

Digital transformation and its impact on the educational service quality at Algerian Universities: an exploratory study.

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Abstract:

This study aims to identify the reality of digital transformation and its impact on the educational service in Algerian universities. It was divided into three axes, two of which are theoretical: in the first one, we addressed the basic concepts of digital transformation, and we covered, in the second axis, the fundamental concepts of quality service. In what concerns the third axis, we dealt with the applied side by designing a survey that addresses this issue. It was distributed to a soft sample of 500 Algerian university professors. We used the Spss program and several statistical methods to process the data, which included descriptive statistics measures (arithmetic mean, and standard deviation), in addition to regression variance analysis. Finally, we have concluded that digital transformation in Algerian universities affects the quality of the educational service and bears responsibility for the positive changes that occur by 66.1%; the rest is attributed to other variables outside the study.

Keywords: digital transformation, educational service quality, Algerian universities.

Jel Classification Codes: O30, 123.

1. INTRODUCTION

The world has witnessed a great technological revolution that has produced digital transformation, which, in turn, has affected several areas and received wide attention from official sectors all over the world. Digital transformation was the result of the digital and technological economy, as the frequent use of modern technological means became an inevitable necessity to keep pace with this accelerated technological development. The Ministry of Higher Education and Scientific Research was one of the most prominent sectors that sought to adopt digital transformation, especially after the coronavirus crisis, which forced the search for an alternative to the traditional system that proved its inefficiency in these circumstances. As a result, universities moved to adopt digital transformation, bring modern technological means into service, and produce an alternative virtual environment that enables professors, students, and employees to benefit from its services without direct contact. This digital transformation had an impact on the educational service quality; the problem of this study can be formulated in the following main question:

What is the impact of digital transformation on the educational service quality in Algerian universities?

To address this problem, we divided it into the following sub-questions:

- What is the reality of digital transformation in Algerian universities?
- What is the level of the educational service quality in Algerian universities?
- Does digital transformation affect the educational service quality in Algerian universities?

1.1 Research hypotheses:

Main hypothesis: Digital transformation has a significant impact measured statistically on the educational service quality in Algerian universities.

Sub-hypotheses:

- Digital transformation techniques have statistically a significant impact on the educational service quality in Algerian universities.
- Digitization operations generate statistically a significant impact on the educational service quality in Algerian universities.
- Human resources produce statistically a significant effect on the educational service quality in Algerian universities.

1.2 The importance of the research: The importance of this study can be summarized in the following points:

- The global and national trend towards digital transformation;
- The modernity of digital transformation concepts that require research and study, especially at the national level.
- Understanding the nature of impact and the relationship between digital transformation and the educational service quality in Algerian universities.

1.3 Research objectives:

- Pursuing scientific roots for digital transformation and the concept of quality educational service;
- Identifying the reality and level of digital transformation in Algerian universities;
- Identifying the level of educational service quality in Algerian universities;

•Modeling the relationship between digital transformation and the educational service quality in Algerian universities.

1.4 Research approach:

On the theoretical side of the study, a descriptive analysis approach was used to present the basic concepts of digital transformation and educational service quality. Whereas, on the applied side, a case study approach was relied on to test the study hypotheses.

1.5 Research axes:

The first was devoted to presenting the basic concepts of digital transformation; the second axis was assigned to presenting the fundamental concepts of educational service quality as variables of the study; while the third axis presented the field study conducted at Algerian universities.

2.The first axis: the basic concepts of digital transformation

2.Definition of digital transformation:

The definition of digital transformation is "radical and accelerated change in business activities, practicing competencies, and business models to take the best advantage of the changes and opportunities resulting from digital technologies and their impacts on society"

Digital Transformation is the term used to describe the idea of digital transformation based on digitization, which is the process of turning analog data into digital form or moving from the paper to the computer stage in the fourth industrial revolution.; (Abdel Fattah, pp. 137, 138)

An institutional shift to creative business models based on digital technology for new product and service innovation, as well as the creation and enforcement of new channels that raise the value of the company's product, is known as "digital transformation.". (Bouchi and Salami, 2019, p. 948)

"The use of new digital technologies, like social media, mobile phones, or other devices, for crucial business improvements, like: improving customer service, streamlining processes, or creating new business models" is another definition of digital transformation. (Tratkowska, 2019, p.15)

Based on these criteria, we may conclude that the term "digital transformation" in higher education refers to the use of contemporary electronic media, such as computers, smartphones, and the Internet, to carry out the operations and activities of the institution. It is a process of moving from analog to digital and electronic processes, such as converting traditional schooling to e-learning or distant learning, which enables the fastest and most efficient delivery of information and services.

2.2Digital Transformation Characteristics:Universities that have undergone digital transformation surely contribute to a number of successful outcomes that set them apart from other conventional higher education establishments. The most crucial of these attributes are:

- Adaptability:** The university is flexible enough to change quickly and in a variety of ways;
- Excellence:** This shapes universities' distinctiveness and provides them with the tools they need to be competitive;
- High-tech:** It offers top-notch information technology to institutions.;
- Networking organizational structure:** The university makes new relationships with numerous persons and other universities both locally and globally;
- The principle of transparency and integrity:** It is beneficial to define roles, duties, and

objectives as well as to make many everyday decisions devoid of the typical hierarchical structure.

•**Integration:** Worldwide access to university services was made possible for all individuals and higher education institutions.

2.3 Importance of digital transformation:

Digital transformation has become essential for improving business efficiency, helping to develop and enhance services, and making them more accessible to beneficiaries. Additionally, it helps to establish ties between governmental and private sectors so that the mutual task can be finished on a flexible schedule;

Because digitization reduces bureaucracy and corruption by relying on an efficient and effective technical structure and helps enhance transparency by facilitating the exchange of information, a third of labor leaders actually think that their companies will lose their competitiveness if digitization is not widely applied. It also assists organizations and businesses in growing to a greater extent and reaching a wider range of clients and the general public. (Kajji, Abu Khazam, and Abu Jinnah, 2021, pp. 177,178)

2.4 Requirements for application of digital transformation in the institution:

The implementation of digital transformation necessitates the availability of a set of integrated requirements, which are elaborated upon below, encompassing people resources, processes, data, and technologies:

A- Human resources: Without human resources, organizations would find it challenging to implement digital transformation. Hiring qualified workers who can use and analyze data is necessary to make wise judgments. In addition to human competencies and scientific expertise, vision planning and implementation require a belief in change and progress;

B- Operations: a collection of planned, connected processes or activities that result in a certain good or service for the recipients. Institutions need to set up a functional technical framework that supports the growth of both internal and external operations. They can guarantee that digital transformation is applied optimally, that there is close oversight, and that internal and external alignment is maintained throughout these processes;

C- Data: Organizations are expected to make consistent, efficient efforts in data management and analysis. They also need to create and supply the necessary data search, statistical analysis, and future forecasting tools. Additionally, data must be regularly checked to make sure it is in line with the goals and expectations of the organization;

D- Technologies: A system of hardware, operating systems, storage media, and software working in technical settings and information centers is used to build digital transformation. In turn, it permits the continuous and efficient operation of all assets. Moreover, it guarantees a suitable degree of service for the company's clients, workers, and vendors via expert teams in charge of overseeing the network infrastructure and technological systems, both on-site and off.

2.5 Digital Transformation Phases:

The United Nations Department of Economic and Social Affairs' 2010 presence model on the Web will be the main subject of discussion for this element. Additionally, a template was created to precisely depict the phases of online attendance in order to facilitate easy and convenient access to public services.

•**Phase I (emerging services):**Governments make them available online via static webpages that link to ministries and public administrations and provide users with a variety of information.

•**Phase II (enhanced services):**Governments provide citizens downloadable programs or models for one-way or two-way electronic communication;

•**Phase III (transactional services):**In addition to conducting electronic voting, conducting and paying taxes, requesting certificates and licenses, and electronically verifying citizens' identities to complete services like online money transfers, governments communicate with their citizens in both directions (sending and receiving).

•**Phase IV (Interconnected Services):**Governments use WAP (2.0) technology and other interactive technologies to anticipate citizen requests for information and comments. As a result, people would participate in government operations more.

2.6 Critical factors for the success of digital transformation:

The company's business undergoes significant changes as a result of digital transformation, which may have an impact on organizational culture, operations, resources, and operational techniques. To be successful, it needs a few essential components, which are as follows:

•Developing and disseminating electronic applications that are impervious to hacking attempts; enlisting suitable staff and recommending others for hire in compliance with digitization procedures; carrying out administrative tasks; and utilizing electronic systems within the local government;

•Increasing the pace at which organizations utilize the technologies of the Fourth Industrial Revolution to create technological projects that support their operations and promote convenient electronic services by utilizing social media and other forms of media in order to gain recognition from the beneficiaries and enlarge the sphere of their use;

•Developing a digital transformation plan by analyzing the market, its requirements, its advantages and disadvantages, and any external threats and possibilities.

2.7 Benefits of digital transformation:

The stakeholders involved in the institution must fully participate in the digital transformation. Put another way, people who prioritize the main objectives of the company are essential for the success of the digital transition. Among the principal advantages and objectives of digital transformation, we include:

•**Service improvement:**is regarded as one of the core tenets of the digital transformation. In order to positively affect management and earnings, customers must receive the most efficient service and have their demands satisfied quickly;

•**Increasing internal collaboration:**The digital transformation project has the potential to positively impact the entire organization and foster internal collaboration if it garners sufficient enthusiasm. The most common example is utilizing internal company networks to enhance document management procedures. They can also create conversation starters for team members who might not otherwise interact;

•**Process improvement:**Every business has to go through a number of routine procedures, most of which have to do with accounting, marketing, and production. Strengthening core competences through digital transformation is a chance that undoubtedly improves operational models over

time and benefits employees. These procedures will therefore continue to get better. The ability of digital transformation to simultaneously target certain business units or the entire organization is what makes it so beautiful;

- Increasing efficiency:**The outcome of complex and advanced operations is efficiency. Using the unmatched power of contemporary technology, workflows become more efficient, predictable, and fast; employees spend less time on routine chores so they can concentrate on ideas and innovations; and customers gain from the enterprise's high caliber and quick customer service;

- Autonomy:**Organizational flexibility is a desirable quality in a market that is changing quickly. There are no longer any slow-moving, inflexible businesses that tell their clients how to conduct business with them. These days, customer feedback and trend adaptation are essential for even the biggest businesses. Technology also makes organizations more flexible and connected, enabling quick decision-making and online learning. Due to the digital transition, vast numbers of data points can now be measured and analyzed, improving speed and efficiency;

- Creating new business models:** Numerous new business models have been made possible by the digital revolution. For instance, advances in technology allowed businesses to always steal and take control of outdated company models.

- Reducing cost:**In business, cutting costs is a highly desired goal. Cost containment has been the primary factor in determining the success or failure of businesses since the manual operations of the Industrial Revolution. But these days, powerful artificial intelligence does a lot of repetitive chores and saves a lot of money for a lot of companies;

- Improving employee performance:**A work environment where employees may increase productivity in their daily responsibilities can be created by digital transformation. For instance, using Microsoft Teams solutions in large organizations can lower losses and boost productivity;

- Commitment to data assurance:**For businesses today, data security is the top priority. In the age of the Internet, every enterprise process's data is susceptible to hacking or other improper usage by third parties, which could ultimately cause it to collapse. Nonetheless, digital transformation is still required because a company with manual procedures cannot compete in the digital market;

- Maintaining competitive advantage:**Enhancing productivity and streamlining procedures are the main benefits of digital transformation. Consequently, businesses aim to implement this technology in order to enhance and expand their advantages over rivals;

- Focusing on core competencies:**Fast-growing businesses rarely invest time and resources in non-core competencies. Businesses can use digital transformation as an effective tool to conduct as much in-depth analysis as possible and complete the tasks that are essential to their operations.

3.The second axis: Basic concepts of educational service quality.

3.1 Definition of service quality: Quality service has several definitions, from which we present the following:

Service quality is defined as: “the outcome of an assessment procedure in which the client contrasts the level of service received with his expectations” (Gronroos, 1984, p. 37).

It is also defined as: “the discrepancy between what clients believe to be a service's genuine performance and what they expect from it” (Parasuraman, A, others, 1985, p42)

The ability to define the qualities and features of a scientific product to satisfy the needs of

students, the labor market, society, and all internal and external benefactors is referred to as quality in higher education. To foster an environment that is conducive to innovation and creativity, the management of human resources, policies, systems, curriculum, procedures, and infrastructure is essential to the quality of education. The curriculum needs to get students to the point where they can perform their jobs. (Al-Mahamid, 2008, p. 42).

3.2 Benefits of applying quality in higher education: The benefits of applying quality in higher education include:

- expanding the university's administrative structure since positions and responsibilities are clearly defined;
- raising the standard of instruction given to kids, as this will have an impact on their personalities;
- Enhancing the effectiveness of education and raising the bar for all administrators and teachers;
- satisfying the needs of society, scientific research, and students while also ensuring their pleasure;
- fostering an environment of empathy and understanding among coworkers;
- assisting the administration of the institution in solving issues through appropriate scientific approaches and averting their recurrence in the future.
- raising awareness among those who receive university services by highlighting the value of dedication to the quality system;
- Working as a cohesive team and exhibiting interdependence and complementarity among all university officials and academic staff.

3.3 Service quality dimensions:

The beneficiary first created a set of standards for assessing the caliber of the service. Ten dimensions impact how customers rate the quality of the services they receive. Reliability, tangibility, credibility (trust), comprehension of the customer's demands, communication, assurance (guarantee), empowerment, accessibility, responsiveness, and empathy are ranked in descending order of significance based on the consumer.

In this case, Perry and Parasuraman create a scale of service quality they refer to as the “Circual” scale by choosing five of the 10 previously listed criteria. This measure has shown to be very effective in its operations. We decide to base our field study on the same five dimensions as a result.

A- Tangibility:It stands for how actual buildings, furnishings, staff, and communication materials seem. Consumers typically anticipate well-kept, professional stores and facilities, well-groomed staff, and well-written and produced items like menus, websites, and signage.

B- Reliability:indicates the customer's assessment of the business's capacity to deliver the desired service exactly and on schedule. It also refers to the degree to which these establishments are able to satisfy their duties towards the client;

C- Responsiveness:It is the capacity to attend to every need of the client, address any grievances raised by them, and promptly and effectively resolve them. Customers also need to believe that the business they do business with respects and values them. Additionally, the initiative in

offering services is expressed by response;

D- Assurance:The company makes sure that there are no mistakes, risks, or suspicions when providing services to clients;

E-Empathy: It is demonstrating a friendliness and concern for the client who need a sense of importance. Additionally, it is the aim to customize the service to his demands.

4. The third axis: Field study

4.1Sample Study: It was composed of Algerian university professors. 600 surveys were distributed, of which 500 were retrieved from various universities throughout the territory. the following table shows the descriptive characteristics of this sample:

Table No. (01): Descriptive characteristics of the study sample

<i>Variable</i>	<i>Category</i>	<i>Frequency</i>	<i>Ratio</i>
Gender	Male	226	45.2 %
	Female	274	54.8 %
Age	From 25 to 30 years old	56	11.2 %
	From 31 to 35 years old	111	22.2 %
	From 36 to 40 years old	108	21.6 %
	From 41 to 45 years old	117	23.4 %
	From 46 to 50 years old	52	10.4 %
	More than 51 years old	56	11.2 %
Educational level	Ph.D. Classic	314	62.8 %
	Ph.D. LMD	174	34.8 %
	Master's degree	12	2.4 %
Professional experience	Less than 5 years	146	29.2 %
	5-10 years	132	26.4 %
	11-15 years	134	26.8 %
	Over 16 years	88	17.6 %
College	Economics, Business, and Management Sciences	319	63.8 %
	Technology and Science	60	12 %
	Humanities and Social Sciences	57	11.4 %
	Rights and political science	46	9.2 %
	Literature and Languages	18	3.6 %
Administrative	Dean	4	0.8 %

position	Vice Dean	4	0.8 %
	Department Head	16	3.2 %
	Vice President of Department	40	8 %
	Faculty Professor	436	87.2 %
University affiliation	North	276	55.2 %
	East	81	16.2 %
	West	65	13 %
	South	78	15.6 %

Source:Prepared by the researcher based on SPSS program outputs

From the previous table, we note that the sample was a mixture of genders, different ages, and educational levels; most of the subjects held a classical doctorate. The sample included various holders of administrative positions, who, mostly, were members of pedagogical teams. It is also a combination of subjects working in different Algerian universities from various regions. Therefore, this sample can be considered representative of the study population.

4.2 Data collection tool: We relied on the electronic survey, where 600 were distributed, and we retrieved 500 of them within a week. The retrieved questionnaires met all the conditions, so they were approved without excluding any of them. The five-point Likert scale was used to measure the degree of agreement from 1 to 5; the arithmetic mean and standard deviation were then calculated; and the overall degree of approval for the considered dimension was determined.

4.3 Statistical analysis of the sample answers: We exploited the statistical program SPSS 22 to transcribe and analyze the data, which included two variables:

- The independent variable: digital transformation, consisting of 22 statements distributed over three dimensions as follows:
 - ✓ Digital transformation techniques: consisting of 09 statements;
 - ✓ Digitizing operations: consisting of 08 statements;
 - ✓ Human resources: consisting of 05 statements.
- The dependent variable: which is the educational service quality, consists of 26 statements distributed over five dimensions as follows:
 - ✓ Tangibility: consisting of 05 statements;
 - ✓ Reliability: consisting of 06 statements;
 - ✓ Responsiveness: consisting of 04 statements;
 - ✓ Empathy: consisting of 05 statements;
 - ✓ Assurance: consisting of 06 statements.

4.3.1 Reliability and validity of the study tool: Cronbach's alpha test was used to measure the reliability of the survey, and correlation coefficients have been relied upon to measure the reliability and validity of its axes. The reliability of the study tool means that the same results would be recorded if the survey is redistributed more than once under the same conditions: it

identifies the extent of results stability if it is redistributed to the sample subjects several times. The validity coefficient refers to the accuracy level of the measuring process of what the scale is designed to evaluate. It is mathematically called the square root of the reliability coefficient. These tools' measures are shown in the following tables:

Table No. (02): Alpha-Cronbach test results for the questionnaire

<i>Number of statements</i>	<i>Stability coefficient</i>
48	0.973

Source: Prepared by the researcher based on the SPSS program outputs

It is clear from the table above that the survey has a high reliability coefficient, reaching 0.973 for the total survey statements, which is superior to the medium value of 0.70. This indicates that the questionnaire has a very high degree of reliability and can be used in the applied field of the study.

Table No. (03): Reliability and validity coefficients of the survey axes

<i>Survey axes</i>	<i>Reliability coefficient</i>	<i>validity coefficient</i>
Digital transformation technologies	0.887	0.852
Digitization of processes	0.899	0.837
Human resource	0.801	0.838
<i>The first axis: digital transformation</i>	0.865	0.949
tangibility	0.847	0.905
Reliability	0.887	0.892
Responsiveness	0.888	0.827
Empathy	0.905	0.825
Assurance	0.873	0.869
<i>The second axis: educational service quality</i>	0.946	0.952

Source: Prepared by the researcher based on the SPSS program outputs

The table above shows that the coefficient for the survey axes is high: it is limited to a minimum of 0.801 for the independent variable related to human resources and a maximum of 0.905 for the dependent variable related to empathy. The validity coefficient for both variables was also very high, reaching 0.949 for the independent variable (digital transformation) and 0.952 for the

dependent variable (educational service quality). It means that the scale is stable and does not contradict itself.

4.3.2 Statistical analysis of the sample subjects' answers:

Table No. (04): Arithmetic means and standard deviations for digital transformation axis and educational service quality axis

<i>The axis</i>	<i>Arithmetic Mean</i>	<i>Standard deviation</i>	<i>Direction</i>	<i>Ranking</i>
Digital transformation technologies	3.07	0.843	Medium	3
Digitization of processes	3.31	0.837	Medium	2
Human resource	3.78	0.796	Large	1
Digital transformation tangibility	3.38	0.733	Medium	
Reliability	3.48	0.862	Large	5
Responsiveness	3.75	0.839	Large	3
Empathy	3.87	0.858	Large	1
Assurance	3.85	0.825	Large	2
Educational service quality	3.67	0.778	Large	4
	3.72	0.755	Large	

Source: Prepared by the researcher based on the SPSS program outputs

The results shown in the table above affirm that the level of human resources related to digital transformation came in first place in terms of the importance given by the subjects of the research sample. The arithmetic Mean of the answers to this dimension reached 3.78, with a standard deviation estimated at 0.796. The study scale indicates a high evaluation rate of this dimension's importance for the sample members. As for digitizing processes, human resources come in second place in terms of the importance given by the same sample's subjects; the arithmetic mean of the answers to this dimension reached 3.31, with a standard deviation estimated at 0.837. The study scale indicates an average evaluation rate for this dimension. The digital transformation techniques dimension is ranked third in terms of relative importance, with an arithmetic mean of 3.07 and a standard deviation estimated at 0.843. The evaluation score was also average.

As for the second axis related to the educational service quality, the responsiveness dimension was at the forefront in terms of importance with an arithmetic mean of 3.87 and a standard deviation of 0.858. It is followed in ranking by the dimension of empathy, where its arithmetic mean reached 3.85 and a standard deviation of 0.825. In third place, reliability comes with an arithmetic mean of 3.75 and a standard deviation of 0.839, followed by assurance dimension with

a mean of 3.67 and a standard deviation of 0.778. The fifth and last place was for the dimension of tangibility with an arithmetic mean of 3.48 and a standard deviation of 0.862. The sample members' evaluation of all dimensions was highly significant;

Based on the above, the level of digital transformation in Algerian universities was average according to the study scale, as the arithmetic average of the sample's answers was 3.38, with a standard deviation estimated at 0.733. These results confirm that Algerian universities operate on a well-defined strategy to keep pace with digital transformation: they intend to ensure the most important requirements for digital transformation by providing modern technologies and devices in the field of digitization. Universities seek also to digitize all their internal and external activities by recruiting qualified employees specialized in every field related to digitization and technology. These employees have the desire to move towards digital transformation, especially after the coronavirus pandemic, where it became necessary for all high educational institutions to continue their educational processes under these circumstances, which can be realizable only by distance education using digitization.

The quality of the educational service axis was highly evaluated by the sample, its arithmetic mean reached 3.72, with a standard deviation estimated at 0.755, which indicates that educational service has a high quality due to the use of modern technological means. From the sample members' perspective, the educational service has been remarkably improved by the introduction of digitization and modern technological means into the service: it equips the educational processes with speed, safety, trust, and cost reduction.

4.3.3 hypotheses test: Before testing the main hypothesis, we must know the reality of digital transformation in Algerian universities by verifying the following hypothesis:

- ✓ H0: Algerian universities don't use digital transformation in the educational processes;
- ✓ H1: Algerian universities use digital transformation in the educational processes;

To test the validity of this hypothesis, we conducted a T-test for one sample at the significance level of 0.05, which is shown in the following table:

Table No. (05): T-test for the digital transformation axis

<i>The first axis</i>	<i>The computed T-test values</i>	<i>Independence degree</i>	<i>Sig</i>
<i>Digital transformation</i>	11.890	499	0.000

Source: Prepared by the researcher based on the SPSS program outputs

The T-test conducted showed that the computed T-value of 11.890 was significantly greater than the tabulated T-value of 1.984 ($p < 0.001$). This indicates that the null hypothesis should be rejected and the alternative hypothesis should be accepted. Therefore, sufficient evidence permits us to conclude that Algerian universities do use digital transformation in the teaching and learning process. This result is a significant first step in testing the following main hypothesis: digital transformation has a significant impact on the educational service quality in Algerian universities. However, a more powerful statistical test, such as an analysis of variance (ANOVA), is needed to confirm this hypothesis.

Table No. (06): Analysis of variance results to test the main hypothesis

<i>Sample</i>	<i>sum of</i>	<i>Degrees of</i>	<i>Mean</i>	<i>F-statistic</i>	<i>significance</i>
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	<i>squares</i>	<i>freedom</i>	<i>Square</i>	<i>value</i>	<i>level</i>
<i>Regression</i>	188.606	3	62.869	322.977	0.000
<i>The error</i>	96.548	496	0.195		
<i>the total</i>	285.154	499			
The correlation coefficient R= (0.813) The coefficient of determination R2= (0.661) is statistically significant at the significance level of 0.05.					

Source: Prepared by the researcher based on the SPSS program outputs

Through the results shown in the table above, it can be concluded that the model is valid for testing the main hypothesis: the F-statistic value reached 322.977 at a significance level of 0.000, which is less than 0.05. It is evidence that the model is statistically significant and, therefore, the hypothesis can be tested.

It is clear from the table that digital transformation has a direct impact on the educational service quality: the correlation coefficient between the two variables reached 0.813, which is evidence of a positive correlation, meaning that a strong direct relationship exists between digital transformation and the educational service quality. The coefficient of determination (R-squared) also reached 0.661, which means that 66.1 % of the variance occurring in the educational service quality is explained by the variances occurring in digital transformation, and 33.9% of the variance is due to other factors.

As a result, the hypothesis: "digital transformation has a significant impact on the educational service quality in Algerian universities" is confirmed. Based on stability of the model validity, we can test the various branches of the main hypothesis, as shown in the following table:

Table No. (07): Results of multiple regression analysis testing the impact of digital transformation on the educational service quality

<i>Independent variables</i>	<i>B</i>	<i>Standard error</i>	<i>BETA</i>	<i>The computed T-test values</i>	<i>Significance level</i>
<i>Digital transformation technologies</i>	0.205	0.039	0.229	5.252	0.000
<i>Process digitization</i>	0.229	0.037	0.254	6.118	0.000
<i>Human resource</i>	0.412	0.034	0.434	12.112	0.000
<i>R correlation coefficient</i>	0.813				
<i>R-squared</i>	0.661				
<i>F-statistic value</i>	322.977				
<i>Significance level</i>	0.000				
Statistically significant level at 0.05					

Source: Prepared by the researcher based on the SPSS program outputs

Through the above table, the impact dimensions of digital transformation on the educational service quality can be explained as follows:

- The computed T-test value reached 5.252 at a significance level of 0.000, which is less than the P-value level of 0.05. Therefore, we conclude the presence of a statistically significant effect of the "Digital Transformation Technologies" on the educational service quality at a significance level of 0.05;

- There is a statistically significant effect of the “Process digitization” on the educational service quality at a significance level of 0.05. The computed T-test value reached 6.118 at a significance level of 0.000, which is less than 0.05.

- we accept the hypothesis that confirms the presence of a statistically significant effect of “human resources” on the educational service quality at a significance level of 0.05: the computed T-test value reached 12.112 at a significance level of 0.000, which is less than the P-value level of 0.05.

5. CONCLUSION

we conclude, through our study, that Algerian universities embrace digital transformation and seek to digitize their internal and external operations and activities due to its positive effect on the quality of the educational service by facilitating and accelerating access to the service. In other words, the beneficiary of the educational service minimizes the time and effort while his request is treated. For these reasons, academic staff wanted to move towards digital transformation, which they prefer to traditional work. This transformation received the attention of the administration staff as well, who program training for employees to use modern technological means and its various developments and updates. The members of the study sample agree that the use of modern technological means gets the work done efficiently and effectively. Thus, educational service has made a qualitative leap in terms of efficiency by using digital transformation.

Results:

As a result of the study, we obtained the following findings:

- The study proved that Algerian universities are adopting digital transformation at an average level, as its arithmetic mean was 3.38, with a standard deviation of 0.733.
- The study showed that the level of digital transformation techniques in Algerian universities was average according to the Study scale, as the arithmetic mean was 3.07, with a standard deviation estimated at 0.843.
- The study found that the level of process digitization in Algerian universities was average, according to the Study scale, as the arithmetic mean reached 3.31 with a standard deviation estimated at 0.837.
- The study demonstrates that the level of human resources dimension in Algerian universities was high, according to the study scale, as the arithmetic mean reached 3.78 with a standard deviation of 0.796.
- The study proved that the level of educational service quality in Algerian universities was high according to the study scale, with an arithmetic mean of 3.72 and a standard deviation of 0.755. Its dimensions were as follows:

- ✓ The study confirmed that the level of Tangibility was high according to the study scale, as its arithmetic mean was 3.48, with a standard deviation of 0.862.
- ✓ The study proved that the level of Reliability was high according to the study scale, as its arithmetic mean reached 3.75, with a standard deviation of 0.839.
- ✓ The study proved that the level of Responsiveness was high according to the study scale, as its arithmetic mean reached 3.87, with a standard deviation of 0.858.
- ✓ The study showed that the level of Empathy was high according to the study scale, as its

arithmetic mean reached 3.85, with a standard deviation of 0.825.

- ✓ The study confirmed that the level of Assurance was high according to the study scale, as its arithmetic mean reached 3.67, with a standard deviation of 0.778.
- The study showed that there is a statistically significant impact of digital transformation on the quality of the educational service in Algerian universities: 66.1 percent of the variation in the educational service quality is caused by digital transformation, and 33.9 percent left is attributed to other factors;
- The study proved that there is a statistically significant impact of digital transformation techniques on the educational service quality.
- The study proved also that there is a statistically significant impact of digitization on the educational service quality.
- The study demonstrates that there is a statistically significant effect of the human resource on the educational service quality.

Suggestions and recommendations:

- Pursuing the same strategic plan aiming to introduce digital transformation and digitization to all internal and external activities;
- Attracting and engaging specialized employees in the digital and technological field, benefit from their expertise, then transfer it to those who are interacting in the university;
- Providing various modern technological means to facilitate the transition from traditional to digital work;
- Providing students, professors, and administrative staff with an electronic guide illustrating how to access the university's electronic services;
- Learning about the experiences of leading international universities in the field of electronic and digital work;
- Reward employees who are better at dealing with electronic means so that other staff members appreciate training in the field of dealing with modern technological means.

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