Information Technology: A Study of its Concept and Importance in Educational Institutions

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Abstract

The study of the subject of information technology is very important, especially at the present time, and in all fields, especially educational institutions, because of its great impact on its progress and its economic, scientific and social superiority. The research addressed the topic of the concept of information technology and its objectives, and the most important reasons for its use, investment capabilities and importance. The research indicated the most important advantages and functions of information technology, and its optimal strategic use. As well as discussing the topic of information technology infrastructure and capacity building. The research discussed the components of information technology in most fields, especially in educational institutions, and its most prominent characteristics. The research sheds light on the benefits of using information technology in education, the most important obstacles, and the most prominent advantages of using information technology for a university professor. The research addressed the issue of the most important obstacles to the use of information technology in education and the negative effects resulting from the excessive use of information technology.

Keywords

Devices, Tools, Information, Education, Data, Systems, Decisions, Innovation, Universities.

Introduction

The issue of information technology has attracted the attention of researchers and specialists for its great importance in most fields, and for what it shortens of a great deal of time and distances, and for its impact on the development of the economy and the welfare of society. Information technology is a system that includes a set of interrelated and interrelated components (devices, educational materials, manpower programmes, evaluation strategy, production design) that affect each other and that work together to raise the effectiveness

and adequacy of different educational situations, resulting in a solution to several educational problems (Kazem and Abdel Karim, 2019).

It is a set of modern methods and techniques, used for the purpose of simplifying a specific activity and raising its performance. It includes a group of devices concerned with information processing and circulation, such as computers, software, storage and retrieval equipment, and wired and wireless electronic transmission through all forms and types of communication, whether written, audio or visual. Its main objective is to facilitate bilateral and group communication over closed and open networks (Kazem and Abdel Karim, 2019).

A group of devices and tools that provide the process of storing information, processing it, and then retrieval, connecting and receiving it to and from anywhere in the world through various communication devices (Kazem and Abdel Karim, 2019).

UNESCO has provided a definition of the concept of information technology as: the application of electronic technology, including computers, satellites and other advanced technologies to produce analog and digital information, store it, retrieve it, distribute it and transfer it from one place to another (Nassira and Pasha, 2014). An integrated information technology system (ITS) is defined as a system made up of a group of interrelated and interacting resources that work together, namely hardware, software, human resources, networks, communications and data that use computer-based information systems (Shakir, 2013).

The concept of information technology can be viewed from two angles. The first concerns information in its general framework, in which it is described as the human intellectual product that is included in the different types of information sources. Or the messages transmitted between the sender and the receiver through various communication techniques, or ideas and concepts that are transmitted through the means of directed broadcasting. As for the special framework of information, it is in which it is described, as those data that have undergone processing, evaluation, arrangement, organization and classification, using automated and manual means. The second angle of this concept is related to the techniques that were used in the processing, transmission and broadcasting processes. The information within this concept has been subjected to a number of processes before being input into computers or messages sent using communication techniques or directed using broadcasting techniques. Thus, it differs from the concept of data that is commonly used by specialists in the field of computers as a description of all facts, concepts, symbols and raw numbers that are computer inputs and prepared to perform processing operations on them

to be output later in the form of information (Nazim, 2007). The contrast between the two concepts can be seen through the following two figures 1-2 (Nazim, 2007):
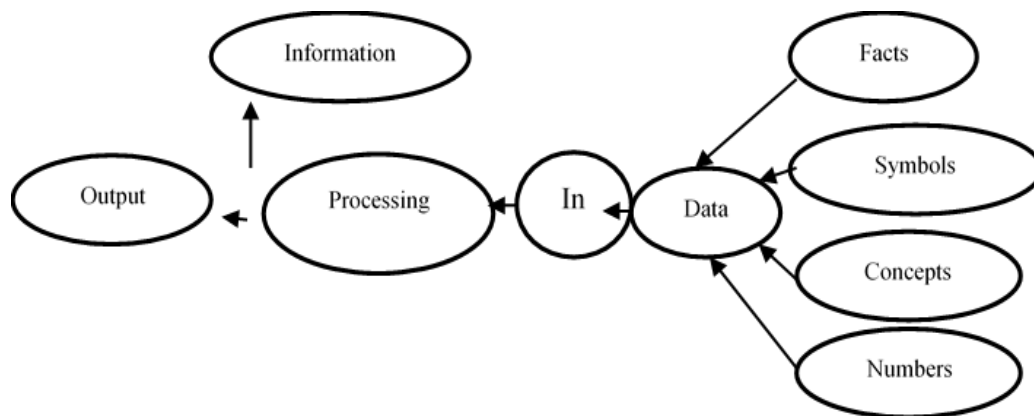

Figure 1 The concept of information in the field of computer
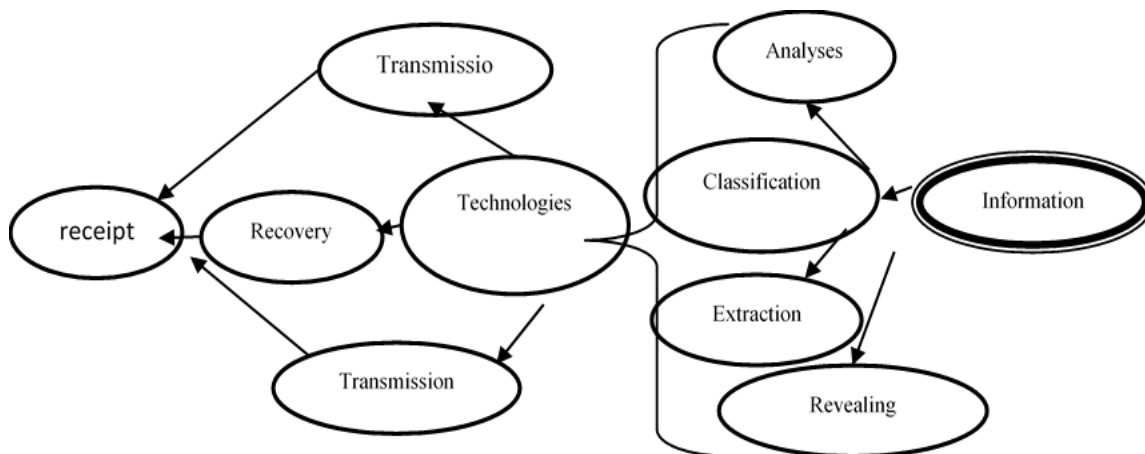

Figure 2 The concept of information in the field of information technology

Information technology is concerned with the collection, organization, storage, dissemination and use of information. It involves the application of computers and communications technology to the task of information processing, and the flow of information from its inception to levels of use. It is limited to systems that rely on a combination of computers and communications technology based on microelectronics (Abdullah and Salem 2021). Information technology provides many advantages to the industry such as uptime, stability, and compatibility for data generation. As well as enhancing the efficiency of the organization and improving productivity and control in internal processes, information technology is a tool for making changes to the nature of work, integrating organizational duties and will help to enhance the competitive forces of enterprises. It can reduce transaction costs through electronic data transactions and shared databases and remove intermediaries in regulatory processes (Abdullah and Salem 2021).

Information technology is the various systems by which information in all its forms is obtained, reduced, processed, circulated and made available to beneficiaries using computers and remote communications, which are based mainly on microelectronics. Therefore, information technology depends on two main areas: (computer technology and telecommunication technology). The field of computer technology includes (systems analysis, systems design, software production, information production in a clear and understandable way, information gathering and encoding, and others). The field of remote communication technology includes (cable technology, satellite technology, optical fiber technology, digital communication technology, telephony technology, and others). There are other areas related to the educational system, which are modern information technology, which comes through the interaction between computer technology and communication technology, known as educational technology innovations (Hussein and Ibrahim, 2019).

Objectives of Information and Communication Technology

The objectives of information and communication technology are as follows (Jassam and Ali, 2021, Abdul-Hussein, 2019):

1. The ability to run several different databases through various operating systems and devices.
2. Providing information security with the ability to change and modify when needed.
3. The speed of development of the approved system and the ability to withstand additional work with the possibility of expanding the capabilities.
4. Shorten the time and effort required to maintain the system to ensure that databases are not lost and their integrity is not lost.
5. Facilitate planning, control, coordination and decision-making so as to enable the administration to exercise these vital functions more quickly, accurately and comprehensively, and then achieve better results.
6. Modify the methods of human resource practice of their work thanks to the use of innovative information and communication mechanisms and tools that increase their connection and contact with each other and increase their exposure to information.
7. Helps reduce the size of the administrative apparatus and shorten expenses.
8. Increases the management's ability to build and activate strategies and work programs that depend on interdependence and communication with change and speed of response to the market and competition.

Reasons for Using Information Technology and Investing its Capabilities

Among the most important reasons for using information technology are as follows (Hussein and Ibrahim, 2019, Ibrahim and Muhammed, 2018, Hadi and Fadel, 2014):

1. Increasing scientific and technological growth rate, accuracy in performing operations, saving time and effort, large capacity in data storage, keeping information more than one circuit, whether main or secondary (i.e. saving information on more than one location in the computer).
2. Population doubling and people's demand for education.
3. Society's continuing need to prepare specialized and productive types of individuals.
4. The need to find non-traditional solutions to contemporary problems such as: lack of motivation among learners, low educational and teaching competencies, transfer of skills to real life.
5. The tremendous progress in the field of education and educational strategies as a major system and education technology as a sub-system.
6. Communicate with developments in the external environment and respond and adapt to them in order to achieve the rational development of all human and technological capabilities as they are an expression of development, creativity and continuous superiority.
7. The administration is the most important for coordinating the efforts of departments and units without the occurrence of any administrative obstacles, whether at the level of procedures or the accuracy and speed of achieving goals.
8. Achieving high levels of satisfaction, whether at the level of customers, employees, or parties with interests in the success and development of the organization.
9. Information technology provides wide capabilities on Facebook through performance audits first, which leads to discovering the error before it occurs and then correcting it and preventing any deviations, whether immediate or future.
10. It is the most important tool in the field of carrying out research, studies and consultations for its active role in providing sources, information and field applications for specialists, researchers and organizations that provide consultations and various services.

Importance of Information Technology

Information technology is of great importance, including the following (Jassam and Ali 2021, Abdul-Hussein, 2019, Ibrahim and Muhammed, 2018, Hadi and Fadel 2014, Ali and Salman, 2016):

1. The role of the active technology in the design and development of products by adopting modern automated manufacturing systems such as CAD and CAM systems by computer and computer-based design. These systems achieve high quality at low cost in the shortest time, best accuracy and sudden entry into the market ahead of competitors.

2. It provides the ability to expand the organization's activities, tasks and work in the shortest time, enabling the achievement of additional production. Thus, gaining a larger market share than competitors and staying in the world of competition for the longest possible paragraph.

3. In view of the high ability of the devices, equipment and means of communication in the field of accuracy and speed, this is a reason for concluding deals with all parties, including suppliers, carriers, customers and in different locations. It is the tool that abolished the borders, time and place between all parties, so that the world became a small village that could deal with the stakeholders in the time and place chosen by the concerned parties.

4. Information and communication technology is one of the important tools in zero-responder systems and comprehensive examination, for its role in achieving accurate and direct control through approved information and communication systems that provide accurate implementation with every step and stage.

5. Decision support systems, expert systems and artificial intelligence provide a superior ability for managers to make decisions, test trade-offs, and act as quickly as possible in exceptional cases with the least damage and the fastest comprehensive treatments.

6. Information and communication technology enables managers to make and take decisions without high psychological and intellectual burdens by providing managers' information needs with the necessary characteristics.

7. The ability of information and communication technology systems to retain field expertise within the programming systems and use them when needed.

8. Achieving high coordination and an effective communication system between the different departments by building a communication network in all directions at the highest level of accuracy, speed and immediate response.

9. Enabling contemporary organizations to interact and communicate continuously with the external environment and respond and adapt to it according to the real requirements of social responsibility and sustainable development.

10. The speed of response to scientific and cognitive developments and the trend towards the victory of knowledge and intangibles that occur more widely in order to properly and accurately implement business and administrative tasks.

11. Elimination of routine: liberating the human element from the constraints of monotonous work.

12. The digital economy: Information technology is a supporting and auxiliary tool for the network revolution, and advanced technology has become available to assist all or most of the major applications and services associated with the network economy.

13. Change and development: changing work methods, the use of modern technology allows remote work as well as remote management, which is reflected in the elements of time and cost.

14. Strategy, Competitiveness and Value: The strategic direction has become clear through the vital role of information technology in enhancing the competitiveness of contemporary organizations and increasing value.

15. Improvement: The presence of information technology in organizations helped improve products, reduce production costs, discover the causes of deviation and waste in expenses, and increase work efficiency and effectiveness.

16. Predicting the future: Developing plans for what will happen in the future will put the company innovating mechanisms that are compatible with information technology by collecting and categorizing huge amounts of information. This creates a challenge for technology management, so this change must be monitored and controlled.

17. Awareness of risks: In order for the company to realize its potential risks and reduce them, there must be information-intensive capabilities to deal with them, store and retrieve them in a timely manner so that information technology becomes a positive force for competition.

18. Decision making: The process of making decisions based on technical foundations will make all parties working in the company more harmonious to build common interests between them. The acquisition of knowledge of information technology comes from the owners of expertise and high skills and will generate high levels of performance and they are called intellectual capital.

Advantages of Information and Communication Technology

There are many advantages that economic units can achieve when they use information and communication technology, as follows (Jassam and Ali, 2021, Hussein, 2020):

1. Information and communication technology contributes to increasing sales and profits and satisfying the needs and desires of consumers. Increasing sales improves earnings per share, while lowering production costs.

2. Many economic units use information and communication technology for the purpose of obtaining more effective competitive advantages, and to improve their position in the environment by designing innovative programs and applications that fit the requirements of the stage.

3. The use of economic units of information and communication technology contributes to reducing costs. As this is one of the most important benefits that industrial units derive in several areas, the most important of which is the use of the automated method in performing work and clerical tasks. As well as the use of automated systems in the accounts and control of production and inventory as well as when executing production orders on demand or standard production.

4. Information and communication technology contributes to improving quality, which is one of its most important uses through computers in design, improving output quality and electronic data exchange, which units use to communicate with each other electronically, such as issuing electronic orders to the bank. Then the clearing procedures are carried out using electronic information networks, thus reducing the chances of error as a result of shortening the procedures of the transaction contract.

5. Increasing sales and profits: Information technology contributes to increasing the sales of the economic unit by satisfying and satisfying the needs and desires of consumers, which results in improving and increasing profitability, because this technology helps the unit reduce production costs.

6. Achieving a competitive advantage: Information technology has been defined as a system that supports and configures the competitive strategies of business units by designing innovative applications and programs that give business units and institutions a competitive opportunity that distinguishes them from other production units in the business environment. This feature may cause a reduction in the cost of the produced unit, and then the producing unit can offer its products at a lower price in the market, or creativity and innovation in the quality and quality of the product.

7. Improving product quality: One of the most important uses of information and communication technology in improving product quality is through outputs and a distinctive and innovative design using the computer. Today, production units can offer their products in different shapes and designs from time to time, which takes into account the tastes and desires of consumers.

8. Helps in the process of managing the flow of company resources in an innovative and effective manner: The economic unit can take advantage of the information technology services in the distinguished and effective management to organize its resources from its external and internal sources of raw materials or cash in order to ensure its optimal use to achieve the objectives of the economic unit. For example,

the role and importance of technology in managing time and faster access to sources and resources, and also enables companies to electronic exchange such as purchase orders, distribution, and organizing the dates of receiving products and orders. As well as the exchange and transfer of data and commercial information between trading partners.

9. Global: It is the process of transferring information and data between users from different countries of the world without the hindrance of space and time. Today, there are many companies and institutions located in a particular country and they are managed and follow up their business directly from another country through various communication networks, for example, multinational companies.

10. Transferability: It is the ability to transfer and transfer data and information through the use of technologies that allow transfer from one device to another or from a specific format to another, allowing the possibility of sharing and exchanging information.

11. Asynchrony: It is one of the most important features and advantages that this technology provides, as it enables the user to send and receive data and information at an appropriate time.

12. Identification of the beneficiary: Information technology provides a great degree of control and direction in the information and the precise identification of the beneficiary of that information. As well as the possibility of knowing the type of information that the beneficiary needs, whether internally or externally, by knowing the desires and interests of the users of the information.

13. Interactivity: It allows the user to be a sender and a receiver at the same time, and the participants in the communication can exchange roles, which leads to creating a kind of interaction and participation between individuals, institutions and the environment in which they operate.

Functions of Information and Communication Technology

There are several functions performed by information and communication technology, including the following (Jassam and Ali, 2021):

1. Consolidating the records of activities and collecting the details of their records.
2. Analyzing, compiling and standardizing the unit's data and information.
3. It helps to carry out several information processing operations simultaneously (written, voice, image).
4. Organizing the available information according to its nature and images in a useful way to take the appropriate decision.

5. The possibility of storing and retrieving data and information for the purpose of completing additional operations and sending them to the beneficiaries using e-mail, voice messages, and others.

Strategic Use of Information Technology

There are different levels of strategic planning for information technology, and this is done according to three levels, as follows (Sadiq, 2010):

1. The overall level of the institution: where the higher management of the institution determines the strategic objectives of the institution as a whole and then determines the policies necessary to achieve them and the resources required by these policies.
2. The level of work units: where the strategic planning is done for each of the work units within the institution, and the plans here must be identical and consistent with the general plans of the institution, but they are of a more detailed nature.
3. Functional level This level deals with the functional areas of each direction of the business units, and this includes information production, marketing, distribution, information systems, and others. The plans at this level must be broad and consistent with the plans of the business units to which they belong.

IT Infrastructure

In its general concept, infrastructure is all the means, equipment, and facilities by which basic human needs can be secured. Roads, bridges, power stations, communication lines, and other examples of traditional infrastructure in any country can be considered. In the field of information technology, the concept of infrastructure includes modern communications services, satellites, Internet networks, personal computers, information centers and libraries. As well as human resources and energies with expertise and efficiency in the fields of computers, information and communications. Add to this the important role of educational institutions specialized in preparing technical staff, training and technical rehabilitation centers, and research and scientific development centers (Nazim, 2007).

The level of development of the information technology infrastructure in any country in the world can be measured using two basic methods. The first is called measuring the means, which is related to the direct study of specific characteristics or features of the infrastructure such as connection points or network type and capabilities, etc. The second method is known as the outcome measure, which is related to measuring the effectiveness or spread of services provided by the infrastructure. And if the second measurement method is suitable for the developed world countries that, in fact, have an advanced infrastructure in

the field of information technology. The first method is the most appropriate way to measure the level of development of information technology infrastructure in third world countries. Regardless of the level of advanced information technology infrastructure, it does not alone bring progress and prosperity to societies. However, it is an essential foundation for building capacities, skills and knowledge patterns. If the third world countries had done well in formulating and activating the appropriate programs and policies to invest the data of the advanced information technology infrastructure, they would be able to employ these applications in making a qualitative leap in all sectors. As good infrastructure can provide effective tools, and can have the ability to influence and change the level of development. As well as the possibility of creating new patterns of information technology applications based on the primary infrastructure, such as e-learning, e-commerce, e-government, digital libraries and national information systems (Nazim, 2007).

Information technology infrastructure is one of the key business resources for maintaining business strategies and competitive advantage. It can be viewed as IT technical resources including computers, communication technologies, shareable technology platforms and databases. It is the technological basis of computer, communications, and data platforms. Accordingly, the IT infrastructure can be classified into physical and intellectual procedural assets and IT-related assets. It represents the common technical foundations between banking units such as technical platforms at the bank level, architectures, networks and databases. While IT intellectual assets refer to knowledge and experience in information technology and technology management. IT procedural assets describe the regulations that define how other IT assets are valued, acquired, built, implemented, used, improved, and replaced (Mahmoud and Hamdan, 2020).

Capacity Building in Information Technology

The experiences of the developed world countries in building and developing their political, economic and social foundations confirm the necessity of fulfilling a number of basic conditions to achieve economic and social development. The existence of an ideal environment for the spread of information technology applications is at the forefront of these conditions. The policies of these countries in the field of building their technological capabilities were credited with achieving the required development in various sectors. These policies were based on the following matters (Nazim, 2007):

1. Rapid deployment of new technologies.
2. Providing incentives to support private companies to innovate.
3. Focus on lifelong learning and upgrading skills.

4. Continuous and safe investment in innovative inputs to enhance productivity.
5. Encouraging the initiation of the establishment of new companies based on the applications of the new technology.
6. Ensure the existence of adequate institutional structures and networks.
7. Linking science, technology and innovation policies to economic and social development goals.

The main pillars of building technological capabilities in third world countries are as follows:

1. Supporting universities and research centers in the provision of knowledge.
2. Securing cooperation programs between the private and public sector on the one hand, and universities and research centers on the other hand, for the purpose of acquiring, adapting and disseminating knowledge.
3. Human resources development and support for scientific and technical qualification programs.
4. Providing the necessary funding to meet the needs of the public and private sectors in carrying out the necessary transformation processes towards relying on information technology applications.
5. Preparing the foundations of the information technology infrastructure and working to develop it.
6. Upgrading technology promotion mechanisms by establishing joint links between research institutions and industrial institutions.
7. Facilitating technology transfer procedures by developing international cooperation with leading countries in this field.
8. Preparing scientific test sites to implement science and technology policies that require continuous evaluation and reform to maintain their effectiveness.
9. Establishing sustainable environments that encourage innovation and help implement technology projects.
10. Enact the necessary legislation and laws to secure the freedom to exchange experiences, transfer knowledge, and facilitate scientific communication between scientific elites.

ICT Components

The most important components of information and communication technology are the following (Shakir, 2013, Jassam and Ali, 2021, Abdul-Hussein, 2019, Ali and Salman, 2016, Hussein, 2020, Ali and Abdel-Jabbar, 2020, Sadiq, 2018):

1. Hardware and hardware components (computer hardware) whose guest is the process of entering, processing, storing and retrieving data and information for the purpose of performing work in the search.
2. Computer Software is a group of intangible components of a computer system. They are instructions, procedures, programs and operating systems as well as programming languages. These software perform several basic functions, the most important of which are (computer operations management, data retrieval and business application support).
3. Communications and Telecommunications Technology, which is represented in multiple physical software, which in turn connects the various sections of the devices and carries data from one site to another.
4. Databases where they are stored in different means such as hard and floppy disk drives.
5. Data, where raw materials are collected by specialists, as they have a high benefit and value by investing them in the right way.
6. Networks: It is a group of computers that are organized and linked together by lines of communication, so that their users can work on the available resources and transfer and exchange information among themselves. As well as the use of these networks in order to achieve a set of purposes such as (providing communication between people and access to information remotely, electronic commerce and others).
7. Human skills: the human cadres working in the organization, whether they are end users or specialists.

The Components of Teaching and Learning in Light of the Use of Information Technology

Among its most important components are the following (Jawad, 2020):

1. Design: a set of procedures and processes.
2. Development: converting a design specification into a physical feature.
3. Use: Presenting materials and activities to the learner.
4. Management: control of educational technologies.
5. Evaluation: The process of determining the adequacy of the teaching and learning processes (the quality of education).

The Benefits of Using Information and Communication Technology in Teaching and Learning, and the Most Important Obstacles

One of the important reasons for incorporating technology into teaching and learning is to change the way teachers teach in the classroom. Many researchers believe that the use of technology in teaching and learning has a positive impact on the educational process because it is useful and valuable to enhance the education process in schools. And thus help to change the method and style of teaching in the process of teaching and learning. The use of technology has an impact on students' achievement and motivation in the learning process. Technology has not only developed and enhanced education, but also enhanced learning assessment because assessment is an essential and important part of the educational process (Jawad, 2020).

The use of modern information technology in teaching and learning has a significant role in the development of the educational process, and we mention these advantages (Hussein and Ibrahim, 2019, Jassem and Alwan, 2008):

1. The ease of spreading knowledge by enabling students to access a variety of scientific sources regardless of where they are at school or at the university, which often reduced the dropout rate among school students and the percentage of dropping courses in universities because the courses are available online.
2. Ease of exchanging and obtaining information among students, which enriched their scientific level, increased experience, and increased the ability to accept others through collective participation in the educational process. This encourages academic cooperation at the university level, as well as opportunities to interact with professors and other students, which was not possible through one-way radio and television broadcasts. This interaction enhances the quality of education if used correctly.
3. Providing free access to and benefiting at any time and any place from learning opportunities according to the learner's ability to collect and absorb.
4. The professor was able to diversify the methods used to present information such as images, videos, animations, augmented reality technology and virtual reality, which in turn attract students' attention and facilitate their access to information.
5. Raising the level of efficiency and effectiveness of education, as it raises students' scientific levels and leads to the quality of educational outputs.

The obstacles to the use of information technology in the educational process are divided into two parts (Hussein and Ibrahim, 2019, Jawad, 2020):

First: Material obstacles, which are related to the lack of financial resources for the purchase of materials and tools necessary for educational institutions, including the lack of continuous electric power, poor Internet service, and the lack of computers in classrooms, as well as the high cost of purchasing some digital applications.

Second: human obstacles, which are related to the teacher himself, including:

1. Unwillingness to change, as many teachers believe that there is no need to change the method of teaching by using digital technical means and maintaining the usual traditional methods.
2. The lack of competitive spirit among some teachers in less developed countries, due to the limited use of digital technology.
3. Lack of confidence in the use of information technology, as well as lack of experience and fear of failure to use it if the student is more skilled than the teacher. And also, the fear of technical problems in the technical devices and the inability to treat them due to the lack of technicians in schools.

Information technology is not used as an educational tool to clarify vague concepts and difficult scientific information for the courses, but rather it is the teaching of the courses and their effective access to the students' minds. So, it is a way of thinking that can be placed as an educational system in five elements: inputs, outputs, processes, learning environment, and feedback as shown in Figure (3). And that educational attitudes also include these elements (Hussein and Ibrahim, 2019):

1. Inputs: It includes all the elements involved in the educational process, such as the student, learning resources, tools, devices, and educational materials that seek to achieve educational goals.
2. Outputs: They are a set of desired achievements and learning outcomes achieved by the system, and the outputs show the extent to which operations have succeeded in achieving goals according to specific criteria.
3. Processes: They include methods, methods and entrances that determine the nature and pattern of the actor, and clarify the relationship between the components involved in the system to process the data to reach the desired results.
4. Learning environment: It means the factors and environment surrounding the system that affect it directly or indirectly, such as natural factors and equipment such as: (electrical connections and school buildings, as well as social, educational and emotional factors).

5. Feedback: It is the information and data that results from the activities of the elements of the system that are available as a basis for making adjustments and reconciliations. It is a process through which any element is revised by identifying and strengthening the positive aspects and enhancing them and the negative aspects and modifying or changing them.

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4. Learning environment: It means the factors and environment surrounding the system that affect it directly or indirectly, such as natural factors and equipment such as: (electrical connections and school buildings, as well as social, educational and emotional factors).

5. Feedback: It is the information and data that results from the activities of the elements of the system that are available as a basis for making adjustments and reconciliations. It is a process through which any element is revised by identifying and strengthening the positive aspects and enhancing them and the negative aspects and modifying or changing them.
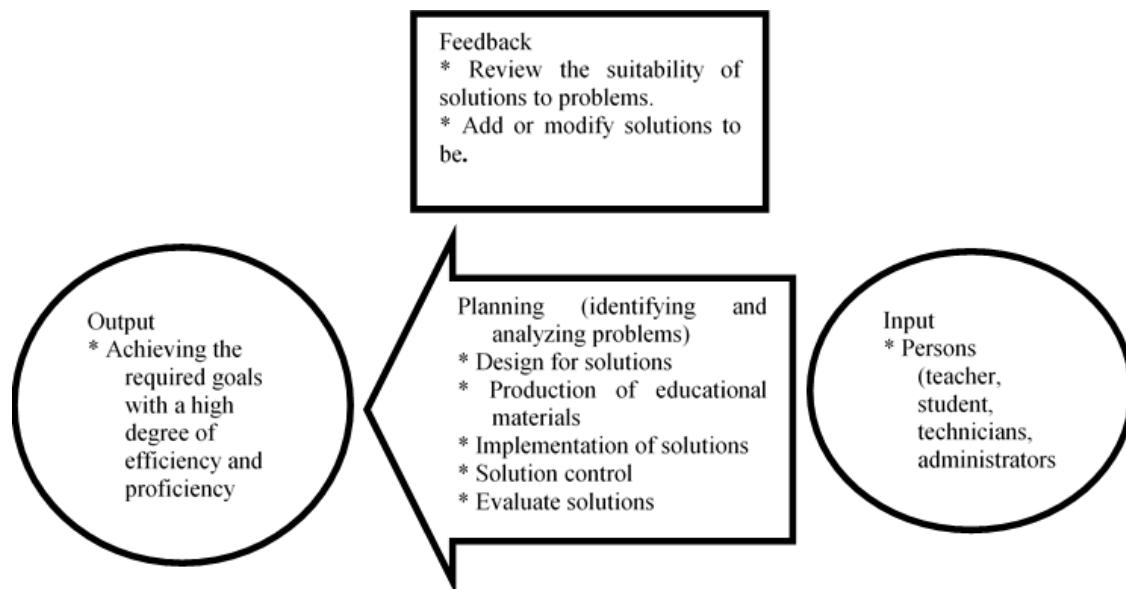

Figure 3 Education Technology System

Advantages of Using Information and Communication Technology in the Work of a University Professor

Among the most important advantages of information technology in the work of a university professor are the following (Ali and Abdel-Jabbar, 2020):

1. Improving the teaching and learning process: The field of education has been affected by information and communication technology in both teaching, learning

and scientific research processes, where the impact of ICT appeared through the following elements:

a) Curricula: Provides strong support for contemporary approaches based on skills emphasis, especially the skill of knowledge generation rather than just its transfer, competence and performance, and greater attention to how information is used and not just its content. As well as providing appropriate alternatives and various sources for difficult areas in the curricula, so that the computer has become a cognitive tool and not just a display device.

b) Teacher: Using ICT tools, teachers have been trained on collaborative projects and change strategies, which is reflected in their positive ability to design effective and meaningful learning experiences that are linked to realistic practical practices, centering the student as a partner in creating information through a stimulating, active and collaborative learning environment.

c) Teaching strategies: The flexible time space provided by integrating the curriculum with the ICT helped to increase learners' interaction with the information. Which called first trying to understand it self and then trying to communicate with others in pursuit of exchanging experiences around it, which eventually led to the emergence of new scenarios and methods of teaching ranging from forms of self- and cooperative learning such as play-based learning, inquiry-based learning, project-based learning, flipped classroom and other methods Learning for which ICT was the catalyst.

d) Student: ICT helped increase students' learning motivation and their enjoyment of the learning process based on self-inquiry, problem solving and creativity, which led to their growing acquisition of the skills they need in the future, especially the twenty-first century skills such as self-learning, self-evaluation and communication. As described by UNESCO (2007), using Web tools such as Skype, blogs, and forums to obtain information and network with other learners, teachers, schools, subject matter experts and other communities is an aspect of professional development.

2. Improving the quality of education and its accessibility: ICT allows the learner the possibility and freedom to obtain and publish information, and thus the possibility of teaching and learning wherever and whenever he wants.

3. Improving the learning environment: ICT is changing the teaching and learning processes by adding vital elements to learning environments, including:

a) Providing virtual environments and simulation systems that have supported the credibility and reliability of the learning process, especially while dealing with complex and difficult parts. Distance learning applications have also provided

permanent communication between the learner and the teacher inside and outside the classroom.

b) The multiplicity of knowledge sources, especially those based on web and multimedia, and the diversity of required and intended skills transform the learning environment into an active and stimulating environment based on open ends of learning and not just information transfer.

4. Enhancing Academic Performance Research indicates that properly integrating ICT into education can catalyze a paradigm shift in both content and pedagogy, which is at the core of education reform in the twenty-first century. A number of studies indicate that, on average, students who use ICTs have higher academic achievement than those who do not. They also take less time to learn and show a strong and positive emotional attachment to their classes.

Obstacles to the Use of Information Technology in Education

Despite the advantages of information technology in the educational process, there are some negatives in its application, including the following (Hussein and Ibrahim, 2019):

1. E-learning requires extensive effort to train teachers and students in preparation for this type of education.
2. E-learning weakens the role of the teacher as an important educational and educational influence.
3. The difficulty of collective interaction between students and between them and the professor.
4. A large number of students prefer the usual way to attend lectures and follow lessons from the textbook instead of completely relying on modern technologies, as it may cause them some anxiety and boredom, as sitting in front of the computer for long periods may be stressful for some of them.
5. The negative impact on the student's relationship with the professor, since the direct meeting between the student and the professor was sometimes replaced by the meeting via the Internet, which weakens this relationship.
6. Weak contact with students who are not experienced in using modern technology, which may vanish with the widespread use of technology.
7. Some technology is a bit expensive and not accessible to everyone.
8. The use of information technology in education may result in the spread of some negative phenomena such as cheating and plagiarism, which can increase in severity with the development of smart phone technology.
9. Internet services are still ineffective in many places in the world.

10. Using information technology effectively requires students to know how to use technology well. A study confirmed that only (40%) of students watch educational videos.

Negative Effects of Continuous Use of Information and Communication Technology

Among the most important disadvantages of information technology are the following (Ali and Abdel-Jabbar, 2020):

1. Students' lack of basic arithmetic skills because of their reliance on an electronic calculator.
2. Lack of basic skills of reading, writing and spelling due to reliance on computer applications.
3. Students have turned their focus on technology instead of science content and other social networking sites into distractions and a waste of learning time.
4. Blurring the societal cultural identity and replacing real social networks and real citizenship with virtual ones, which affects the idea of social capital.
5. Loss of privacy and leakage of private files over the Internet through spyware and hackers, especially for young people who do not feel embarrassed to send their private pictures or written texts without protection.
6. Internet addiction and excessive use of technology and social media platforms badly may lead to the risks of exposure to some social, psychological and organic diseases.
7. Scientific and research thefts via Internet sites and the spread of cutting and pasting culture without real learning or reliable research.

Conclusion

This research reached a number of results, the most important of which are:

1. Information technology is a set of modern methods and technologies used in order to simplify a specific activity and increase its capacity. It includes a group of devices that are concerned with information processing, such as computers, software, storage and retrieval equipment, electronic transmission, and others.
2. One of the most important goals of information technology is the possibility of operating several different databases, providing secure information, speeding up development of the system, shortening time and effort, and facilitating planning and control work.
3. The importance of information technology lies in several matters, including the design and development of products by adopting modern manufacturing systems,

and provides the ability to expand the activities and businesses of institutions, and enables managers to take appropriate decisions.

4. One of the most prominent advantages of information technology contributes to increasing sales and profits, and many economic units use information technology to obtain effective competitive advantages.

5. One of the most important functions of information technology is the consolidation of special records, analysis and data collection, and the implementation of simultaneous processing operations.

6. One of the most important components of information technology in education is design, development, use, management, and evaluation.

7. One of the most important benefits of using information technology in education is the ease of spreading science and knowledge through informing students of sources, exchanging information and free access to them at any time.

8. Among the most prominent obstacles to the use of information technology in the educational process are financial and human obstacles.

9. One of the most prominent advantages of using information technology for a university professor is to improve the teaching and learning process, develop curricula, develop teaching strategies, and increase the effectiveness of student motivation towards the learning process.

10. One of the most prominent negative effects of the excessive use of information technology is the students' failure to acquire arithmetic skills, reading and writing, loss of privacy and scientific and research thefts.

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