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The Effect of Using Information and Communication Technology to Improving the Quality of Blended Learning Elements', a Survey Study at the Technical College of Management /Baghdad

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Abstract:

The research has been based on two main variables (information and communication technology) and the quality of blended education (physical and electronic), aiming to reveal the relationship between four dimensions (physical devices, software, databases, communication networks) and the elements of education represented by (the teacher, the student, the teaching process, curriculum). The methodology and post-analysis-based research was conducted at the Technical College of Management / Baghdad through polling the opinions of a random sample that included (80) teachers out of (86) and the number of students (276) representing a random sample from all departments of the college (for the morning study) out of (3500) student. Tools for analysis and non-parametric statistical processing such as (arithmetic mean, standard deviation, relative importance) have been used to find out the perception of the sample members towards the research variables, and to test the validity of the hypotheses. The SPSS statistical analysis program of 2016 issuance has been used to test the correlation relationship and the impact among the main and sub-variables of the research. Finally, it has been concluded from the research that there is a correlation and influence between information and communication technology and the quality of education elements.

Keywords: **Technology of Information and Communication, Quality of Higher Education, Attend –In- Person Education, Electronic Learning, Blended Learning.**

1- Introduction:

Information and communication technology has become one of the most competitive tools in both the information and communication age and the digital world, so most service sectors have tended to possess these tools in line with their current and future directions, in order to improve their operations and business, whether in the internal or external environment.

Information and communication technology (ICT) is considered as an important resource that should be exploited in a way that helps improve the quality of blended learning elements (both online and offline). Therefore, the elements of information and communication technology (physical devices, software, databases, and communication networks) are among the important elements that help the teachers to facilitate their daily work and to develop the teaching process using the latest means in the delivery of information to students and also facilitate the development of the curriculum in proportion to the availability of elements of information technology and communication within the research sample, and the presence of the latest elements of information technology and communication within the research sample help students to develop themselves and look at modern software and also help them to interact and discuss within the lecture with the professor and with their colleagues. Therefore, the research seeks to identify the elements of information and communication technology, as it is considered as an effective tool in improving the quality of the educational elements (the teacher, the student, the curriculum, the teaching process).

Quality control in higher education institutions has become one of the most important measures concerned with ensuring and emphasizing the quality of programs in terms of content, educational curricula, learning methods and the educational environment, responding to the needs of the market and society, the ability to compete and prove presence on the global arena, and to prepare the university student for a sustainable job and efficiently engage in the work environment and interact with it. The research included four topics, the first topic, the research methodology, the second topic dealt with the theoretical framework of the research, while the third topic included the practical aspect, and the fourth topic included conclusions and recommendations.

2- Research Methodology

It represents the road map or the backbone of any research because it determines the path the research should adhere to and allow the concerned to know how to carry out its procedures. This current study presents a presentation for the research methodology including: research problem, its importance and its most important goals the current study aims to fitful them, research hypotheses, research method, hypothetical model, and research tools, with defining the most prominent characteristics of the sample.

2-1Research problem

Technology of information and communication has no longer considered as a tool employed by the management to improve organizational performance, but actually it has become essential to its ability to survive and confront the multiple and varied challenges imposed by the internal and external environment alike; besides he role of information and communication technology has become greater than that in competition. The organizations with all its types, whether public or private, race to achieve excellence and superiority in gaining and satisfying the customer.

As a result, organizations are looking for tools and means that enable them to sustain their survival within the limits of this competition and its field. Perhaps information and communication technology is considered one of these important and vital tools and means that is seen as an imposed and inevitable choice, and not an option for the organization that can adopt it or not.

This choice can offer the organization a lot of things only if it is well used and employed in the organization's departments and activities. Actually this represents only one dimension of the research problem, which becomes more complex when we examine the nature of the relationship between information and communication technology and quality of the elements of blended learning, and then try to diagnose the level of impact on the blended learning. Hence, this study came to investigate the role of information and communication technology in improving the quality of blended learning elements. Accordingly, some theoretical and practical questions can be raised from the main problem of research, as follows:

Theoretical questions:

1. What do we mean by information and communication technology, and what are the most related important topics?

2. What is the concept of quality education? What are the adopted elements of education?

3. What is the level of compatibility and interdependence between the dimensions of the research (information and communication technology and elements of the quality of blended education with the theoretical side)?

4. Is there an interest by the under-study college in information and communication technology and the elements of the blended education quality?

Practical Questions:

1. What is the level of the information and communication technology application by the concerned college, and what are its priorities for the researched college, and how can the under -study college adopt it on an ongoing basis?

2. What are the components of the blended education quality in the college under study?

3. What is the nature of the interrelationship between information and communication technology and the quality of blended education in the college under study?

2-2 The importance of research

The researches and studies derive their importance from the importance of the topics and elements that have been investigated, aiming to address them, and the size of the impact it has on the overall environment in which it was treated on the ground in its practical and theoretical aspect alike. The current study deals with important and influential topics whose impact has become clear, and can be clarified as follows:-

A- Theoretical importance:

The scientific importance of research lies in the investigated variables, which represent modern administrative topics that form the general orientation of distinguished organizations. Despite the increasing interest in studying these variables, but what was written about them is still characterized by scarcity at the level of Arab and Iraqi studies in particular, and to the modest knowledge of the researchers. Therefore, the two variables "information and communication technology and the quality of blended education" have been connected. Accordingly this research will contribute to filling the shortage in the Iraqi library in this field, and through of what has been done of intellectual and conceptual discussions of the most important opinions of writers and researchers related to the research variables and trying to employ them in our study, by relying on many modern references, especially foreign ones, which constituted the largest proportion of the total references.

B - The practical (field) importance: the practical importance of the research is highlighted by the following points:

1- The importance of the investigated sample, which is represented in selecting a sample of professors and students in the college, and this, leads to the benefit of the community you deal with and its contribution to improving its performance.

2- Obtaining recommendations that may help in improving and developing the performance of the college through information and communication technology on the one hand, and access to the quality of blended education and identifying its elements on the other hand.

3- The contribution of the research's practical result and its recommendations to conduct deeper studies to those interested in this field by benefiting from them in developing the performance of their institutions.

2-3 Research objectives

The objectives that the current study seeks to achieve can be defined as follows:

1. Presenting a theoretical presentation of the concepts related to the research variables (information and communication technology and the quality of blended learning elements) through a review of what the Arab and foreign literatures presented and that was facilitated by the two researchers.

2. Recognizing the extent of the college's commitment to adopting the information and communication technology approach within the college and the possibility of benefiting from it in strengthening social relations.

3. Revealing the importance of research variables and their role in improving the efficiency of the performance of the investigated college.

4. Identifying the nature of the interconnected and influencing relationship between information and communication technology and the quality of the elements of blended learning in the investigated college.
5. Providing a set of solutions to the problems facing the investigated college in the field of applying information and communication technology and the quality of the blended learning elements.
6. Opening the way for researchers to move forward toward future studies and research on the role and impact of (information and communication technology) and its relationship to other variables in other applied fields.

2-4 The hypothetical diagram of the research

The following diagram illustrates the hypothetical scheme of the research as it indicates the relationship between the variables, where two variables have been identified, represented by the explanatory variable (information and communication technology) and the responsive variable (the quality of the elements of integrated education), as shown in Figure1.

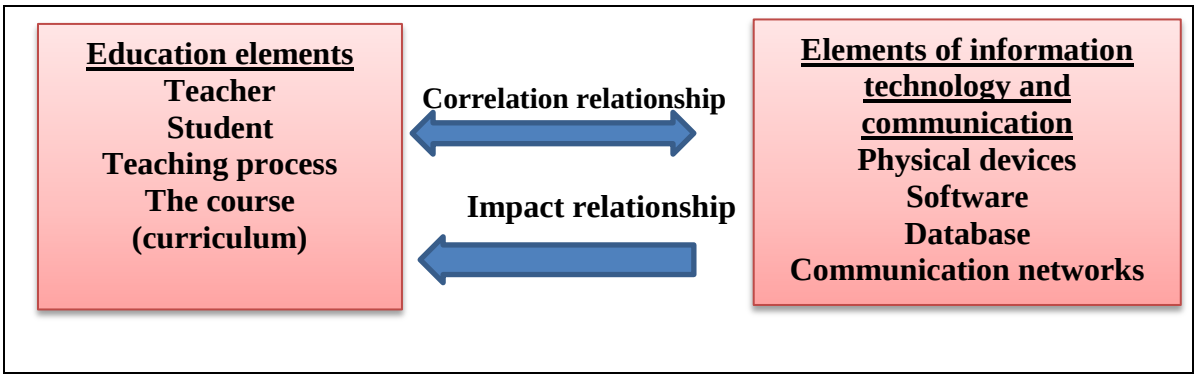

Figure1: Hypothetical diagram of the research.
The source: prepared by the two researchers.

2-5 Research hypotheses

The research starts from the following hypotheses:
A-There is a significant (correlation) relationship between information and communication technology in general and the quality of the education elements of the research sample. This hypothesis is divided into the following sub-hypotheses:

- **There is a significant correlation between the physical equipment and the quality of the blended learning elements.**
- **There is a significant correlation between the software and the quality of the blended learning elements.**
- **There is a significant correlation between databases and the quality of blended learning elements.**
- **There is a significant correlation between communication networks and the quality of blended learning elements.**

B- There is a statistically significant relationship (effect) between information and communication technology and the quality of the education elements of the research sample at the college level, and this hypothesis is divided into the following sub-hypotheses:

- **There is a statistically significant impact relationship between the physical equipment and the quality of integrated learning elements.**
- **There is a statistically significant relationship between the software and the quality of the integrated learning elements.**
- **There is a statistically significant relationship between databases and the quality of integrated learning elements.**
- **There is a statistically significant relationship between communication networks and the quality of integrated learning elements.**

3- Research methodology

The research has adopted (the analytical descriptive approach) for its relevance to the nature of the research. To achieve the objectives of this research, the researcher has used a questionnaire to explore the effect of using information and communication technology on improving the quality of (integrated) education elements from the point of view of both teachers and students.

4- Research limits

A- Spatial boundaries: the research has been applied to the Technical College of Management / Baghdad.
B- Temporal boundaries: the research has been conducted for the period between September 2021 and April 2021.
C- Scientific limits: the research is scientifically limited to what was stated in its objectives.

5- Community and sample research

A- The research community: the service sector has been chosen to implement the applied aspect of the research, which is represented by the Technical College of Management / Baghdad (morning study), which is one of the formations of the Central Technical University.

B- The research sample: a random sample consisting of 80 teachers out of 86 and 276 students representing a random sample from all departments of the college (for morning study) was tested, (which amounted to 3500) students. Table No. 1 shows characteristics of the sample individuals (professors) in term of (gender, age, academic achievement, and number of years of service). And Table No. (2) shows the characteristics of the members of the research sample (students) in terms of (gender, age, and stage of study).

Table 1: The characteristics of the research sample members (professors).

Variable	Specification	Number
Gender	male	26
	female	54
Total	80	
Age	less than 30 years	17
	30-40 years	13
	More than 40 years	50
Total	80	
Academic achievement	Master	55
	PH.D	25
Total	80	

Number of service years	less than 5 years	18
	6-10 years	8
	11-20 years	34
	21-30 years	12
	more than 31 years	8
Total	80	

Source: Prepared by the two researchers, depending on the statistical program SPSS.

Table 2: The characteristics of the research sample members (students).

Variable	Characteristics	Number
gender	male	78
	female	198
Total	276	
Age	20-29 year	276
	30-39 year	-
Total	276	
Study stage	First	50
	Second	123
	Third	72
	Fourth	31
Total	276	

Source: Prepared by the two researchers, depending on the statistical program SPSS.

6- Methods of data information collection

Researchers are required to use two types of methods to multiply the sources of data and information required for the current research as follows:

A- The theoretical aspect: - In order to achieve the objectives of the research and to enrich it with sufficient information, the researchers have relied on Arab and foreign library sources that dealt with research variables and what has been provided by the global information network (the Internet), including modern periodicals, and Arab and foreign theses and dissertations.

B- The practical aspect: - Depending on the objectives of the research and for the purpose of testing its hypotheses, the data have been obtained through the following:

- **Personal interviews with some members of the research sample.**
- **Questionnaire form: - It is the main tool that has been used to collect data and information on the research variables as it contributes to providing an accurate diagnosis of the performance of the research sample, and the questionnaire included two main axes : -**

The first axis: - Personal information of the research sample individuals, such as (determination of gender - age - academic qualification - number of years of service).

The second axis: - The main variables of the research, which are: information and communication technology and the quality of the elements of integrated learning. Each variable includes sub-variables, and Table (3) shows the structure of the research questionnaire:

Table 3: The structure of the research questionnaire .

Main variables	Sub-variables	Number of items	Scale grading	The source
Technology of information and communication (interpretation variable)	Physical devices	11	strongly disagree, disagree, neutral , agree , strongly agree 1,2,3,4,5	Khyru Khalaf Mahmoud , the role of IT and knowledge participation and its effect on fulfilling higher education quality guarantee / administrative sciences 2016
	Software	11		
	Database	12		
	communication networks	12		
Integrated education elements	Prof.	5	strongly disagree, disagree, neutral , agree , strongly agree 1,2,3,4,5	Mohammed Al-Zabon and Salih Ababnah, future views for using IT and communication in developing the education system 2010
	student	15		
	study process	5		
	curriculum	5		

7-Statistical methods used in data analysis

The ready-made statistical program (SPSS. V16) has been used to analyze the data in the practical side of the research, as follows:

A-The arithmetic mean to determine the level of the research sample's answers.

B-Standard deviations to measure the degree of dispersion of the sample answers from their arithmetic mean.

C-Correlation coefficient to determine the degree of relationship between variables.

D-Simple regression analysis to measure the effect.

8-Theoretical side

8-1The concept of information and communication technology

In the current information age, information is considered as a nourishing and driving nerve of contemporary society, and what has increased its importance is its ability to collect, store, share, publish and retrieve, as well as its ability to adapt to new developments in technology such as computers, software and telecommunications, known as information and communication technology, which has become an important and distinctive role in the work of organizations. The concept of information and communication technology is one of the concepts that has become very important at the present time, as these changes in the world of technology have brought about tremendous changes at all levels, as it is one of the most important means currently available to improve the quality of integrated education to ensure the continuity of education and achieve its goals. The educational process is an important model that includes information and communication technology in its administrative or educational operations. Integrated education is considered at the present time a new form of education in order to overcome the present situation in light of the Corona pandemic and for the continuity of education; it can be defined on several grounds, including:

Obrien, 2000: 10) defines it that information and communication technology consists of (physical devices, software, databases, and communication networks) that are used in computer-based information systems.

(Al-Salmi, 2000: 21) defines it as all the advanced technologies that are used to convert data in various forms into information with its various kinds that are used by its beneficiaries in all fields.

As for Laudon & Laudon (2000: 13), they defined it as one of the tools available to managers to deal with the problem of changes taking place.

And both (Qandilji and Al-Samarrai) defined it `: Information and communication technology expresses the useful and optimal use and investment of various types of knowledge, searching for the best means and ways to facilitate obtaining information that leads us to knowledge, as well as making such information available to its beneficiaries, exchanging it and delivering it at the required speed, effectiveness and the accuracy required by the work and duties of modern man.

Both (Al-Salmi and Al-Dabbagh, 2000,33) define it as all the technologies that are used in administrative work in order to achieve its goals in planning, control, decision-making and others, and it includes hardware, software and communications technologies that do not achieve their goals without the administrative information and human staff specialized in completing these jobs accurately .

As for the researcher (Turban, 2002: 22) and his colleagues, they see that the concept of information technology has two aspects. The first refers to the technological side of the information system and includes physical parts, software, databases and communication networks, and is seen as a subsystem of the information system, while the second aspect of the concept is broader than the first is described as a group of information systems as well as the beneficiaries and the management of the organization as a whole.

The two researchers came up with a procedural definition of the concept of information and communication technology as a system consisting of a group of linked and interacting resources and includes hardware, software, human resources, data, networks and communications that use computer-based information systems, and this concept considers information and communication technology a package of tools that assists in processing and providing individuals with information.

8-2 Elements of information and communication technology

The following are the most prominent elements or components of information and communication technology: -

A- Physical devices (Hardware)

These are the tangible and visual parts of the technologies that are represented by the electronic computer and its accessories, and the physical devices are divided into three components, which are the input unit, the central processing unit, and the output unit (Obrien, 2000: 27)).

B- Software

Software is the intangible components of the computer that handle the task of operating the computer, and the program is a set of instructions written in specialized programming languages that carry out specific operations. The program is formulated by programmers specialized in programming operating systems and applications and includes systems software and application programs Laudon & Laudon, 2003: 190).

C- Data Base

Information databases are considered one of the most important means and methods used to store information in a systematic manner, which facilitated the process of accessing and retrieving it in a timely manner. (2002: 137).

D- Communications networks

A network means a group of computers connected with each other by lines of communication so that its users can participate in the available resources and transfer information between them (Al-Salmi and Al-Dabbagh, 2001: 168). In other words, he means that they are tools or means of remote communication such as phones, optical fibers and other components thereof that enabled computer users to communicate directly with any site.

According to the researchers, the elements of information and communication technology are as follows: it is the set of devices, equipment, software, communication networks and databases used in the field of information, which are characterized by speed and accuracy in the completion of work. Reducing routine, which opens wide horizons for creativity and development, and that the elements of information and communication technology are interactive and integrated elements at the same time, and this integrative interaction embodies the value of benefiting from information technology, the makers and decision makers.

8-3 Characteristics of information and communication technology

The diversity of technological means and their complementarity with each other has led to the availability of diverse learning environments. Scientific research has proven that the use of various means of information and communication technology in the education process saves a reduction of time and effort. Among the most important characteristics of information and communication technology are the following:

A- Interactivity

Interactivity in education technology means dialogue between the two elements of the educational process which is (the learner and the program), and the interaction between the user and the presentation takes place through the user interface, which should be easy, in order to attract the user's attention (Shama, Nader Saeed, 2008 :273).

B- Individualism

One of the characteristics that information and communication technology raises in education is to overcome the individual differences between learners, and to bring them all in individual educational situations to the same level of mastery according to the abilities and aptitudes of each of them and their level of intelligence (Al-Mahdi, Magdi Salah Taha, 2008: 38).

C- Integration

Integration in educational technology directly affects students' results. Reliance on this technology and knowing the coordination between them through displaying images, graphics, sound ... etc, which form a homogeneous mixture that attracts the learner's attention and achieves the educational goal (Bo hug Souad, 2009 :50).

8-4 The concept of higher education quality

The concept of quality in the field of higher education is a major challenge in itself, as it is difficult to define a specific definition for it or to look at it from one angle. The outlook must be comprehensive and meet the requirements and expectations of parties with internal and external interests (students, faculty members, employers, society).

(Al-Ta'i and Qadada, 2003: 275) referred to the quality of education that it is a process of documenting programs and procedures and applying the rules, regulations and directives, aiming to achieve a qualitative leap in the education process and promote and raise the level of students in all mental, physical, psychological, social and cultural aspects, and this can only be achieved with mastery of work and good management.

The quality of education is defined as (preparing students with certain features that make them able to experience the modernity of information and the continuous processes of change, the tremendous technological progress and the absorption of everything new and accelerating and deal with it effectively) (Eryılmaza & et al, 2016:62).

The system in any organization, regardless of its size and activity, consists of three main components (inputs, processes, outputs), and in the educational environment, the quality of the outputs of the educational process can be described as a strategy aimed at employing information, skills and abilities in a

way that contributes to the improvement of the organization and the proportion to the requirements of society (Haksever & others, 2000: 76).

Therefore, the organization should control and define its inputs on the basis of the level of its outputs, as the quality of the outputs is affected by the quality of the inputs and the efficiency of the processes, by focusing on the feedback of the control system of the inputs and processes, (Al-Dhalmi et al., 2012: 152).

Thus, the researchers believe that the concept of quality should refer to the availability of a set of characteristics and qualities in the inputs that are reflected in the quality of the outputs and the efficiency of operations by providing an educational service capable of achieving the possible requirements of the customer that reduces the gap between his perceived and desired expectations.

8-5 Dimensions of the higher education quality

Quality means many things and expresses different views, so it is relative, not absolute and intangible, but it is a clear reality that may be defined by the parameters but without end. Therefore, the overall needs and desires of the consumer have contributed to the analysis of the features and dimensions of the required quality. The writers and researchers looked at the dimensions of quality according to different approaches that reflected the philosophy and vision of each of them. In general, the dimensions of quality may be attracted by influences related to the quality of the product or service and in line with the trends of the current research that aims to determine the dimensions of higher education quality. Because of the importance of these dimensions as the basic measure of service quality, the two researchers have found it appropriate to define each of these dimensions as follows (Christopher Lovelock et Autres, 2008: 469-470): -

A- Reliability

It means the ability of the educational service provider to perform the service required of him, with a high degree of accuracy and proficiency.

B- Competence

It means that service providers possess the skill and knowledge necessary to perform the service in order to develop the student's theoretical and applied knowledge to his field of specialization and prepare him well.

C- Response

It is the desire, willingness and ability of the organization's employees to provide them with the appropriate service.

D- Dependence

It is the organization's ability to deliver the service it promised to provide to consumers (beneficiaries) in an accurate, correct and consistent manner.

E- Communication

It means providing clients with information and in the language they understand, providing the necessary explanations about the nature of service, its cost, and communication process to be able to achieve the goals of the higher education institution. The student and college member should possess successful communication skills and skills of active listening.

F- Tangible

In order for higher education services to achieve their goals, they need a set of material requirements that embody this service, whether directly or indirectly, and are represented in: classrooms, amphitheaters, scientific laboratories, visual, audio, and written educational aids and others.

8-6 Axes of higher education quality

The process of implementing quality in higher education requires defining the necessary axes for evaluating the quality of higher education, which include the following axes: -

A-Attend- in- person education

This type of education has existed since time immemorial in various stages, but its use has been developed by using mechanisms and tools of information and communication technology. This education takes place in the same place where both the teacher and the student are present, meaning that the conversation and communication take place face to face between the parties of the educational process.

It is also called followed-up education through the site (the site), as this type of education is characterized by a large and good overlap of each student with his teachers and student counterparts and the presence of strictness in times and place, that is, the professor and the student meet in one fixed time and place. The process of technological integration is the process by which software and internet tools such as search engine: Blackboard: Microsoft word: Power Point are integrated into the educational process by the teaching staff members and its goal is to improve students' performance and achievements by placing them in new educational data. This education includes the following elements: -

1. The Teacher

The most important thing related to this element is the necessity to develop the level and capabilities of teaching staff members after making sure that the competencies are able to communicate with students in the higher education stage. Development of the professor professionally is useful in improving sound scientific and professional decision-making. Continuous training courses must be established to rehabilitate teaching staff members and develop teaching methods and encourage them to complete scientific research and participate in conferences; besides ,professors should have high morals, and the roles of the teaching staff members in the quality of educational service are determined by doing the following: teaching, evaluation, guidance and direction, authorship and translation, professional development, administrative work, community service (Ilham Yahyawi, Hakima Bousalma, Najwa Abdel Samad 2012: 3). The most important roles that the professor plays are:-

A-The role of the explainer using the technical means where the professor introduces the student to the learning material using the computer, the global network and the means of audio, including visual techniques ,and to clarify the ambiguous knowledge with assigning students after that to use this technology as a source for research and undertaking projects.

B- The role of encourager in the educational process interaction where the professor helps the student to use technical means and interact with them by encouraging him to ask questions and inquire about points related to his learning, on how to use computers to obtain various knowledge and encourage him to communicate with other students and professors who use the computer via the internet and e-mail (Mohammed Al-Zabon, Salih Ababnah: 807-2010).

2. The student

The student is considered the most important element of the educational process. Rather, he is the customer who receives the educational service. In order to achieve the quality of the student, several requirements must be met, including: (Riqad, 2014: 45)

A- Availability of services provided to the student.
B- Students' acquisition of technical skills that facilitate their participation in the labor market.
C- Enhancing students' motivation and willingness to learn.
D- Increasing student's participation in making decisions related to their affairs.
E- Comprehensiveness of the evaluation process for the student.
F- Enhancing the student's connection with the library.
G- Introduce students to the university's mission, programs and facilities.

3. The teaching process

It is the performance that requires direct interaction between the teacher and the student in a way that affects the student's comprehensive capacity positively, and his thinking style, and that university teaching performance is done according to several methods that differ according to the type of material given, some of which require memorization and some of them require deep thinking and the mobilization of creative abilities, and some of them also require practice and field experience. These methods have been divided into two approaches (Boudil and Lamia 2015: 27): -

A- The traditional teaching approach

This approach is the most used in the universities of developing countries, as it depends on verbal explanation in the lecture and the absence of discussion that helps students clarify concepts and erase ambiguity, so students get used to filling the minds, without developing the skills of achievement, deduction and intellectual production. In this way, they turn towards negativity and low level of education and performance for being the student as a receiver for information.

B- Modern teaching approach

It includes modern methods of teaching that came to cover the deficit in traditional methods, and many universities have tried to adopt these methods in order to recover the lost creative and innovative side of the student, and among the most important of these methods used are (project method, problem-solving method, the division of students inside the classroom into homogeneous groups, the interactive lecture method).

4. The curriculum

The integration of information and communication technology into the teaching and learning process will lead to reshaping the educational curricula according to the new technology; this perspective led to the emergence of educational computer programs. The curriculum has been no longer considered the only source of knowledge, but the scientific material appeared on the disks, and the internet has been used to access knowledge with the use of computer programs in presentations without overlooking the use of educational bags (Mohammed Al-Zabon, Salih Ababnah,2010: 807).

B-Electronic Teaching

The past few years have witnessed a rapid educational transformation and a continuous increase in the number of countries that have moved towards open education in all its forms (distance education, electronic learning ... etc). As an alternative and sometimes as a complement to traditional study, considering it an effective means of spreading education among multiple groups of society, and whatever terms describe this new type of education, they all combined in one idea, which is the use of information and communication technologies to provide educational content. The scope of future education systems in terms of their philosophy, objectives, curricula, programs, structure and structure, to be known in several forms, including (Ibrahim Muhammad 2004, 1), (Badran, Shebel. Suleiman, 2007:2): -

A- Distance education: it is defined as a special case for the structured education offered through the education sites; that is, the team of student trainees is supervised with the help of the interactive televised communication system that allows the trainees, Professors and Resources to be linked.

B- Electronic learning or online education is interactive learning that is followed through computers and the internet. It combines the advantages of attend in person (interactive and participatory) education and distance education (flexible), so that it remains the ultimate goal of all types to direct attention and grant partial assistance to isolated trainees (students), which poses a problem in the present structures (Marc walckiers, thomas de praetera, 2004: 5).

C- Integrated Learning

Based on the defects that appeared in electronic learning and the presence of many advantages of the traditional method of teaching, and in order to avoid the defects of both methods and obtain their advantages, integrated learning appeared through a process of mixing electronic learning and education in the traditional way. This has been called by many names, namely, mixed education, integrated education, as it is known and distinguished by the following (Dheif Allah Nasimah, 2016: 146): -

Hybrid education is known as education that combines both traditional classroom education and electronic learning to benefit from the advantages of both methods.

It is also known as: a type of education in which e-learning integrates its elements and characteristics with traditional education face-to-face with its elements and characteristics in one framework, so that e-learning tools, whether based on the computer or based on the Internet, are used in learning activities for lectures, practical lessons, sessions, training in traditional and virtual classrooms.

Thus, it is an integrated system that aims to assist the learner during each stage of his learning, as it is based on the integration between traditional education and electronic education in its various forms within the classroom. There are several advantages of integrated (blended) learning that can be limited to the following points: -

A- Dramatically reducing educational expenses compared to e-learning alone.

B- Adequate flexibility to meet the individual needs and learning styles of learners of all levels, ages and times.

C- Enriching human knowledge and raising the quality of the educational process, and then the quality of the educational product and the efficiency of teachers.

D- One of the clear advantages of this type of education is that it provides teaching in the work or study environment, includes reinforcement, and uses a minimum of effort and resources to gain the largest amount of results, as it enables people to apply skills continuously to become with practice a habit.

9- The applied aspect

This part shows the practical side of the research variables, which includes presenting and discussing the results obtained through the SPSS statistical program and their interpretation according to the responses of the research sample individuals (professors, students) and testing hypotheses by examining the correlation and influence relationship between the explanatory variable (information and communication technology) and the response variable (Elements of Quality Education), then using the quantitative analysis method, including (arithmetic mean, standard deviation) for questions related to research variables.

9-1 The first axis:- Test the level of importance of the research variables

First:- Examining the level of significance of the explanatory variable (Information and Communication Technology) from the professors 'point of view

This paragraph includes the presentation and analysis of the responses of the members of the research sample about the explanatory variable (information and communication technology), based on the Likert five-point scale, which is represented by the following dimensions: -

A- Physical devices

This dimension is represented by six paragraphs, which are as follows (1,2,3,4,5,6). The highest value of the arithmetic mean in it was in paragraph (2), which amounted to (4.59), with a standard deviation (0.495), and with an excellent level of interest which confirms (the use of information and communication technology means in attend-in person education made the lecture more interactive between students and the teacher). While, the least value for the arithmetic mean was for paragraph (4), which amounted to (4.01) with a standard deviation (0.703), and with a very good level of interest, which confirms the existence of information and communication technology makes it easier for you to stay for the courses and seminars in the college, and as shown in Table (4).

The two researchers believe that the use of information and communication technology means in physical and electronic teaching facilitated the process of completing the lecture, and also the use of modern computers improve the presentation of the lecture with high quality.

B- Software

This dimension is represented by six paragraphs, which are as follows (7,8,9,10,11,12). The highest value of the arithmetic mean was for paragraph (10), which was (4.15) with a standard deviation (5350.) and with a good level of interest, this confirmed (Electronic learning contributed to the development of my motivation to get to know the use of modern software), while the lowest value for the arithmetic mean was for paragraph (8), which amounted to (3.95) with a standard deviation (0.571), and with a good level of interest, which confirms(the college provides training courses in order to develop software capabilities). As shown in Table (4).

The two researchers found that the development of software facilitated the process of presenting the lecture according to the electronic and in-person education system.

C- Databases

This dimension is represented by six paragraphs, which are as follows (13,14,15,16,17,18). The highest value of the arithmetic mean was for paragraph (16), which amounted to (4.56), with a standard deviation (240.5) and with an excellent level of interest, which confirms(the databases in the college help in the completion of scientific and academic tasks), whereas, the lowest value of the arithmetic mean was for paragraph (8), which amounted to (3.95), with a standard deviation (0.571), and with a good level of interest, which confirms(that the college provides training courses aimed at developing programmatic capabilities (as shown in Table (4)).

The two researchers found that the presence of databases in the college, the research sample, is very important, which facilitates the process of completing the private work of professors and students.

D- Communication networks

This dimension is represented by six paragraphs, which are as follows (19,20,21,22,23,24). Which confirms (the existence of information networks facilitated the process of communicating with students in the electronic learning system) while the lowest value for the arithmetic mean was for paragraph (19), which amounted to (3.95) with a standard deviation (0.710), and with a good level of interest, which confirms (having sufficient experience to deal with networking) as shown in Table (4).

The two researchers indicated that the presence of communication networks in the college, the sample of the research, contributed to be acquainted with the latest developments related to the college, and also facilitated the presence of communication networks in the research sample from the communication of all members of the college in order to complete the work in the most appropriate manner.

Table 4: The degree of importance of the questionnaire's paragraphs according to the two scales of the arithmetic mean and the standard deviation and the response rate on the scale area of the variable (information and communication technology) for its dimensions (physical devices, software, databases, communication networks) .

Serial	Paragraph's content	Arithmetic mean	Standard deviation	Relative importance
Physical Devices				
1	The means of information and communication technology available in the college contribute to the organization and planning of your daily work as a teacher.	4.41	0.589	88
2	The uses of the means of information and communication technology in attend- in - person education made the lecture more interactive between the students and the professor.	4.59	0.495	91
3	Using the means of information and communication technology in e-learning facilitated the process of completing the lecture with high quality.	4.36	0.698	87
4	Having the means of information and communication technology made it easier for you to stay for courses and seminars in the college	4.01	0.703	80
5	The availability of information and communication technology means makes the process of giving your courses and seminars excellent electronically.	4,20	0.644	84
6	The college seeks to provide modern computer equipment in order to raise the level of administrative and academic performance.	4.06	0.735	81
Software				
7	I have sufficient experience to deal with computer operating systems.	4.09	0.766	81
8	The college provides training courses to develop software capabilities	3.95	0.571	79
9	I feel that modern software has helped improve my ability on development and creativity	3.89	0.811	77
10	E-learning contributed to the development of my motivation to learn about the use of modern software.	4.15	0.553	83
11	The development of software facilitated the process of presenting the lecture according to the e-learning system.	4.06	0.700	81
12	My use of software made it easy for my research work.	4.09	0.766	81

Databases				
13	I have sufficient experience in dealing with important databases.	4.18	0.591	83
14	**The college provides training courses related to databases in order to further develop the software capabilities.**	**3.80**	**0.877**	**76**
15	**The college has databases that facilitate the concerned units' access to my personal, academic and professional information.**	**4.19**	**0.530**	**83**
16	**Databases in the college help in carrying out scientific and academic tasks.**	**4.56**	**0.524**	**91**
17	**The college is keen to develop its own databases to keep pace with the rapid development that is taking place at the present time.**	**4.19**	**0.453**	**83**
18	**My use of databases made it easy for my research work.**	**4.49**	**0.574**	**89**
Communications networks				
19	**I have sufficient experience in dealing with communication networks.**	**3.95**	**0.710**	**79**
20	**Communication networks helped in accomplishing my daily scientific and practical tasks.**	**4.05**	**0.571**	**81**
21	**Communication networks helped in getting decisions and instructions rabidly to the teachers as soon as they were issued.**	**4.39**	**0.684**	**87**
22	**The presence of communication networks facilitated the process of communicating with students in the e-learning system.**	**4.41**	**0.669**	**88**
23	**The presence of communication networks in the college helped keep us informed of the latest developments related to the college.**	**4.32**	**0.522**	**86**
24	**The presence of the network in the college facilitates the communication process between the teachers via e-mail or the use of other software.**	**4.20**	**0.513**	**84**

Second: - Examining the level of importance of the response variable (the quality of the elements of education) from the teachers 'point of view

This paragraph includes a presentation and analysis of the responses of the members of the research sample about the response variable (the quality of the educational elements) and based on the five-dimensional Likert scale, which is represented by the following dimensions: -

A. Professor

And this dimension is represented by five paragraphs, which are as follows (25,26,27,28,29). The highest value of the arithmetic mean in paragraph (29) was (4.21), a standard deviation (0.650), and the level of interest in a very good degree, which confirms (the use of information and communication technology provides support for the professor in performing the lectures electronically and excellently). While, it was the lowest value for the arithmetic mean for Paragraph (27), which amounted to (3.88), with a standard deviation (0.624), and with a

good level of interest, which confirms (the professor's use of information and communication technology helped him to realize the different capabilities of students) as shown in Table (5).

The two researchers believe that the use of information and communication technology means contributed to the development of the analytical capabilities of the professor and contributed to the delivery of scientific material to students in an interactive manner.

B. The student

And this dimension is represented by five paragraphs, which are as follows (30, 31, 32, 33, 34). The highest value of the arithmetic mean was for paragraph (31), which amounted to (4.02) with a standard deviation (0.693) and with a very good level of interest, which confirms (The use of information and communication technology increases the level of students' understanding of the lectures). While the lowest value of the arithmetic mean was for paragraph (32), which amounted to (3.80), with a standard deviation (0.777), and with a good level of interest, which confirms (I feel that the availability of information and communication technology means increases the motivation of the student to learn and develop) as shown in Table (5).

The two researchers believe that the presence of information and communication technology means in classrooms and laboratories contributed to raising the level of student performance.

C. The teaching process

This dimension is represented by five paragraphs, which are as follows (35, 36, 37, 38, 39). The highest value of the arithmetic mean in paragraph (39) was (4.29) with a standard deviation (0.599) and a level of interest with a very good degree, which confirms (the presence of information and communication technology means helped you in the process of delivering scientific materials to students through the e-learning system). While, the minimum value of the arithmetic mean was for paragraph (35), which amounted to (3.85), with a standard deviation (0.638), and with a good level of interest, which confirms (the use of information and communication technology means contributed to the development of the teaching process) as shown in Table (5).

The two researchers found that the use of information and communication technology helped to build a dialogue dynamic between the professor and the students according to the style of groups or small teams.

D. The academic curriculum

This dimension is represented by five paragraphs, which are as follows (40,41,42,43,44,45). The highest value of the arithmetic mean was in paragraph (43), which was (4.55), a standard deviation (0.525), and the level of interest with an excellent degree, which confirms (the presence of information and communication technology that is easy to cover theoretical and practical courses). While, the lowest value of the arithmetic mean was for paragraph (45), which amounted to (3.89) with a standard deviation (0.636), and with a good level of interest, which confirms (the presence of information and communication technology in the college helped to make a comparison (for development) between the curricula of each department with curriculums of other universities), as shown in Table (5).

The researchers found that the use of information and communication technology increases the alignment of curricula with the requirements of the labor market.

Table (5): degree of importance of the questionnaire's paragraphs according to the two scales of the arithmetic mean and the standard deviation and the response rate on the scale area of the variable (quality of education) for its dimensions (teacher, student, teaching process, curriculum course).

Serial	Paragraph's content	Arithmetic mean	Standard deviation	Relative importance
The Teacher				
25	The use of the means of information and communication technology contributed to the development of the analytical capabilities of the professor.	4.15	0.658	83
26	The presence of means of information and communication technology in the classrooms helped the professor to deliver the scientific material in a more interactive way with the students.	4.06	0.663	81
27	The professor's use of information and communication technology helped him realize the different capabilities of the students.	3.88	0.624	77
28	The presence of means of information technology helped the professor in facilitating the access of scientific material to students.	4.15	0.530	83
29	The use of information and communication technology provides support for the professor in performing the lectures electronically in an excellent manner.	4.21	0.650	84
The student				
30	The use of information and communication technology means contributed to the development of the student's research capabilities.	3.85	0.638	77
31	The use of information and communication technology increases the level of students' understanding of lectures.	4.09	0.578	81
32	I feel that the availability of information and communication technology means increases the student's motivation to learn and develop.	4.04	0.719	80
33	The presence of means of information and communication technology in the classrooms and laboratories contributes to raising the level of the student.	4.11	0.528	82
34	The presence of information and communication technology helped the student to follow up the lectures electronically.	4.29	0.599	85

Teaching process				
35	**The use of the means of information and communication technology contributed to the development of the teaching process.**	**3.85**	**0.638**	**77**
36	**The use of information and communication technology enabled the teacher to perform the educational process according to the set goals.**	**4.09**	**0.578**	**81**
37	**The use of information and communication technology helped build a dynamic dialogue between the teacher and the students, according to the style of the groups or small teams.**	**4.04**	**0.719**	**80**
38	**The presence of the means of information and communication technology helped the teacher in performing the teaching process in e-learning.**	**4.11**	**0.528**	**82**
39	**The presence of means of information and communication technology helped you in the process of delivering scientific materials to students through the e-learning system.**	**4.29**	**0.599**	**85**
Curriculum				
40	**The means of information and communication technology available in the college fit to the curriculum.**	**3.92**	**0.652**	**78**
41	**The use of information and communication technology increases the proportionality between the intensity of the curriculum and its timing.**	**4.01**	**0.464**	**80**
42	**The use of information and communication technology in education increases the professor's control over educational contents.**	**4.32**	**0.471**	**86**
43	**The presence of information and communication technology makes it easy to cover theoretical and practical courses.**	**4.55**	**0.525**	**91**
44	**The use of information and communication technology increases the alignment of the curricula with the requirements of the labor market.**	**3.91**	**0.766**	**78**
45	**The presence of information and communication technology in the college helped to make a comparison of its goal of development between the curriculum of each department with the curriculums of other universities.**	**3.89**	**0.636**	**77**

Third: - Examining the level of importance of the explanatory variable (Information and Communication Technology) from the students 'point of view

This paragraph includes the presentation and analysis of the responses of the members of the research sample about the explanatory variable (information and communication technology), based on the Likert five-point scale, which is represented by the following dimensions: -

A- Physical devices

This dimension is represented by five paragraphs, which are as follows (1,2,3,4,5). The highest value of the arithmetic mean was for paragraph (5), which amounted to (4.11) with a standard deviation (0.803) and with a very good level of interest, which confirms (My use of the computer and its accessories works to provide speed and accuracy in completing the assignments that the professor assigns to me), while the minimum value for the arithmetic mean is for paragraph (3), which amounted to (3.18) with a standard deviation (1.182), and with a medium interest level, which confirms(the presence of means of information and communication technology in the college does not facilitate your understanding of the practical subject as shown in Table (6).

The two researchers found that the use of information and communication technology means in e-learning facilitated the process of completing the exam for students.

B- Software

This dimension is represented by five items as follows (6,7,8,9,10). The highest value of the arithmetic mean in it was for paragraph (10), which amounted to (4.00) with a standard deviation (0.690) and with an excellent level of interest, which confirms (My use of the software facilitate my achievement for scientific research. While the minimum value for the arithmetic mean is for paragraph (6), which amounted to (3.37), with a standard deviation (1.051), and with a medium interest level, which confirms (I have sufficient skill and knowledge to deal with computer operating systems) as shown in Table (6).

The researchers found that the development of software facilitated the process of accessing information to students in a clear way through the e-learning system.

C- Databases

This dimension is represented by six paragraphs, which are as follows (11,12,13,14,15,16). The highest value of the arithmetic mean was for paragraph (15), which amounted to (3.95) with a standard deviation (0.845) and with a good level of interest, which confirms (the college has a specialized and efficient staff in managing its own databases), while the lowest value for the arithmetic mean is for paragraph (11), which amounted to (3.24) with a standard deviation (0.935), and with a medium interest level, which confirms(I have sufficient skill to deal with the important databases as shown in Table (6).

The researchers found that the use of databases for students made it easier for them to complete their scientific research.

D- Communication networks

This dimension is represented by six paragraphs, which are as follows (17,18,19,20,21,22). The highest value of the arithmetic mean was for paragraph (19), which amounted to (3.98) with a standard deviation (0.779) and with a good level of interest. This confirms (information networks helped in promptly informing students of decisions and instructions once they were issued), while the lowest value for the arithmetic mean was for paragraph (17), which amounted to (3.42) with a standard deviation (0.989), and with a medium interest level, which confirms (I possess the skill and sufficient ability to dealing with communication networks as shown in Table (6).

The researchers found that the presence of communication networks facilitated the process of communicating with the professor through the e-learning system.

Table 6: the degree of importance of the questionnaire's paragraphs according to the two scales of the arithmetic mean and the standard deviation and the response rate on the area of the scale for a variable (information and communication technology) for its dimensions (physical devices, software, databases, information networks).

Serial	Paragraph's content	Arithmetic mean	Standard deviation	Relative importance
physical Devices				
1	I have sufficient skill and knowledge to deal with the computer.	3.57	0.882	71
2	Using the means of information and communication technology in e-learning made it easier to complete the exam.	3.57	0.882	71
3	The presence of the means of information and communication technology in the college does not facilitate the process of your understanding of the practical subject.	3.18	1.182	63
4	The college seeks to provide modern and advanced computer equipment in order to raise the level of students' performance.	3.74	1.018	74
5	My use of the computer and its accessories provides speed and accuracy in completing the assignments assigned to me by the professor.	4.11	0.803	82
Software				
6	I have sufficient skill and knowledge to deal with computer operating systems.	3.37	1.051	67
7	I feel that modern software has helped improve my development and creativity abilities.	3.89	0.812	77
8	E-learning contributed to increasing my motivation to learn about ways to use modern software.	3.74	0.977	74
9	Software development made it easy for information to reach it clearly through the e-learning system.	3.65	0.932	73
10	My use of software made it easy for my research work.	4.00	0.690	80
Databases				
11	I have sufficient skill to deal with important databases.	3.24	0.935	64
12	The college provides lectures on databases such as access for benefit and development.	3.52	0.904	70
13	The college has databases that secure access to my information without reference to me.	3.84	0.810	76

14	The college is trying to develop its own databases to keep pace with the rapid development in the technological field.	3.91	0.760	78
15	The college has specialized and efficient staff in managing its own databases.	3.95	0.845	79
16	My use of databases made it easy for my research work.	3.78	0.729	75
Communication networks				
17	I have sufficient skill and ability to deal with communication networks.	3.42	0.989	68
18	Communication networks helped in accomplishing my daily scientific and practical tasks.	3.83	0.838	76
19	Communication networks helped to quickly inform students of decisions and instructions as soon as they were issued.	3.98	0.779	79
20	The presence of communication networks facilitated the process of communicating with the professor through the e-learning system.	3.84	0.920	76
21	The presence of communication networks in the college contributed to knowing the latest developments related to the college.	3.96	0.808	79
22	Use the communication network applications in carrying out scientific research.	3.92	0.773	78

Fourth: - Examining the level of importance of the response variable (education quality) from the students 'point of view.

This paragraph includes the presentation and analysis of the responses of the members of the research sample about the response variable (the quality of the elements of education) and based on the five-point Likert scale, which is represented by one dimension (the student), and this dimension is represented by ten paragraphs, which are as follows (23,24,25,26,27, 28,29,30,31,32). The highest value of the arithmetic mean in paragraph (30) was (3.89) with a standard deviation (0.693) and with a good level of interest, which confirms(the presence of information and communication technology means helped the student to acquire useful information and skills , while the lowest value for the arithmetic mean was for paragraph (24), which amounted to (3.51), with a standard deviation (1,100), and with a good level of interest, which confirms (the use of information and communication technology does not help improve students 'understanding of the lectures) as shown in the table (7).

Table 7: The degree of importance of the paragraphs of the questionnaire according to the two scales of the arithmetic mean and the standard deviation and the response rate on the scale area of the variable (education quality) for its dimension (the student):

Serial	Paragraph's content	Arithmetic mean	Standard deviation	Relative importance
	The Student			
23	The use of the means of information and communication technology contributed to the development of my research capabilities.	3.87	0.885	77
24	The use of information and communication technology does not help in improving students' understanding of lectures.	3.51	1.100	70
25	Availability of information and communication technology means increases the student's motivation to learn and develop.	3.57	1.005	71
26	The presence of means of information and communication technology in the classrooms and laboratories contributed to improving the level of the student.	3.77	0.963	75
27	The presence of information and communication technology helped the student to follow up the electronic lectures.	3.71	1.015	74
28	The professor's use of the means of information and communication technology in attend – in person education made the lecture more interactive with the students.	3.70	1.092	74
29	The professor's use of the Power Point program in delivering the lecture made it easy for students to access the scientific material.	3.54	1.083	70
30	The presence of the means of information and communication technology helped the student to acquire useful information and skills.	3.89	0.676	77
31	The use of information and communication technology increases the student's motivation towards learning and development	3.82	0.811	76
32	The presence of means of information and communication technology helped the student to 'ask questions related to his learning and his development.	3.82	0.811	76

9-2 The second axis:- Test the correlation and influence relationship between the explanatory variable and the response variable.

Test the first main hypothesis (there is a significant relationship (correlation) between information and communication technology in general and the quality of the educational elements of the research sample.)

First:- Analyzing the correlation relationship of the research variables from the viewpoint of professors and students of the research sample

For the purpose of verifying the validity of the hypothesis and its sub-hypotheses, the researchers have performed tests that relied on the correlation coefficient (Spearman) to identify the extent of a significant correlation between the research variables according to the research hypotheses.

A (Spearman) matrix was used to identify the extent of a relationship between information and communication technology and the elements of education quality.

A-Examining the relationship between information and communication technology and the quality of education elements in general.

It is evident that there is a correlation relationship between information and communication technology and the quality of education elements in general, and it becomes clear that there is a significant correlation of (0.738 **) between information and communication technology and the quality of education elements from the professors' viewpoint, and it is also clear that there is a significant correlation with a significant amount (0.706) between information and communication technology and the quality of education elements from the students' point of view as shown in Table (8).

Table 8: Spearman's correlation matrix from the viewpoint of teachers and students

B	B_1	B_2	B_3	B_4	Information and Communication Technology
**0.738	0.442	0.619	0.400	0.498	Elements of quality education (teachers)
**0.706	0.518	0.570	0.579	0.652	Elements of Quality Education (Students)

Source: Prepared by the two researchers based on the outputs of the SPSS statistical program.

B-Examining the relationship between physical devices and the presence of learning elements (B1):

Table (8) reflects the correlation relationship between the physical devices (B1) and the presence of teaching elements, and it becomes clear that there is a significant correlation relationship between the physical devices and the presence of teaching elements, with a value of (0.442) from the professor's viewpoint, and a value of (0.518) from the students' point of view. According to the professors' opinions and responsive students that the physical devices affect and develop the capabilities of professor and students and facilitate their daily work, and this means accepting the first sub-hypothesis from the point of view of professors and students.

C- Examining the relationship between software and the quality of educational elements (B2):

Table (8) reflects the correlation relationship between software (B2) and quality of teaching elements, and it becomes clear that there is a significant correlation between software and the quality of teaching elements, with a value of (0.619) from the professor's point of view, and a value of (0.570) from the students' point of view. Therefore, the opinions of professors and students respondent, indicated that the software affects and develops capabilities of the professor and students more than the physical devices, due to the importance of software and its development at the present time, and this means accepting the second sub-hypothesis from the point of view of professors and students.

D- Examining the relationship between databases and the quality of educational elements (B3):

Table (8) reflects the correlation relationship between databases (B3) and quality of teaching elements, and it becomes clear that there is a significant correlation between databases and the quality of teaching elements, with a value of (0.4000) from the professors' point of view, and a value of (0.579) from the students' point of view. Professors' opinions and responsive students indicated that databases affect the analytical abilities of professors and students due to the importance of databases in the labor market and its development at the present time, and this means accepting the third sub-hypothesis from the point of view of professors and students.

E- Examining the relationship between communication networks and the quality of educational elements (B4):

Table (8) reflects the correlation relationship between information networks (B4) and quality of education elements, and it becomes clear that there is a significant correlation between information networks and quality of teaching elements with a value of (0.498) from the professor's point of view and a value of (0.652) from the students' point of view. Professors' opinions and students indicated that communication networks are one of the important elements in teaching due to the importance of communication networks in completing daily work and facilitating the process of communication between professor and students, and this means accepting the fourth sub-hypothesis from the point of view of professors and students.

Second -: Analyzing the impact relationship of the research variables from the point of view of professors and students of the research sample.

The second main hypothesis test (there is a statistically significant relationship (effect) between information and communication technology and the quality of the teaching elements of the research sample at the college level).

Analyzing the impact levels of the research variables:

A –The impact of information and communication technology

Table 9: Analyzing the impact of information and communication technology on the quality of education elements in general from the point of view of teachers and students.

Education elements quality						Variable
R	R^2	F		B		
		F	Sign	B	Sign	
From the teachers point of view						
0.683	.466	68.103	0.00	0.683	0.00	Information and Communication Technology
						From the students ' point of view
0.672	.452	225.987	0.00	0.672	0.00	

Source: Prepared by the two researchers based on the outputs of the SPSS statistical program.

It is evident from Table (9) that information and communication technology as an explanatory variable has an effect that contains a significant indication of the quality of the education elements as a response variable as shown by the (F) test, as its value was (68.103), and with a significant degree (0.00), noting that the coefficient of determination is (R2). Its value was (466) and the regression coefficient (B) was its value (0.683). This means that information and communication technology as an explanatory variable explains and interprets (46%) of the changes occurring in the explanatory variable, and this means that (54%) of the variables are related to other variables which are not apparent in the research from the professors' point of view. As for the students' point of view, information and communication technology as an explanatory variable has a significant effect on the quality of the elements of education as a response variable as shown by the (F) test, as its value was (225.987), and with a significant degree (0.00), noting that the determination coefficient (R2) its value was (452) and the regression coefficient (B) has its value (0.672), which means that information and communication technology as an explanatory variable explains and interprets (45%) of the changes occurring in the explanatory variable, and this means that (55%) of the variables are related to variables which are not apparent in the research.

B - The impact of physical equipment on the quality of educational elements

Table 10: The impact of physical equipment on the quality of the elements of education from the point of view of professors and students .

Education elements quality						Variable
R	R^2	F		B		
		F	Sign	B	Sign	
From the teachers point of view						
0.374	.140	12.651	0.00	0.374	0.00	Information and Communication Technology(physical devices)
From the students ' point of view						
0.473	.223	78.775	0.00	0.473	0.00	

Source: Prepared by the two researchers based on the outputs of the SPSS statistical program.

It is evident from Table (10) that the first dimension of information and communication technology (physical devices) has a significant impact on the quality of the elements of education as shown by the (F) test, as its value was (12,651), and with a significant degree (0.00), noting that the coefficient of determination is (R2) its value was (140)) and the regression coefficient (B) was (0.374), and this means that information and communication technology as an explanatory variable explains and explains (41%) of the changes occurring in the explanatory variable, and this means that (86%) of the variables are related to other variables that are not apparent in the research from the professors' point of view. As for the students' point of view, information and communication technology as an explanatory variable has a significant impact on the quality of the elements of education as a response variable as shown by the (F) test, its value was (78.775), and with a significant degree (0.00), noting that the determination factor (R2) its value is (223) and the regression coefficient (B) has its value (0.473), and this means that information and communication technology as an explanatory variable explains and interprets (22%) of the changes occurring in the explanatory variable, and this means that (78%) of the variables are related to variables that are not apparent in the research.

C-The effect of software on the quality of educational elements

Table 11: The effect of software on the quality of educational elements from the point of view of professors and students .

Education elements quality						Variable
R	R^2	F		B		
		F	Sign	B	Sign	
From the teachers point of view						
0.465	.216	21.489	0.00	0.465	0.00	Information and Communication Technology(Software)
From the students ' point of view						
0.538	.289	111.408	0.00	0.538	0.00	

Source: Prepared by the two researchers based on the outputs of the SPSS statistical program.

It is evident from Table (11) that the second dimension of information and communication technology (software) has a significant effect on the quality of the elements of education as shown by the test (F), as its value was (21.489), and with a significant degree (0.00), noting that the coefficient of determination (R2) its value was (216) and the regression coefficient (B) was (0.465). This means that information and communication technology as an explanatory variable explains and interprets (21%) of the changes occurring in the explanatory variable, and this means that (79%) of the variables are related to other variables which are not apparent in the research from the professors' point of view. As for the students' point of view, information and communication technology as an explanatory variable has a significant impact on the quality of the elements of education as a response variable as shown by the (F) test, as its value was (111.408), and with a significant degree (0.00), noting that the determination

factor (R2) its value was ((289)) and the regression coefficient (B) had its value (0.538), and this means that information and communication technology as an explanatory variable explains and explains (28%) of the changes occurring in the explanatory variable, and this means that (72%) of the variables are related to other variables which are not apparent in the research.

D-The impact of databases on the quality of education elements

Table 12: The effect of databases on the quality of education elements from the point of view of professors and students.

Education elements quality						Variables
R	R^2	F		B		
		F	Sign	B	Sign	
From the teachers point of view						
0.482	.233	23.644	0.00	0.482	0.00	Information and Communication Technology(Database)
From the student point of view						
0.556	309.	122.361	0.00	0.556	0.00	

Source: Prepared by the two researchers based on the outputs of the SPSS statistical program.

It is evident from Table (12) that the third dimension of information and communication technology (databases) has a significant effect on the quality of the elements of education as shown by the (F) test, as its value was (23,644), and with a significant degree (0.00), noting that the coefficient of determination (R2) Its value was (233) and the regression coefficient (B) was (0.482), and this means that information and communication technology as an explanatory variable explains (23%) of the changes occurring in the explanatory variable, and this means that (77%) of the variables are related to other variables that are not apparent in the research from the professors' point of view. As for the students' point of view, information and communication technology as an explanatory variable has a significant impact on the quality of the elements of education as a response variable as shown by the (F) test, as its value was (122.361), and with a significant degree (0.00), noting that the determination factor (R2) its value was (309)) and the regression coefficient (B) had its value (0.556), and this means that information and communication technology as an explanatory variable explains and explains (30%) of the changes occurring in the explanatory variable, and this means that (70%) of the variables are related to other variables that are not apparent in the research.

E- The impact of communication networks on the quality of education elements

Table 13: The impact of communication networks on the quality of education elements from the point of view of professors and students

Education elements quality						Variable
R	R^2	F		B		
		F	Sign	B	Sign	
From the teachers point of view						
0.581	.337	39.652	0.00	0.581	0.00	Information and Communication Technology(Communication network)
From the student point of view						
0.632	399.	182.284	0.00	0.632	0.00	

Source: Prepared by the two researchers based on the outputs of the SPSS statistical program.

It is evident from Table (13) that the fourth dimension of information and communication technology (information networks) has a significant impact on the quality of the elements of education as shown by the (F) test, as its value was (39,652), and with a significant degree (0.00), noting that the coefficient of determination (R2) Its value was (337) and the regression coefficient (B) was (0.581), and this means that information and communication technology as an explanatory variable explains and explains (33%) of the changes occurring in the explanatory variable, and this means that (67%) of the variables are related to other variables that are not apparent in the research from the professors' point of view. As for the students' point of view, information and communication technology as an explanatory variable has a significant impact on the quality of the elements of education as a response variable as shown by the (F) test, as its value was (182,284), and with a significant degree (0.00), noting that the determination coefficient (R2) its value was (399) and the regression coefficient (B) has its value (0.632), which means that information and communication technology as an explanatory variable explains and interprets (39%) of the changes occurring in the explanatory variable, and this means that (61%) of the variables are related to other variables that are not apparent in the research.

10- Conclusions

The results of the research sample indicated that information and communication technology has achieved a high arithmetic mean, which indicates the interest of the investigated college in adhering the means of information and communication technology and benefiting from it in completing tasks without trouble and facilitating doing things in the fastest time. It has achieved the dimension of physical devices, which is the first dimension of information and communication technology on the highest arithmetic medium, and this confirms the interest of the investigated college in its quest to provide modern and advanced computers in order to raise the level of students' performance.

The curriculum dimension was achieved, which is the fourth dimension of the elements of teaching quality from the point of view of the professors on the highest arithmetic mean, and this confirms the interest of the investigated college in providing the elements of information and communication technology in order to facilitate the coverage of theoretical and practical curriculums for students, while the main dimension of the elements of education quality which is (The student) is the highest arithmetic medium was achieved , and this confirms the college's interest in providing the means of information and communication technology in order to develop the student's research capabilities and also to facilitate the delivery of the theoretical and practical course to them.

The results showed that there is a good significant correlation between information and communication technology and the elements of the quality of blended teaching , if the variables (physical devices, software, databases, communication networks) are associated with the elements of the quality of blended teaching , that is, the greater the college's interest in providing elements of information and communication technology the higher increase in improving the quality of the blended learning elements. The second dimension (software) achieved the highest correlation from the professor's point of view, while the fourth dimension (communication networks) achieved the highest correlation from the students' viewpoint, meaning that the presence of modern software facilitated the process of professors to communicate with students in the e-learning system.

The two researchers concluded that there is a significant effect of information and communication technology and its dimensions (physical devices, software, databases, communication networks) on improving the quality of the blended learning elements of the research sample by interpreting the results of the statistical analysis of the data, and the fourth dimension (communication networks) achieved the highest impact relationship. From the point of view of professors and students, this confirms the college's interest in providing communication networks for professors in order to facilitate the completion of their daily work.

11- Recommendations

In the light of the results obtained from the SPSS statistical program, the researchers have reached many recommendations; the most important of which is the necessity of the investigated college to conduct training courses on how to use information and communication technology means, educate students and raise their awareness about how to use the means of information and communication technology in order to achieve cognitive benefit, as well as the need for the investigated college to conduct training courses related to databases in order to develop the software capabilities of professors and students. It is also necessary to develop programs to train employees and provide all the requirements for their implementation, especially training new employees on the methods of using modern technologies at work, and it is necessary to encourage students to follow the means of information and communication technology in order to develop their computer capabilities to facilitate their daily work, whether it is in physical or electronic teaching. Also the necessity of the participation of professors in the investigated college with external colleges that

have a high degree of modernity in how to use the means of information and communication technology for the purpose of mixing their talents and gaining sufficient experience to deal with the means of information and communication technology with high efficiency. Finally, the two researchers recommend that the college (the research sample) should pay attention to the results of the research in order to work on encouraging and supporting the positive aspects that it showed and working to correct the other negative aspects.

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أثر استخدام تكنلولوجيا المعلومات والاتصال في تحسين جودة عناصر التعليم المدمج: بغداد/ دراسة استطلاعية في الكلية التقنية الادارية

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مستخلص البحث:

استند البحث الى متغيرين رئيسين هما (تكنلولوجيا المعلومات والاتصال) و جودة التعليم المدمج (الحضوري والالكتروني) مستهدفا الكشف عن العلاقة بين اربعة ابعاد هي (الاجهزة المادية ، البرمجيات، قواعد البيانات ، شبكات الاتصال) وعناصر التعليم متمثلة ب (الاستاذ ، الطالب، عملية التدريس، المقرر الدراسي) حيث اجري البحث في الكلية التقنية الادارية / بغداد وذلك من خلال استطلاع اراء عينة عشوائية شملت التدريسين وبعدد (80) تدريسي من اصل (86) والطلبة بعدد (276) تمثل عينة عشوائية من جميع اقسام الكلية (للدراسة الصباحية) البالغة عددهم (3500) واعتمد منهج البحث القائم والتحليل البعدي ، استعملت ادوات تحليل ومعالجة احصائية لامعلمية مثل (الوسط الحسابي،الانحراف المعياري، الاهمية النسبية) لمعرفة تصور افراد العينة تجاه متغيرات البحث، ولاختبار صحة الفرضيات تم استخدام برنامج التحليل الاحصائي SPSS ذو الاصدار 2016 الذي يستخدم في اختبار علاقة الارتباط والاثر بين المتغيرات الرئيسية والفرعية للبحث، واخيرا استنتج من البحث ان هناك علاقة ارتباط وتأثير بين تكنلولوجيا المعلومات والاتصال وبين جودة عناصر التعليم.

المصطلحات الرئيسة للبحث: تكنلولوجيا المعلومات والاتصال، جودة التعليم العالي، التعليم الحضوري، التعليم الالكتروني،التعليم المدمج.