A total quality approach to university education in an information and technological age

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Abstract

With education's restrictions for centuries, it is no longer a service issue but a national security issue, and investment in people is linked to the development of the people's productive, economic, and military capabilities, and the issue has become the preparation and rehabilitation of capable youth armed with science, knowledge, and technology. This study aims to identify the requirements for the application of total quality in the university education system in light of the information and technological revolution. The qualitative analytical descriptive approach was used, the limitations of which are limited to higher education institutions. The study concluded the need for a feasible and effective educational system, centered on the student through his interaction and active participation, in which computer technologies and information and communication technology represented in local networks and the global Internet play a promising role based on the concept and philosophy of total quality in education.

Keywords: Information technology; technological revolution; total quality, university educational system.

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1. Introduction

It can be said that the form of educational institutions will be very different from what it is now, and the shape of the classroom will differ so that there will be a computer for each student, and departments in faculties will be able to contact different libraries to get what they want from references, scientific materials or educational software (Khan, Sivasubramaniam, Anand & Hysaj, 2021; Martínez et al., 2023). The usual, as it is likely to be replaced by a floppy or optical disk, and there will be a new type of teachers and students.

The importance of higher education is an issue that is no longer a matter of debate in any region of the world today. Contemporary international experiences have proven beyond any doubt that the real and even the only beginning of progress is education and that the core of the global conflict is a race to develop and improve the quality of education (Gulson & Webb, 2021; Arif et al., 2023).

Thus, the post-modern era in which we live now is characterized by many characteristics, including the information revolution, the explosion of knowledge, the rapid pace, and the shift from material investment to intellectual investment and other transformations, all of which are accompanied by enormous and continuous changes in the demands of societies, as traditional methods of education have become in need (Focacci & Perez, 2022; Reddy, Sharma & Chaudhary, 2022). To review in line with the requirements of modernity, hence the importance of developing and improving the university, increasing its effectiveness in general, and achieving the quality of the educational process in it in particular, so that we have a generation capable of competition and achieving the aspirations of its community (Gathoni & Van der Walt, 2019; Nguyen, 2023).

The concept of total quality management TQM) is a modern management philosophy based on several oriented modern management concepts on which it is based in blending basic administrative means and innovative efforts with specialized technical skills to raise the level of performance and continuous improvement and developmental quality is one of the modern concepts that emerged as a result of intense global competition between Japanese production institutions on the one hand and American and European production institutions on the other hand, at the hands of the scientist Edward Deming, who was called the father of total quality, and given the success achieved by this concept in economic, industrial, commercial and technological organizations in developed countries. The interest of educational institutions in applying the total quality approach in the field of public education to obtain a better quality of learning brings out students who can better exercise their role in community service, and the number of institutions that follow the system of total quality is constantly increasing both in America, European countries, Japan and many others. Developing countries and some Arab countries such as Saudi Arabia, Kuwait, and Egypt, which started to practice this approach in some of their educational institutions (Hammad & Al-Ani, 2021).

Total quality is among the most prevalent concepts now, for the development of work methods in various fields, and the concept of total quality in general refers to a set of standards and procedures that aim to adopt and implement to achieve the maximum degree of the desired goals of the institution and continuous improvement in performance and product according to the required purposes and the desired specifications with the best possible ways and least effort and cost, and the concept of total quality management crystallizes in the administrative methods, activities, and practices followed by those responsible for the functioning of the institution within the framework of planning, organizing, implementation, coordination, and follow-up, according to systems that lead to permanent improvement of performance and constantly maintaining the level of quality (Ye et al., 2022). Since quality is a requirement in all professions, services, and products, the need for it is more urgent in the educational process, as it is the mother of professions, and its outputs pour into the inputs of all professions' systems (Ford, 2020).

Quality has many forms and is still shrouded in some mystery. "Quality itself is a somewhat ambiguous term since it includes connotations that refer to both standards and distinctions" (Egberongbe, 2020). The definition of quality adopted by most analysts and decision-makers in higher

education is fit-for-purpose, and their defense of this definition is based on the fact that quality is meaningless except for the purpose or purpose of the product or service (Lee, 2018).

The Federal Administration Institute defines total quality management as correctly performing the right work from first sight to achieve the desired quality better and more effectively in the shortest time while relying on the evaluation of the beneficiary to know the extent to which performance has improved (Mgaiwa, 2018).

Higher Education is the highest stage of education, and it is the advanced educational efforts and programs that take place at the level of universities, colleges, institutes, and centers associated with them. Quality in higher education: It is one of the main requirements that universities are keen to achieve to obtain advanced positions within distinguished international universities, including preparing students to work on various knowledge, skills, and trends in the field of work.

1.1. The study Problem

Despite the importance of universities in advancing the process of economic and social development and their role in modernizing and developing societies, higher education has not reached the required level at which it is influential and interactive with development aspirations in all fields, as the reality of the situation indicates that higher education has failed. In producing the type of graduates required for the challenges of the world of work, and today's reputation and educational quality are always determined based on outcomes, the ranking of excellent institutions tends according to low repetition rates, high levels of graduate success, their enrollment in graduate programs and their career success.

Education in Arab countries still suffers from the predominance of quantity over quality and from a fatal inability to meet the requirements of a new era - the most important characteristic of which is the information revolution that changed production methods and patterns it is difficult to predict the number of universities that apply the principles of total quality, knowing that there are a significant number of Arab universities that have begun to take upon themselves the commitment to implement the concepts of total quality in their educational programs, policies, and objectives.

Given that our contemporary world is rife with many and complex types of challenges to improve the quality of education, so it was necessary for us to develop a new philosophy for the development of education aimed at introducing the concept of total quality and reconsidering the entire educational system and adapting it to conform to the information age for several reasons, perhaps the most important of which are (scientific challenges The technological, economic and increasing social demand for education, the need to employ available resources, achieve sustainable development and change in lifestyle, and the application of total quality in higher education has become an urgent matter in order to interact and deal efficiently with the variables of an era characterized by cognitive and technological acceleration, and the fever of conflict and competition between Individuals, groups and institutions, hence the greater goal of educational systems is not to provide education for every citizen, but to ensure that education must be provided with high quality, so this came to answer the following questions:

1 - What are the recent trends in total quality management in the field of higher education?
2- What are the requirements for the application of total quality in the university educational system?
3 - What are the quality standards in universities?
4 - What is the proposed scenario for developing and improving the components of the educational process in universities in light of total quality management and the information and technology revolution?

1.2. Purpose of study

Improving the performance of modern organizations or institutions, including universities, is a global concern in all countries of the world. In addition, the ability of any society to manage its vital institutions and programs not only effectively and efficiently, but rather with justice and innovation, is

one of the most important characteristics that distinguish any society from other societies. The importance of the current study lies in Suggesting a vision for improving the university educational system to fit with the concept of total quality management in light of the information and technological revolution; Informing decision-makers on how to improve the educational process in universities and colleges and applying total quality management; The broadening of the base of the beneficiaries of the research (students - faculty members - curriculum developers - planners for the development of higher education - decision-makers).

1.3. Objectives of the study

The study seeks to achieve the following objectives: -
1- Learn about recent trends in total quality management in the field of higher education.
2- Defines the requirements for the application of total quality in the university educational system.
3- Defines quality standards in higher education (universities and colleges).
4- Develop a proposed vision for the development and improvement of all components of the educational process in universities in the light of total quality management and the information and technology revolution.

2. Materials and Method

The researchers adopted the qualitative analytical descriptive approach, which depends on the analysis of the concept of total quality in higher education, the principles of total quality management, the requirements and standards for its use in higher education, and the development of a proposed vision for improving and developing the inputs of the university educational system to obtain the most important output of the university educational system, namely the students. All ethical measures were taken to ensure that all sources of the resources used were duly acknowledged. This study does not inflict harm on the environment or humans.

3. Results

3.1. The concept of total quality management in the field of higher education

The concept of total quality is a philosophy based on the concept of systems that looks at the organization in a comprehensive way to bring about positive and desirable changes by addressing and developing every part within the organization to reach better quality, and the term quality is basically an economic term that emerged based on industrial and technological competition between advanced industrial countries with the aim of monitoring The quality of production and gaining the confidence of the market and the buyer, and thus quality is focused on the superiority and excellence of the quality of the product in any field, and some see that total quality is a new way of thinking and looking at the institution and how to deal and work within it to reach the quality of the product; Quality is a criterion of perfection that is judged by whether we delivered what we intended to provide on time, how we decided that it suited the needs of our customers or not, whether customers or beneficiaries were happy with the product, service, or business we provided, or the way we provided By that service, or work, it can be said that we have achieved quality goals, while he sees (Moghadam et al., 2018).

Quality (according to the ISO definition) means "fulfillment of all agreed requirements to satisfy the customer, and the product is of high quality and moderate economic cost." From the perspective of the educational process, quality means: reaching a level of good performance. They represent behavioral statements that describe the learner's performance after passing through the experiences of a particular curriculum, and he is expected to meet a pre-determined level of mastery. The concept of total quality is defined as "an integrated method applied in all branches and levels of the educational district to provide workers and work teams the opportunity to satisfy the needs of students and beneficiaries of the learning process, or It is the effectiveness of achieving the best educational, research and advisory services most efficiently, the lowest costs, and the highest possible quality (Reese et al., 2021).

The concept of quality in education can also be defined as a set of conditions and specifications that must be met in the educational process to meet the needs of its beneficiaries and to prepare efficient outputs to meet the requirements of society. Based on these definitions, total quality within the educational institution includes a set of contents (Jiang et al, 2019; Yılmaz & Temizkan, 2022), the most important of which are:

- Adopting the cooperative teamwork method, and the extent to which the human element in the organization possesses capabilities, talents, and experiences.
- Ensure continuous improvement and development to improve quality.
- Reducing errors in terms of performing the correct work from the first time, leads to reducing the cost to a minimum while obtaining the satisfaction of the beneficiaries of the educational process.
- Ensure calculation of the cost of quality within the institution to include all work related to the service provided.
- A holistic approach to all areas of the educational system, such as objectives, organizational structure, work methods, motivation, motivation, and procedures.

Whatever the definitions that were exposed to the concept of total quality, they share many postulates, the most important of which are:
- Focusing on product improvement is the final output of any system.
- Total quality is a long-term philosophy and strategy that requires great effort and time to judge the extent of its success in achieving the goals.
- Total quality requires effective leaders who can innovate and effectively implement with confidence and without hesitation.
- You need to use innovative methods, generate ideas, and plan ideally to reach the optimal solution.
- You need constant training to solve problems scientifically.
- You need more effort and intense competition between organizations to reach the best product at the lowest costs to obtain consumer satisfaction.
- You need to provide an appropriate structure and approaches to the application and implementation process

Frisk et al., (2021) asserted that there are three dimensions of quality in higher education that should not be neglected:

- Academic dimension: It is the institution's adherence to professional, research, and academic standards and levels.
- Social dimension: It is the institution's commitment to satisfying the needs of the important sectors that make up the society in which it is located and serves.
- The individual dimension: It is the institution of higher education that adheres to the personal growth of students by focusing on their diverse needs.

3.2. Principles of Total Quality Management

It is an extended process that does not end, and includes every component and every individual in the organization, as it aims to include them in the continuous quality improvement system, and focuses on avoiding the occurrence of errors by ensuring that the work has been performed correctly, from the first time, to ensure the quality of the product and its continuous improvement, and it includes the management of Total Quality, in its content the following principles (Alajmi & Said Ali, 2021; Piskin et al, 2021; Lai, 2021):

3.2.1. The first principle: focus on the customer

Institutions must understand the current and future needs and expectations of their customers, and strive to achieve all expectations. The customer here means the student, the community, and the labor market that absorbs graduates.

3.2.2. The second principle: is leadership

Education leaders are interested in unifying the vision, goals, and strategies within the education system and creating the educational climate to achieve these goals at the lowest cost.

3.2.3. The third principle: is employee participation

Emphasizing the effective and equitable participation of all workers involved in education from the bottom up without discrimination, each according to his position, and with the same importance, which will lead to their full integration into the work and thus allow the use of all their potential and potential energies for the benefit of the educational institution.

3.2.4. Fourth principle: focus on the means

It is the essential difference between the concepts of total quality management and the concepts of quality assurance that focus only on the product and solving problems that appear first.

3.2.5. Fifth Principle: Making decisions based on facts

Effective decisions focus not only on collecting data, but analyzing it and drawing conclusions at the service of decision-makers.

Principle Six: Continuous Improvement: Continuous improvement must be a permanent goal for educational institutions.

The seventh principle: Independence: Total quality management depends on independence.

3.2.6. The importance of applying the principles of total quality management in higher education institutions

Organizations, including universities, information centers, and various higher education institutions, face a wave of challenges represented by low productivity, increased costs, lack of financial resources, and the adoption of ineffective methods to achieve the desired goals, as well as the low level of job satisfaction among workers. Facing and overcoming these challenges is very important, not so that these organizations, including libraries, can compete, but rather be able to survive. Therefore, it was necessary to apply the sound and comprehensive concept of quality management to improve quality levels and enable the organization to excel, by achieving several benefits. The most important of which is increasing productivity, decreasing the cost of performance, and improving the quality of the product or service that it provides to the beneficiary. However, the traditional view of the view that improving quality conflicts with increasing productivity and contributes to increased performance costs, makes many administrative organizations, including libraries, reluctance to invest in the application of The concept of total quality management, which in turn was reflected in the exacerbation of administrative problems, and both the services provided and thus the lack of satisfaction of the beneficiary with the products or services provided to him.

The concept of total quality management and its application is no longer limited to institutions and organizations that aim for material profit only, but the desire of public institutions and utilities to achieve the quality of their outputs is no less than the desire of those profit-oriented institutions, especially institutes, and universities; Achieving the goals in a good and satisfactory manner is in itself a success and a source of pride for those who did it, regardless of profit or not, and universities in all countries of the world are currently seeking renewal, development, and modernization due to the multiplicity and diversity of influences in the surrounding environment, and universities take various and multiple mechanisms to achieve this the shift.

3.3. Requirements for the application of total quality in higher education

The application of total quality needs to create basic requirements for educational institutions so that they can accept the concepts of total quality in a sound manner that can be applied in practice and not just theoretical concepts far from reality, and to translate the concepts of total quality in

educational institutions to reach the satisfaction of the internal and external beneficiary of the educational institution (Carvalho et al, 2022), and from these Requirements:

- Support and endorsement by the senior management of the total quality system to achieve the desired goals.
- Human resource development: such as teaching, developing and updating curricula, using modern teaching methods that are compatible with the variables of the modern era, adopting advanced evaluation methods, and updating organizational structures to bring about the required educational innovation.
- Participation of employees: Emphasis on the effective participation of all employees involved in education from the bottom up, without segregation, each according to his location, and with the same importance for improving the level of performance.
- Continuous education and training for all individuals.
- Identifying the needs of the internal beneficiaries, who are students, workers, and external members of the local community, and subjecting these needs to standards for measuring performance and quality.
- Effectively accustoming the educational institution to the practice of self-evaluation of performance.
- Develop an information system to gather facts to make sound decisions about any problem.
- Delegating authority is one of the important aspects of total quality management, and it is one of the implications of teamwork and collaborative work away from centralization in decision-making.
- The use of quantitative methods in decision-making increases objectivity and away from subjectivity.
- Establishing a culture of total quality among all individuals is one of the main steps for adopting total quality management, as changing the organizational principles, values , and beliefs prevailing among members of a single institution makes them belong to a new organizational culture that plays a prominent role in serving the new directives in the development and improvement of educational institutions.

The most important reasons for the increasing interest in quality higher education since the early nineties of the last century are (Kaya & et al, 2021):

- An increase in the number of students enrolled in higher education institutions around the world, especially in developing countries, and a great diversity of higher education goals, fields, programs, and patterns at a time when financial resources for various societal and economic institutions are scarce due to a deterioration in educational institutions if there is no intense focus on Ensure good quality and control.
- The growing conviction among government officials that economic success requires a well-prepared workforce and this can only be achieved through good quality education and training programs in higher education institutions.
- Increasing demands on the part of professional, cultural, and humanitarian organizations, as well as community and international bodies, to improve services provided to citizens in general and to learners at various levels in particular, and the response of governments and educational institutions to these demands.

General obstacles to the application of total quality management (Du et al, 2021) include the following:

- Lack of commitment from senior management.
- Focus on specific methods of total quality management and not on the system as a whole.
- Lack of participation of all employees in the application of total quality management.
- Training did not move to the application stage.

- Adopting methods and methods for total quality management that are not compatible with the specificity of the institution.
- Expect immediate and not long-term results.
- Resistance to change, whether from the employees or the departments, especially the trends in the middle administrations.

The desired benefits of applying the total quality management system in higher education (Gupta, 2021) are as follows:

- The vision, mission, and general objectives of the educational institution are clear and specific.
- The mission and objectives of all units in the institution are clear and specific.
- A strategic plan for educational institutions and annual plans for units are available and based on scientific foundations.
- A clear, specific, comprehensive, integrated, scientific, and stable structure of the educational institution.
- Job descriptions for each department and each employee are available and specified.
- Specific quality standards for all fields of work in universities (service, productivity, academic, administrative, financial .... etc.)
- Clear and specific practical procedures to achieve quality standards.
- Provide quality and comprehensive training appropriate for the application of quality management in educational institutions.
- Clear and defined roles in the administrative system of educational institutions.
- A noticeable increase in the motivation, affiliation, commitment, and participation of employees.
- A high level of performance for all administrators, supervisors, and workers in educational institutions.
- Provides an atmosphere of understanding, cooperation, and sound human relations between all workers in educational institutions.
- High interdependence and integration between administrators, supervisors, and workers in universities and teamwork.
- Satisfactory respect and appreciation for universities locally and globally.
- All employees possess the necessary knowledge and skills to apply TQM.
- Solving problems is continuous and continuous, and workers possess the skills necessary to solve problems in a sound scientific manner.
- The mission of the educational institution and its general objectives are well achieved.
- High-quality service and products at lower costs.
- Optimal use of communication and communication.

The process of implementing total quality management passes through five basic stages (Reese et al., 2021):

The first stage: is the stage of the administration's conviction and adoption of the total quality management philosophy: At this stage, the organization's management decides its desire to implement the total quality management system. From this point of view, senior managers in the organization begin to receive specialized training programs on the concept of the system, its importance, its requirements, and the principles on which it is based.

The second stage: is the planning stage: In it, detailed implementation plans are drawn up, and the permanent structure and resources needed to implement the system are determined.

The third stage: is the evaluation stage: the evaluation process often begins with some important questions, which, in light of the answers to them, can create the appropriate ground for starting the application of total quality management.

Fourth stage: Implementation stage: In this stage, individuals who will be entrusted with the implementation process are selected and trained on the latest training methods related to total quality management.

The fifth stage: is the stage of exchange and dissemination of experiences: At this stage, the experiences and successes achieved from the application of the total quality management system are invested.

3.4. Total Quality Standards in the University Education System

Certainly, the success of any educational and training system depends largely on its commitment to internationally agreed quality standards. Deming has developed a program to improve and apply total quality that can be suitable for all administrative organizations, including the educational system. This program consists of (14) A standard for total quality (Moghadam et al, 2018) as follows: -

- Determining objectives for the improvement and development of production.
- Adopting a philosophy of total quality and a leadership approach for the ability to change for the better.
- Improving performance and quality is the primary driver.
- Emphasis on the quality of the quality.
- Improve and adjust production and service systems while working on cost reduction.
- Training of individuals on total quality functions.
- Training leaders and helping individuals to develop performance.
- Removing fear and strengthening trust for individuals to work effectively within the organization.
- Identifying and removing work obstacles between departments within the institution.
- Reducing the use of slogans and continuous criticism without a goal creates an atmosphere of hostility between individuals.
- Establishing standards for the administration's adoption of objectives and preparing leaders to constantly exist.
- The responsibility of supervisors should be concerned with quality.
- Develop educational programs to stimulate self-improvement and raise the level.
- Putting each individual in the institution in the appropriate place and financing the individuals between the different departments to improve the work, and it is noted on the criteria mentioned by (Deming) that they are all achievable and applicable in the educational process.

The concept of quality education requires the existence of standards related to the elements of the educational process (Egberongbe, 2020), including:

- Quality standards related to the objectives.
- Curriculum quality standards.
- Quality standards for teachers.
- Quality standards for students.
- Quality standards for educational aids
- Quality standards for exercises and exercises
- Quality standards for tests and exams

Since the ultimate goal of the educational process is to prepare a learner who can learn in the future, we will present some of the educational quality standards for students in the following (Lee, 2018; Mgaiwa, 2018):

- Do students find individual support during learning?
- Are students encouraged to learn on their own?
- Are the dialogues consistent with the stages of student growth?

- Are the students followed up by the teachers and given advice and guidance to solve their personal and scientific problems?
- Is feedback provided to students on their academic progress?
- Are students provided with modern cultures of learning to follow up on their academic achievement?
- Is teamwork and team spirit among students encouraged within the college?
- Do the tests care about the different levels of students?
- The application of quality standards in learning and qualification and training of teachers to apply them during the educational process can contribute to facing the previously presented problems.

3.5. A proposed vision for developing and improving the educational system in the light of total quality management and the information and technology revolution

To improve the quality of education and its educational outcomes and to graduate educated students who enjoy the specifications of total quality in higher education, and in the light of the theoretical analysis of this study, the researchers tried to develop a proposed vision for developing and improving the educational system in the light of total quality management and the information and technology revolution to advance the educational level in all its components and to keep pace with Modern scientific development through the introduction of a package of strategies, and these strategies are as follows (Ford, 2020; Egberongbe, 2020):

Implementation of total quality objectives in the educational field includes:

- Adjusting and developing the administrative system as a result of describing the specific roles and responsibilities of each individual in the educational system, according to his abilities and level.
- Raising the students' academic, emotional, social, psychological, and educational levels as they are the most important outputs of the educational system.
- Improving the competencies of academic supervisors and raising the level of performance for all administrators through continuous training.
- Providing an atmosphere of understanding, cooperation, and human relations among all workers in the educational system.
- Developing the administrative structure of the system in a way that facilitates the learning process away from bureaucracy and allows participation in educational decision-making.
- Raising the level of awareness among students about the educational process and its objectives, while providing appropriate opportunities for self-learning more effectively.
- A holistic view of the education process in all its aspects and avoiding fragmentation among the elements of higher education, taking into account the continuous training processes for all stakeholders and participants to develop and improve to reach appropriate educational outcomes of a competitive nature.
- Increasing respect, local appreciation, and scientific recognition of educational institutions for the different services they provide to students and society by contributing to the development of the local community.

3.5.1. Develop the student's role in the teaching and learning processes and improve their participation in university life

The student is the first beneficiary and the main actor in all educational activities, providing him with the skills of self-learning and research, obtaining knowledge from multiple sources, dealing with it, and using it, in a way that provides him with the ability to deal and adapt positively and effectively with his environment and society, and enable him to understand civilizations and constructive dialogue with the other. individuals and groups.

Thus, total quality seeks to prepare students with certain characteristics that make them able to live with the abundance of information, continuous change processes, and tremendous technological progress, so that their role is not limited to transferring knowledge and listening, but in the process of dealing with this information and benefiting from it sufficiently to serve the learning process. Therefore, this stage requires "A person with certain specifications to absorb everything new and accelerated and to deal with it effectively.

3.5.2. Building new advanced curricula in their cognitive and technical aspects

So that the curricula are integrated with effective and multi-effective media and the existing textbook system is replaced by a mixture of methods that combine the book, study software, educational television, and the use of the spider web to achieve and support the sense of the importance of science and technology and the need to possess the ingredients and skills to deal with them, and the use of innovations and scientific and technological devices Such as computers and symbolic analysis tools. The quality of school curricula is the attention to its contents, clarity of purpose, feasibility, and realism in meeting the wishes of the beneficiaries (students, parents, society), which indicates the importance of elaborate planning based on quality standards, and this entails the accurate implementation of planning in the light of permanent and continuous follow-up and we emphasize in this Context It is necessary to avoid randomness and distance from individual decisions, as the quality of the curriculum in this context means "learning for the sake of mastery" (Ye et al., 2022). To achieve this, it is necessary to take into account the following:

- 1 - The curriculum starts from the philosophy of society and achieves its goals.
- Ensure the field trial of the curriculum before proceeding with its dissemination.
- Empowering teachers through teacher training on the developed curricula.
- The necessity of relying on objective assessment tools to measure the level of mastery.

This means that quality in curricula means "learning for excellence". This is because the key to creativity is excellence, and this is what we want to achieve in the era of globalization and technology.

Reasons for applying quality standards in university curricula:

- Technological development and the emergence of the knowledge society and the production and industry of knowledge.
- Taking into account (the needs of the labor market) which skill develops very quickly and which need certain skills to be achieved

Developing curricula by adopting quality standards.

- Globalization and the emergence of academic accreditation specifications that the learner must reach to continue education anywhere in the world.
- Cultural friction between different countries resulted from globalization.
- Continuous development in psychology and mental health leads to permanent and continuous change in education curricula.
- Development in the use of all methods of educational technology.

University Curriculum Quality Characteristics (Gathoni & Van der Walt, 2019; Reese et al., 2021):

- Comprehensiveness: that is, it deals with all the different aspects of curriculum construction, design, development, implementation, and evaluation.
- Objectivity: It must be present when judging the extent of the available objectives.
- Flexibility: taking into account all levels and all environments.
- Community: that is, it rises with the needs, conditions, and issues of the community.
- Continuity and development: that is, the possibility of its application and modification.
- Achieving the principle of participation in design and decision-making,

It should be noted that two documents of curriculum standards that achieve quality for curriculum and school outcomes are:

- Curriculum-related document: it includes standard levels for each component of the curriculum.
- A document specific to the learner and learning outcomes: it includes the standard levels that specify what the learner should characterize and the skills that he must develop. The two documents can be applied to our curricula at all levels of knowledge and the extent to which they observe quality standards.

Based on the foregoing, the current educational curricula, their philosophy, quantity, quality, planning, implementation, and evaluation methods must be reviewed to achieve total quality in educational institutions. So that it shifts from focusing on answering the question of what the student of today has learned to paying attention to how he learns and giving him directions for scientific and innovative thinking to keep pace with the development of the third millennium and to achieve development in human forces.

3.5.3. Updating the duties and roles of the faculty members

This enables him to use technology in a distinguished manner and to be able to play the role of supervisor and guide for the student, a producer of knowledge and a lifelong learner, given that the teacher is the essential anchor in the educational process, and accordingly his development processes represent the real entrance to the development and modernization of education. So, his role changes radically to play the role of an active mediator in the educational process to achieve the principle of total quality. We want a teacher with a variety of educational and cultural experiences, who can participate with his children in completing their readiness to deal with a completely different future from the present or the past we lived through, all of which requires preparing a different teacher and unprecedented.

3.5.4. Introducing and employing information technology in the university

The introduction of information technology in education has become a necessity in this era that is witnessing a huge technological revolution, and the first step in this direction is to design a model for a university that uses information technology effectively in all aspects of its activities because technology is not just providing and operating devices, but rather it means training on the use of this technology and its use in the educational process.

3.5.5. Using modern methods of teaching

The use of modern methods of teaching based on well-studied foundations and research-proven by experiments is an educational technology, which in its comprehensive sense includes the methods, tools, resources, devices, and organizations used in a particular educational system to achieve specific educational goals that comply with the principle of total quality. A method and method of work that proceeds in organized steps, and uses all the capabilities offered by technology according to the theories of teaching and learning.

There are six basic educational styles for the use of computers in education, (Hammad & Al-Ani, 2021; Moghadam et al, 2018; Gupta, 2021; Du et al., 2021) which are:

First: the method of individual private learning (Tutorial Mode)
Second: the method of training and practice. (Drill& practice mode)
Third, the simulation method. (Simulation Mode)
Fourth: The method of educational games. (Instructional Games Mode)
Fifth: The method of problem-solving (Problem-Solving Mode)
Sixth: The investigative method. (Inquiry Mode)

3.5.5.1. First: the method of individual private learning (Tutorial Mode)

It aims to learn through a pre-designed program similar to programmed instruction. In this type of use, the program carries out the process of teaching, meaning that the program teaches an idea or a subject. The prevailing method in this type of use is to present and explain the idea, then include some examples and sometimes the opposite examples, as well as some questions and answers.

3.5.5.2. Second: The method of training and practice (Drill & Practice Mode)

This type of computer-aided education aims to allow learners to practice mastering previously taught skills. In this type of use, the computer provides several exercises, exercises, or problems on a specific topic that has been previously studied in some way.

3.5.5.3. Third: the simulation method (Mode Simulation)

This method aims to provide models that benefit from building a realistic process by simulating that model and training on operations that are difficult to perform in actual situations. Simulation is a process of representing or creating a set of situations representing or imitating events from real life so that it is easy to display and delve into them to explore their secrets and closely identify their possible outcomes. The need for this type of program arises when it is difficult to embody a specific event in reality due to its cost or the need to perform many complex operations.

3.5.5.4. Fourth: educational games Instructional (Games Mode)

These programs deal with many topics, but in their teaching, they depend on imaginary matches that force students to compete to earn marks. To win, students must solve mathematical problems, locate points on a grid, read and interpret instructions, and analyze logical problems.

3.5.5.5. Fifthly: the method of solving problems (Problem-solving mode)

It is the situation or question that needs an answer that is not known and not ready, but rather it must go through processes and steps that begin with identifying the problem, examining it and analyzing it, and then arriving at certain results based on those steps.

3.5.5.6. Sixth: The investigative method (Inquiry Mode)

The investigative method aims to encourage learners in the field of research activities that are used to collect information and developmental abilities.

- Develop systems for admission, evaluation, and enrollment in educational stages, and the development is based on the student's abilities to learn and achieve standard levels for stages and classes in the specific fields of education.
- Activate participation between home and school in the processes of teaching and learning with students.
- The community is qualified in setting policies, following up, and evaluating the extent to which goals have been achieved.
- Building bridges between the various stages and episodes of education on the one hand, and between them and non-formal education programs.
- Education effectively contributes to human development processes and deepens its interaction with human development requirements sustainable.
- Updating the school's function and operations in a way that increases its ability to consciously and actively interact with the variables of the near and far environment, in a way that provides the student with a healthy school environment that is attractive and motivating to learn.

From all of the above, we can consider teaching methods as one of the basic components of the curriculum, because the educational goals and the content chosen by specialists in the curriculum can only be evaluated by the teacher and the methods he uses in teaching him, so teaching can be considered as a link between the student and the components of the curriculum; The method in this way includes the educational situations that take place in the classroom and organized by the teacher,

and the method he follows so that he makes these situations effective and fruitful at the same time to reach the maximum quality of the educational process. It is important to stress that the teacher is the basis, not the method is the basis. Rather, it is a method used by the teacher to communicate his information and accompanying information to the students, to make the learning environment characterized by dynamism and student-centeredness.

3.6. ISO concept

The word ISO comes from the Greek word isos), which means equality, and as a result of the complexity of the business of a global nature and the steady increase in the emphasis on quality in the markets, which led to an increasing growth in the demand for international standards as a primary option to enhance the organization's position to improve production quality. The International Organization for Standardization and Standards issued Standardization) in 1987 AD, sets of standards and specifications starting with the (ISO-9000) group of 1987 AD concerned with quality management for organizations and to be the basis when concluding commercial contracts and quality assurance to the customer (Ford, 2020; Egberongbe, 2020) and then set (ISO-9000) for the year 1994 AD, all the way to the group (ISO-9000) for the year 2000 AD, and these groups focus on achieving and dedicating quality assurance, and the application of these groups leads to multiple advantages for higher education institutions.

3.7. Expected objectives of implementing the total quality system

Lee (2018) and Mgaiwa (2018) highlighted the expected objectives of implementing the total quality system. The application of the ISO system aims to develop administrative work in universities and colleges and the development of administrative work will reflect positively on the educational process in all its aspects as a step towards quality assurance, depending on the process control, as the application of the quality system will lead to:

1- Administratively:

- Defining the goals and mission of universities and colleges clearly.
- Documenting and fixing administrative processes.
- Analysis and development of the administrative process.
- Clarify administrative procedures and clarify the different roles.
- Improving the communication process.
- Providing information and facilitating and improving the decision-making process.

2- Academically:

- Providing an appropriate environment for teaching and learning
- Improving the quality and efficiency of educational services provided.
- The tight control of educational processes.
- Increasing the teaching experience by doing the continuous audit process.

3.8. Methods of measuring total quality in higher education

Alajmi & Said Ali, (2021), Piskin et al., (2021), and Lai (2021) proposed methods of measuring total quality in higher education.

First of all, we must know that measuring quality requires:

First: Analyze the components that constitute a component of the commodity or service production system and include all human resources such as managers and all workers in the educational institution, and non-human resources such as buildings, equipment, and everything that would affect the results from individuals, policies and events, materials and components and others.

Second: Analysis of procedures or processes, which includes a set of diagnostics, technical, and administrative processes.

Third: Analyzing the results or outputs. It includes the service obtained by the client or the beneficiary, including the auditors and the community. It is measured by measuring the degree of satisfaction of the beneficiaries and the use of available means.

There is more than one method for measuring quality. Each method is based on the nature of the organization's view of the concept of total quality, and these methods include:

3.8.1. Measurement of quality in terms of operations

The field of education is characterized by the multiplicity of its operations, which led to some researchers resorting to an element of those processes. For example, those who emphasize the economics of education stress the measurement of quality through the number of learners, the ratio of teachers to learners in the educational institution, the duration of the school year, the total hours of study per day, and other This is one of the matters that approaches the input, while others resort to linking quality to operations to a large extent, taking into account the abilities of the students, their inclinations, and educational and practical activities within the institution that include skills of various types, mental, physical and social.

3.8.2. Measuring quality in terms of output

This method emphasizes the learning outcomes and outcomes and considers them a good measure of quality because it emphasizes the importance of what the student learns rather than the cost of his upbringing. Note that the outputs of higher education are many and varied, there are cognitive outputs, close outputs, distant outputs, financial and non-financial outputs, and individual and social outputs. It is considered that they neglect the outputs related to the graduate, and the weak link between the outputs and goals, and there are other measurement methods, including what is done in terms of the inputs, another is done according to the opinions of experts and another is done according to the objective characteristics.

3.9. Steps to implement total quality

The steps for implementing total quality or quality assurance are numerous and can be summarized as follows (Carvalho & et al, 2022; Lu, 2020):

- Preparing an implementation plan, reviewing the institution's activities, and work areas, and stating what must be done and what must be avoided with each step in the activity.
- Establishing administrative work rules (protocols), which are detailed and precise plans describing the administrative procedures for the work of the institution.
- Setting the required specifications, including a detailed description of the characteristics of the product or service, and their measurement.
- Setting performance standards, which are specific, precise instructions for the expected performance of employees in the institution, and in light of these standards, important inputs and the sequence of procedures necessary to reach the desired results can be known, and these results are provided that these standards are credible, reliable, and realistic Clear and in line with modern technologies and requirements.
- Dissemination of standards: meaning that they reach the target group, and make sure that they understand them, accept them, and correctly implement them. It is not important to set standards, but the important thing is to know all these standards and apply them in the field of work
- Quality control: This step is carried out by continuing to collect and analyze data on certain indicators to help managers determine the extent to which activities are implemented according to the plan, and the extent to which these activities affect the target sector.
- Identifying opportunities for improvement, and this is done by:
- Choose a service or area to focus on.
- Choosing a specific problem, or opportunities for improvement in the service.
- Determine the problem facing the achievement of quality.

- Analyze and study the problem to determine the root causes of the problem and quickly reach its solution.
- Choosing the appropriate solution to the problem and correcting it, including all possible solutions, setting criteria for choosing the best solutions, choosing a solution for implementation, and formulating the solution in a scientific manner that can be implemented, provided that the solution does not negatively affect the workers or procedures, and that it is feasible to implement and enjoys the support and support of the heads of work, and the support of the community Also.
- Implementation of the solution takes place through stages, including planning for the implementation of the solution and then implementation with specific steps, then examining the specifications of success, procedures, and types of resistance to the solution, then taking the correct measures, and then monitoring the implementation.

3.10.   Indicators of low quality in higher education institutions

Many indicators can be inferred from the low quality of the production or service establishment, including:

- Delays missed opportunities and postponement.
- Complaints are raised.
- Wastage of resources and duplication of work and directions.
- Cancellations, re-work.
- Errors in inputs or results.
- The prevalence of crisis management style.
- Overtime, and employee blame.
- bottlenecks and crises.
- Separation, resignations, and transfers.
- production slowdown.
- low morale
- Absenteeism, work disruption.
- Multiple oversight bodies and harassment Markzip.
- Retraining employees.

4. Conclusions

Based on all of the above, we can conclude that a new, more feasible, and effective educational system must be generated, centered on the student through his active interaction and participation; In it, computer technologies and information and communication technology represented in local networks and the global Internet play a promising role based on the concept and philosophy of total quality in education, as the nature of modern business requires schools to prepare students with a different set of skills other than those adopted by the old education system.

It can also be said that the form of educational institutions will be very different from what it is now, and the shape of the classroom will differ so that there will be a computer for each student, and departments in faculties will be able to contact different libraries to get what they want from references, scientific materials or educational software, and the form of the course will differ. The usual, as it is likely to be replaced by a floppy disk or an optical disk, and there will be a new type of teachers and students.

5. Recommendations

- Increasing spending on the education sector, whether through the government or aid from the local community.
- A change in the shape of the new university buildings in line with the use of modern technology.
- Try to use a computer in every classroom, preferably with a visual display device.

- The formation of a specialized device for the management of total quality in general education, and this device can apply, implement and evaluate the required educational outcomes on an ongoing basis while specifying the job of each individual in this team.
- That the education sector focuses on quality more than quantity and makes competition between educational institutions not limited to bringing the largest number of students, but rather the quality and quality of the student and his ability to bring about future development in society.
- Selecting and training effective leadership cadres in administrative work that use modern methods of communication and establishment of human relations that encourage work and increase the motivation of all individuals towards work.
- Change and improvement in academic courses are in line with the principle of quality in education in an era dominated by modern technology.
- Use of Deming's principles14) upon application as a measure of quality.

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Authorship contribution

The work was divided among the researchers as follows:
The first researcher: setting a title for the manuscript, collecting references, and using them in a theoretical framework.
The second researcher: Contribute to the improvement of the manuscript by deducing some ideas from previous studies and contributing to the development of recommendations.

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