,000	
STD & TEC	405,000	405,000	
TEA	162,000	162,000	

Source: Prepared by the researchers depending on the outputs *PLS-Smart*

It is clear from the table, that all coefficientsQ2 is statistically significant and acceptable because it is greater than zero. This indicates that the latent variables present in the study model have the ability to predict, as the value of the predictive ability at the level of the quality of e-learning variable reached 22.1%, which is a percentage that provides clear support for the predictive suitability of the model with respect to the internal latent variables.

Conclusion:

It can be said that distance education is of great importance, especially in light of technological developments and the emergence of a crisis COVID-19 which hastened to adopt it, so it must be adapted to it and work to benefit from its data and develop its mechanisms, just as adopting the entrance to the distance education system has become a necessary requirement as an alternative strategy for education in its traditional concept and a new mechanism to improve the formative process in higher education, develop and improve university performance, and achieving its educational goals, and this in turn helps to develop strategies and models in the light of which it is employed, and in view of what distance education aims for and its effectiveness in all areas of the educational system most universities pay attention to how to take advantage of the advantages of modern technology and the application of distance education.

Study Results: Through the field study that was conducted on the students of the Maghnia University Center, the following results were concluded:

- ✓ Administrative support enhances the quality of distance education in the university center (Maghnia) through the availability of various mechanisms and the techniques that allow copying education and transforming it into distance education;

- ✓ Course content does not help with the quality of distance education this is due to the fact that it did not continue, in the sense that it was during a period and stopped, as well as the lack of use of modern programs;
- ✓ Administrative support is among the most important criteria that contribute to improving the quality of distance education;
- ✓ The course design serves to frame the learning from afar adequately to the abilities of the students;
- ✓ Social support does not affect the quality of distance education for the majority of students, the university is a haven where they feel more physically or psychologically safe than their home environment.
- ✓ Teacher characteristics do not help in the quality of distance education this is due to the lack of a detailed training plan to train teachers on the necessary skills in electronic measurement and evaluation;
- ✓ Learner characteristics do not help in the quality of distance education from the point of view of the students, this is because there is no training targeting the student in order to use the pedagogical media that is carried out through distance education.;
- ✓ Technical support does not help with the quality of distance education from the students' point of view, this is due to the failure to provide technical support services and technology support services for administrative work, as well as the lack of commitment to providing distinguished support using computers and information technology resources in a professional manner, and the absence of specialized professors with extensive experience in this field.

Recommendations and suggestions of the study: Through this study, we can make the following recommendations and suggestions:

- ✓ Intensify training courses and spread electronic culture on how to use technology and employ it in distance education;
- ✓ Increasing awareness programs in the university about distance education and what it is for all elements of the educational process, through diversifying the courses offered and increasing their number, and holding periodic seminars to discuss all developments related to distance education;
- ✓ Establishing quality standards by which education programs are evaluated and their suitability for modern scientific and intellectual developments. It is a plan of action followed by universities in following up on quality. However, it may differ from one university to another, but in the end they converge on the goals and objectives set by the Ministry of Higher Education.
- ✓ Contracting cooperation agreements with foreign virtual university institutions that are academically accredited and have achieved positive results in the framework of their implementation of the distance education system and exchange with it technical expertise in this field;
- ✓ A mechanism must be found to monitor and evaluate e-learning programs and their compliance with international quality standards and specifications. ensuring continuous improvement of educational programs and renewal of electronic content;
- ✓ Strengthening the infrastructure of the distance education system by securing the necessary electronic devices and modern technological means, while providing fast-flowing internet networks, and working to create an advanced electronic platform;
- ✓ Supporting learners with an electronic library that contains references for various disciplines.

Appendices:

Put the tag (×) in each paragraph according to the appropriate framework.

Part One: Personal Data

1-Sex

Femal ☐ Male ☐

2- Scientific level

Bachelor's degree, ☐ master's degree, ☐ doctoral degree ☐

3- The age

Less than20 years ☐ between 20 and 30 years ☐

Between 30 and 40 years old, ☐ Over 40 years old ☐

Part Two: Professional Data

The number	Phrase	Not agree severely	Not OK	Neutral	OK	Strongly Agree
Administrative support						
1	The Institute's administration provides electronic portals to access books and reference materials.					
2	The Institute's management strives to provide various online platforms and solutions that help the student to e-learning.				.	
3	You receive all kinds of adequate support and encouragement from the Institute's administration to participate in e-learning.					
Course content						
4	There are various necessary educational materials in distance learning					
5	The supporting modules offered in e-learning for easy-to-understand content					
6	Enhances e-learning in the student critical thinking, analysis and problem solving.					
Course design						
7	The design and presentation of scales are proportional to e-learning.					
8	There is an appropriate educational addition to the course through e-learning.					
9	Attendance lessons and assignments can be compensated for by e-learning.					
Social support						
10	There is equal opportunity given by e-learning with face-to-face learning to participate in questions and answers and discussion					
11	The home environment provides an atmosphere not unlike a physical classroom					
12	lets e-learning cooperation between students by exchanging information during online classes					
Technical support						
13	e-learning platform easy to install and operate					
14	e-Learning is guaranteed minimum system requirements and technical support provided					
15	Guidance and e- learning guide provided for both teachers and learners					
Teacher characteristics						
16	Teachers have the capabilities to provide for students' needs during discussions through e-					

	learning					
17	e-Learning feature the teacher has more interactive teaching during the lessons					
18	Easy to e-learn for the teacher to make final assessments accurately.					
Learner characteristics						
19	Course materials help students achieve the intended learning outcomes of the course					
20	Enhanced motivation and learning style provided by e- learning					
21	Enhanced motivation and learning style provided by e- learning					
Quality of e-learning						
22	e-Learning raises level of student achievement and makes it fun					
23	e-Learning works to improve the teacher's presentation of the contents and activities					
24	Enhances e- learning the relationship between teachers and learners					
25	Longer e- learning more easy to use and suitable for the teacher and the learner.					
26	lets e-learn the teacher may record the lecture and listen to it again by the learners					
27	Provides e- learning bilateral communication and cooperation between students					

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