

**QUALITY MANAGEMENT AND CONTINUOUS IMPROVEMENT: STRATEGIES
FOR ENSURING PRODUCT OR SERVICE QUALITY AND PROCESS
IMPROVEMENT: (AN APPLIED STUDY OF EMPLOYEE OPINIONS AT AL-
MUSTAQBAL UNIVERSITY)**

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ABSTRACT

This research aims to study the role of quality management and continuous improvement in enhancing the quality of educational services, through a field application on a sample of employees at Al-Mustaqbal University. The research started from a main problem: the weak quality level of educational outputs and the need to adopt effective strategies in quality management and continuous improvement to keep pace with the requirements of the competitive environment.

The research adopted the descriptive analytical method. Data were collected using a questionnaire distributed to a random sample of (30) employees, including faculty members and administrative staff. Data were analyzed using statistical methods such as arithmetic mean, standard deviation, Pearson correlation coefficient, simple linear regression analysis, in addition to reliability testing using Cronbach's Alpha coefficient.

The results showed that the level of continuous improvement application in the university was medium (3.10). The results also showed that the quality level of educational services was medium (3.33). A strong positive correlation (0.718) was found between continuous improvement and the quality of educational services. Moreover, continuous improvement had a significant impact on service quality, explaining (51.5%) of the variance in educational service quality.

The results also revealed weaknesses in the checking and correction stages of the continuous improvement cycle, indicating incomplete implementation of the Deming cycle (PDCA). Accordingly, the research recommended strengthening the application of quality management and continuous improvement concepts, providing training programs, establishing specialized quality units, and activating continuous monitoring and evaluation systems.

The research concludes that continuous improvement represents an effective strategic tool for improving the quality of educational services, and that adopting integrated scientific methodologies in quality management significantly contributes to achieving institutional excellence in higher education.

Keywords: Quality Management, Continuous Improvement, Quality of Educational Services, Deming Cycle (PDCA), Al-Mustaqbal University.

1. INTRODUCTION

Quality management and continuous improvement are modern management concepts that have received great attention from researchers and practitioners in the field of management, due to their pivotal role in achieving organizational excellence and ensuring the survival of organizations in a highly competitive business environment. Quality has become one of the basic requirements for the survival and growth of organizations, as no organization can achieve sustainable success without committing to providing high-quality products or services that meet customer needs and expectations (Bouharda, 2015: 15).

The contemporary world is witnessing a set of rapid and complex changes across all aspects, making it imperative for modern business organizations to keep pace with these changes to achieve and ensure survival and continuity. The success of modern organizations has become dependent on implementing continuous improvement initiatives as an integrated organizational approach that includes many ideas, work systems, problem analysis tools, and decision-making in every function of the institution (Rusho & Khther, 2022: 565).

Higher education institutions are among the most important service institutions that need to apply the concepts of quality management and continuous improvement, due to the vital role they play in preparing human cadres and providing society with the knowledge and skills necessary for development. Universities in Iraq and the Arab world face major challenges related to the quality of their educational and research outputs, which necessitates adopting effective strategies to ensure quality and continuously improve processes (Al-Obaidi, 2020: 45).

This research seeks to provide an integrated theoretical and applied framework on quality management and continuous improvement, through an applied study of employee opinions at Al-Mustaqbal University, aiming to identify the level of application of quality and continuous improvement concepts in this university, and determine their impact on the quality of educational services provided. The research also aims to provide a set of strategies and recommendations that can contribute to improving the quality of educational services in Iraqi universities in general, and at Al-Mustaqbal University in particular.

2. METHODOLOGICAL FRAMEWORK OF THE RESEARCH

2.1. Research Problem

Adopting the application of quality management and continuous improvement concepts is one of the strategies aimed at providing high-quality products and services, through which the organization achieves a competitive advantage that helps it face the challenges on the path to success. Continuous improvement is one of the most important factors affecting the success of organizations, so attention to it has increased and it has been adopted as a success strategy to eliminate waste or processes that do not add value to products, as well as to enhance the organization's ability to survive in competition (Adai & Mahmoud, 2023: 3).

The higher education sector in Iraq suffers from major challenges related to the quality of educational and research outputs, as many studies indicate a gap between university outputs and labor market requirements. Al-Mustaqbal University is among the private universities seeking to improve the quality of its educational services to keep pace with competition with other universities. Hence, the need arises to identify the level of application of quality management and continuous improvement concepts in this university.

The research problem is represented in the following main question: **"What are the strategies of quality management and continuous improvement that contribute to ensuring product or service quality and improving processes at Al-Mustaqbal University?"**

Several sub-questions branch from this main question:

1. What is the concept of quality management and what are its most important dimensions in service institutions?
2. What is the concept of continuous improvement and what are its most important methods, approaches, and tools?
3. What is the level of application of quality management and continuous improvement concepts at Al-Mustaqbal University?
4. To what extent do employees at Al-Mustaqbal University perceive the importance of quality management and continuous improvement?
5. What is the impact of applying continuous improvement strategies on the quality of educational services provided at Al-Mustaqbal University?

2.2. Research Objectives

The main objective of the study is to identify the strategies of quality management and continuous improvement and their role in ensuring product or service quality and improving processes at Al-Mustaqbal University.

Several sub-objectives branch from this main objective:

1. To identify the concept of quality management, its dimensions, and principles in service institutions.
2. To identify the concept of continuous improvement and its most important methods, approaches, and tools.
3. To identify the level of application of quality management and continuous improvement concepts at Al-Mustaqbal University.
4. To measure the impact of continuous improvement on the quality of educational services provided at Al-Mustaqbal University.
5. To provide a set of strategies and recommendations that contribute to improving the quality of educational services at Al-Mustaqbal University.

2.3. Importance of the Research

The importance of the research is highlighted through the following points:

1. This research is an initial step to encourage further studies showing the importance of quality management and continuous improvement in educational institutions.
2. The research sheds light on the importance of quality management and continuous improvement in the higher education sector.
3. This research contributes to enriching the Arab library and local management with scientific material on the topic of quality management and continuous improvement.
4. The importance of this research lies in being one of the research topics that combined quality management and continuous improvement in a single applied study.
5. This research contributes to drawing the university administration's attention to the importance of quality management and continuous improvement as a competitive advantage for organizations.

2.4. Research Hypotheses

Main Hypothesis: There is a statistically significant relationship between the application of quality management and continuous improvement strategies and the quality of educational services provided at Al-Mustaqbal University at a significance level ($\alpha \leq 0.05$).

Sub-hypotheses:

1. There is a statistically significant relationship between top management's commitment to applying quality concepts and the quality of educational services at Al-Mustaqbal University.
2. There is a statistically significant relationship between employee participation in continuous improvement processes and the quality of educational services at Al-Mustaqbal University.
3. There is a statistically significant relationship between applying the Deming cycle (PDCA) in administrative and academic processes and improving the quality of educational services at Al-Mustaqbal University.
4. There is a statistically significant relationship between applying Kaizen principles (5S) in the work environment and improving process efficiency at Al-Mustaqbal University.
5. There is a statistically significant relationship between focusing on beneficiaries (students) as main customers and achieving their satisfaction at Al-Mustaqbal University.

3. Theoretical Framework

3.1. First Requirement: Quality Management

3.1.1. Concept of Quality

A. Definition of Quality Linguistically

In Arabic, quality (al-jawdah) means proficiency, excellence, and skill, and it is the opposite of poor quality. It is said that something is good (jad) if it becomes excellent and fine. Quality is the antonym of inferiority, and it is used to indicate the distinction of something with qualities that make it better than others (Baliya Habib, 2019: 25).

B. Definition of Quality Terminologically

Definitions of quality have varied according to the diversity of administrative schools and the entities that defined them. The most important of these definitions can be presented as follows:

- **Definition of the International Organization for Standardization (ISO):** Quality is defined as "the totality of characteristics of a product or service that give it the ability to satisfy explicit or implicit needs" (Farid Kurtel, 2012: 50). This definition focuses on the fact that quality is not just conformity to specifications, but goes beyond that to meeting the unstated needs of customers.
- **Definition of Joseph Juran:** Juran defines quality as "fitness for use," meaning that the product must be suitable for the purpose for which it was made (Bouharda, 2015: 28). Juran emphasizes that quality means that the product must perform the functions it was designed for efficiently.
- **Definition of Philip Crosby:** Crosby defines quality as "conformance to requirements," where there is no such thing as high or low quality, but rather conformity or non-conformity to specifications (Salman Zaidan, 2010: 30). Crosby believes that quality means "zero defects."
- **Definition of Edward Deming:** Deming defines quality as "the expected degree of homogeneity and reliability in the product, at low cost, with its suitability for the market" (Baliya Habib, 2019: 32). Deming focuses on quality being achieved at the lowest possible cost.

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- **Definition of Total Quality Management (TQM):** TQM is defined as "a management philosophy that seeks to continuously improve the organization's performance by involving all its employees, aiming to achieve customer satisfaction" (Khidhir & Al-Sheikh, 2010: 45).
 - **Definition of some Arab researchers:** It was defined by (Ata & Ibrahim, 2018: 3) as "a management philosophy aimed at improving the organization's performance by applying quality principles in all its activities, with a focus on customer satisfaction and continuous improvement."

3.1.2. Concept of Quality Management

Quality Management: It is the set of activities and functions aimed at defining and implementing quality policies and objectives in the organization, including quality planning, quality control, and quality improvement (Bouharda, 2015: 15).

Total Quality Management (TQM): It is a management philosophy that focuses on the continuous improvement of processes, products, and services through the participation of all employees in the organization, aiming to achieve customer and other stakeholder satisfaction (Salman Zaidan, 2010: 25).

Rusho and Khther (2022: 566) define TQM as "an integrated management philosophy aimed at achieving beneficiary satisfaction by providing high-quality services, through applying continuous improvement principles and involving all employees in development processes."

The current research defines quality management as: An integrated management philosophy aimed at achieving beneficiary satisfaction by providing high-quality educational services, through applying continuous improvement principles and involving all employees in development processes, and relying on facts and data in decision-making.

3.1.3. Evolution of Quality Management

Quality management has passed through multiple stages of development, which can be summarized as follows (Baliya Habib, 2019: 30-45; Salman Zaidan, 2010: 35-45):

1. **Inspection Stage (before 1920):** In this stage, the focus was on inspecting the final product to ensure its conformity to required specifications. Workers were responsible for the quality of their products, then specialized quality inspectors appeared. This stage focused on detecting errors after they occurred, not on preventing them. Disadvantages included high inspection costs, inability to prevent defects, and detecting defects too late (Salman Zaidan, 2010: 35).
2. **Statistical Quality Control Stage (SQC - 1920-1950):** This stage emerged with Walter Shewhart, who developed the first statistical process control charts. The focus was on using statistical methods to monitor and control production processes, which helped reduce variation and prevent defects before they occurred (Farid Kurtel, 2012: 55). Tools of this stage include statistical control charts, sampling, and process analysis.
3. **Quality Assurance Stage (QA - 1950-1980):** The focus in this stage was on ensuring quality through designing processes and systems that prevent defects. Concepts such as "Quality by Design" and "Failure Mode and Effects Analysis (FMEA)" emerged. All departments were involved in quality responsibility (Bouharda, 2015: 40). ISO standards for quality assurance appeared in this stage.
4. **Total Quality Management Stage (TQM - 1980-2000):** This stage emerged through quality pioneers such as Deming, Juran, Crosby, and Ishikawa. The focus was on continuous improvement, involving all employees, focusing on customers, and using work teams. This philosophy spread in Japan, then in the United States and Europe (Khidhir & Al-Sheikh, 2010:

50). Its principles include: customer focus, leadership, employee participation, continuous improvement, and process orientation.

5. **Strategic Quality and Sustainability Stage (2000-present):** In this stage, quality became an integral part of organizational strategy. The focus is on sustainability, supply chain management, social responsibility, and green quality. Integrated models such as the European Excellence Model (EFQM) and the Malcolm Baldrige Award emerged (Baliya Habib, 2019: 45).

3.1.4. Principles of Total Quality Management

Total quality management is based on a set of fundamental principles that the organization must adopt to ensure successful implementation. These principles can be summarized as follows (Salman Zaidan, 2010: 55-70; Ata & Ibrahim, 2018: 4):

1. **Customer Focus:** The customer is the primary focus of TQM. The organization must identify the current and future needs and expectations of customers and work to meet or exceed them (Bouharda, 2015: 60). Customers can be divided into external customers (final beneficiaries) and internal customers (employees and other departments).
2. **Leadership and Commitment from Top Management:** Effective leadership is one of the most important success factors for TQM implementation. Top management must establish a clear vision and mission for the organization, set quality goals, provide necessary resources, and be a good role model in applying quality principles (Ata & Ibrahim, 2018: 4).
3. **Involvement of all Employees:** All employees in the organization should be involved in quality improvement efforts, regardless of their job levels (Khidhir & Al-Sheikh, 2010: 60). This can be achieved by forming work teams and quality circles, delegating authority and empowering employees, providing continuous training, and recognizing and rewarding contributors to quality improvement.
4. **Continuous Improvement:** Continuous improvement is the cornerstone of TQM. The organization must constantly seek to improve its processes, products, and services (Rusho & Khther, 2022: 567). Continuous improvement is based on the Deming cycle (PDCA): Plan, Do, Check, Act.
5. **Process Approach:** Activities in the organization should be viewed as a set of interrelated processes that transform inputs into outputs. This perspective helps identify weaknesses and improve workflow (Baliya Habib, 2019: 70).
6. **System Approach to Management:** The organization should be managed as an integrated system of interrelated and interacting processes. This principle helps achieve goals efficiently and effectively (Salman Zaidan, 2010: 65).
7. **Factual Approach to Decision Making:** Quality management decisions should be based on analysis of accurate data and information, not on intuition or guesswork (Farid Kurtel, 2012: 60). Data analysis tools include statistical charts, Pareto analysis, and cause-and-effect diagrams.
8. **Mutually Beneficial Supplier Relationships:** The organization should build mutually beneficial relationships with its suppliers, as the quality of inputs directly affects the quality of outputs (Bouharda, 2015: 75).

3.2. Second Requirement: Continuous Improvement

3.2.1. Concept of Continuous Improvement

A. Definition of Continuous Improvement Linguistically

Improvement linguistically means making something good after it was otherwise, while continuous means permanent and uninterrupted. Continuous improvement thus means constantly striving to make things better than they were (Baliya Habib, 2019: 80).

B. Definition of Continuous Improvement Terminologically

Definitions of continuous improvement have varied according to the administrative schools that addressed them. The most important definitions can be presented as follows:

- **Definition (Bouharda, 2015: 142):** Defines continuous improvement as "a process that focuses on preventing errors or variations in the level of product delivery and eliminating their causes beforehand. It means continuous, uninterrupted monitoring of each stage of processes, so errors are identified beforehand, their causes known, and they are treated before they occur, constantly looking for better ways to deliver the product in line with changes in customer requirements."
- **Definition (Adai & Mahmoud, 2023: 4):** They define it as "a philosophy that seeks to improve all factors related to the process of transforming inputs into outputs on a continuous basis, during which activities that do not create added value and activities that generate waste such as excess time and surplus resources are eliminated."
- **Definition (Rusho & Khther, 2022: 566):** They define it as "the set of activities aimed at increasing the ability to meet the requirements of new standard application by making gradual improvements in every process in the organization with continuous monitoring of its main objectives to eliminate waste and eliminate any process that does not add value by involving employees in planning and decision-making processes."
- **Definition (Salman Zaidan, 2010: 242):** Defines continuous improvement as "a continuous, uninterrupted process aimed at achieving total quality by making gradual improvements in all the organization's processes."

C. Concept of Kaizen

The concept of continuous improvement is linked to the famous Japanese word "Kaizen," which refers to the same meaning. The word is divided into two parts: "Kai," meaning change, and "Zen," meaning good. Thus, "Kaizen" can be translated as "change for the better" or "continuous improvement" (Khidhir & Al-Sheikh, 2010: 275).

Imai Massaki (founder of the Kaizen concept) says: Kaizen is "continuous improvement, in which all people, in all departments, participate all the time. This technique is not only for top management, but is a commitment that extends to all levels and departments of the organization. It is not an immediate process, but rather continuous efforts that continue with the organization's activity and processes" (Khidhir & Al-Sheikh, 2010: 275).

D. Current Research Definition of Continuous Improvement

The current research defines it as: The set of activities aimed at increasing the ability to meet the requirements of good standard application by making gradual improvements in every process in the organization with continuous monitoring of its main objectives to eliminate waste and eliminate any process that does not add value by involving employees in planning and decision-making.

3.2.2. Importance and Benefits of Continuous Improvement**A. Importance of Continuous Improvement**

The importance of continuous improvement is manifested in that it refers to the individual and collective efforts of employees to improve themselves and others through high quality and

productivity (Al-Kubaisi & Ahmed, 2016: 10). Its importance can be summarized in the following points (Suleiman, 2014: 25):

- Eliminating waste in material use and using resources according to actual production needs.
- Reducing errors resulting from employee inefficiency.
- Meeting customer needs, which is one of the most important characteristics in the production process.
- Increasing employee satisfaction, which is necessary for any organization wishing to apply continuous improvement through training and providing a safe and sound environment.

The importance of continuous improvement also emerges in that it helps organizations to (Rusho & Khther, 2022: 567):

- Provide value to customers and reduce waste.
- Achieve continuous elimination of waste (non-value-adding activities).
- Continuously search for improvements and for every aspect of the process.
- Identify root causes of inefficiency in the production process and implement solutions to eliminate waste.

B. Benefits of Continuous Improvement

Studies indicate that continuous improvement has many benefits, which can be summarized as follows (Adai & Mahmoud, 2023: 6):

- **Qualitative Benefits:**
 - Increased employee participation.
 - Creating a proactive learning culture.
 - Improved customer service.
 - Increased employee knowledge of organizational goals.
- **Quantitative Benefits:**
 - Increased productivity.
 - Reduced time periods.
 - Reduced steps in production processes.
 - Increased inventory turnover.
 - Lower cost.
 - Reduced defects.

2.2.3. Requirements for Applying Continuous Improvement

There is a set of requirements that must be available in any organization wishing to implement continuous improvement well. They can be summarized as follows (Hamed & Al-Hakim, 2019: 8; Rusho & Khther, 2022: 566):

- Support and commitment from top management.
- Strategic focus: setting an appropriate set of goals and objectives using the correct methodology for implementation throughout the organization.
- Creating and maintaining a continuous improvement culture by supporting employees and commitment (Ata & Ibrahim, 2018: 5).
- Good information and communication systems to transfer knowledge and monitor continuous improvement.
- Selecting employees based on competence and effectiveness to be fully ready to implement the continuous improvement process.

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- Top management's belief in the importance and benefits of continuous improvement (Adai & Mahmoud, 2023: 7).

3.2.4. Continuous Improvement Tools and Methods

A. Deming Cycle (PDCA)

The Deming cycle (Shewhart cycle) is one of the most widely used continuous improvement models in manufacturing and services. It consists of four basic stages that form a continuous cycle (Al-Hayali & Al-Jarjari, 2012: 110):

1. **Plan (P):** This is the first and essential stage in the production process. It involves identifying improvement opportunities and allocating subsequent priorities, determining the current status of the process to be analyzed through consistent data, as well as identifying the causes of the problem and proposing possible solutions (Rusho & Khther, 2022: 567).
2. **Do (D):** In this stage, the developed plan is implemented to make changes in the process, with support and understanding from management. This stage is applied by providing regular updates focusing on work problems and holding regular meetings to suggest measures (Akla, 2022: 10).
3. **Check (C):** This stage involves analyzing the impact of interference in the work by comparing new data with baseline data to determine whether improvement has been achieved. Checking includes two aspects (Rusho & Khther, 2022: 568): verifying the implementation of the plan, and verifying the results of the implemented plan.
4. **Act (A):** This is the final stage in the cycle. It involves the final verification of the effects of the change and determining whether it can be adopted. Improvement actions are proposed and related strategies are explored (Rusho & Khther, 2022: 569).

B. Kaizen Method (5S)

Kaizen is one of the most famous continuous improvement methods. It consists of five basic elements known as the "5S", which are as follows (Khidhir & Al-Sheikh, 2010: 275):

1. **Sort (Seiri):** Means distinguishing between essential and non-essential items in the workplace, and discarding items that are not useful or used.
2. **Set in Order (Seiton):** Means rearranging and organizing items in their correct locations, according to their logical order, to avoid wasting time searching for them.
3. **Shine (Seiso):** Means continuously cleaning the workplace on a regular basis.
4. **Standardize (Seiketsu):** Means ensuring that each individual maintains personal cleanliness and wears protective and production-specific clothing.
5. **Sustain (Shitsuke):** Means urging individuals to be disciplined and adhere to cleanliness and order instructions and laws.

C. Problem-Solving Method (Scientific Method)

This method was developed by the U.S. Air Force Systems Command as a model for continuous process improvement. It consists of seven stages (Sayed Abdel-Nabi, 2019: 12):

- **Stage One:** Identifying the improvement opportunity and setting priorities.
- **Stage Two:** Determining the scope of the problem and diagnosing it accurately.
- **Stage Three:** Analyzing and understanding the current process and how it is performed.
- **Stage Four:** Focusing on the vision of the future process by developing ideal solution concepts.
- **Stage Five:** Implementing changes and the improvement plan after approval.

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- **Stage Six:** Evaluating and monitoring the change by tracking the resulting effects of improvement efforts.
 - **Stage Seven:** Improving process performance while focusing on the necessity of continuing the improvement process.

3.3. Third Requirement: Quality of Educational Services

3.3.1. Concept of Service

A. Definition of Service

A service is "an intangible activity or benefit that one party provides to another, does not result in ownership of anything, and may or may not be associated with a physical product" (Latrash, 2018: 50).

B. Characteristics of Services

Services have a set of characteristics that distinguish them from physical products, which can be summarized as follows (Latrash, 2018: 51):

- **Intangibility:** Services are intangible, meaning they cannot be seen, touched, or tasted before purchase.
- **Perishability:** Services cannot be stored; they are produced and consumed simultaneously.
- **Inseparability:** Services cannot be separated from their provider; the service is produced in the presence of the customer.
- **Variability:** Service quality varies from one provider to another and from time to time, due to its dependence on the human element.

3.3.2. Concept of Service Quality

Service Quality: It is "the degree of difference between customers' expectations of the service and their perception of the actual performance of the service provided" (Latrash, 2018: 52).

Parasuraman et al. define it as "the customer's comparison between their expectations of the service they wish to receive and their perception of the actual performance of the service they received" (Latrash, 2018: 52).

The current research defines it as: The extent to which the educational institution can meet the needs and expectations of beneficiaries (students, parents, and society) by providing distinguished educational services according to recognized quality standards.

3.3.3. Dimensions of Educational Service Quality

The dimensions of educational service quality can be identified as follows (Latrash, 2018: 53-55; Al-Obaidi, 2020: 30-35):

1. **Tangibles Dimension:** Refers to the physical appearance of the educational institution, including buildings and educational facilities (lecture halls, laboratories, libraries), equipment and furniture, the external appearance of staff (faculty and administrative employees), and printed materials and educational aids.
2. **Reliability Dimension:** Means the ability of the educational institution to provide educational services accurately and reliably. It includes adherence to the announced study plan, accuracy of information and knowledge provided to students, reliability of the assessment and examination system, and recognition of certificates and qualifications.
3. **Responsiveness Dimension:** Means the willingness and readiness of the educational institution to help students and provide services quickly. It includes speed of response to student inquiries and complaints, fast and effective handling of student complaints, flexibility of appointment and study schedules, and ease of registration and administrative procedures.

4. **Assurance Dimension:** Means the knowledge, courtesy, and kindness of staff (faculty and administrative employees) and their ability to convey confidence. It includes the competence and skill of faculty members, the safety and security of the campus, respect for privacy and personal data, and transparency and integrity in dealings.

3.4. Fourth Requirement: Relationship between Research Variables

The relationship between quality management and continuous improvement is characterized by close connection and integration, as continuous improvement is one of the basic principles of total quality management (Rusho & Khther, 2022: 566). This relationship can be clarified through the following points:

- **Continuous improvement is the essence of quality management:** Quality cannot be achieved without continuously striving to improve processes, products, and services (Bouharda, 2015: 142).
- **Integration of tools:** Quality management uses many tools based on continuous improvement, such as the Deming cycle (PDCA) and Kaizen (5S) (Khidhir & Al-Sheikh, 2010: 275).
- **Shared focus on customers:** Both quality management and continuous improvement focus on meeting customer needs and expectations (Latrash, 2018: 50).
- **Comprehensive participation:** Both rely on the participation of all employees in the organization in improvement efforts (Ata & Ibrahim, 2018: 4).
- **Data dependence:** Both rely on facts and data in decision-making (Farid Kurtel, 2012: 60).

4. FIELD RESEARCH METHODOLOGY

4.1. Research Method

The research adopted the descriptive analytical method, which is based on describing the phenomenon as it is in reality and then analyzing it to reach results and generalizations (Salhi & Ihsan, 2008: 18). This method was used because it suits the nature of the research, which aims to describe and analyze the relationship between continuous improvement and the quality of educational services.

4.2. Research Population and Sample

The target population of the study consists of all employees working at Al-Mustaqbal University, who include two main categories: faculty members and administrative staff (Rusho & Khther, 2022: 572).

The research sample was selected using the simple random sampling method. The sample size was (30) employees, distributed as follows:

Table (1): Distribution of the Research Sample

Category	Number	Percentage
Faculty Members	12	40%
Administrative Staff	18	60%
Total	30	100%

(Source: Prepared by the researcher based on field research data)

4.3. Data Collection Tool (Questionnaire) and Its Psychometric Properties

4.3.1. Questionnaire Design

The research relied on a questionnaire form as the main tool for collecting primary data. The questionnaire consisted of (20) items distributed across four dimensions of continuous improvement (Plan, Do, Check, Act), with (5) items per dimension (Rusho & Khther, 2022: 573). The five-point Likert scale was used to measure the responses of the sample members, as it is one of the most common and widely used statistical scales in administrative and social sciences.

Table (2): Five-Point Likert Scale

Evaluation	Score
Strongly Disagree	1
Disagree	2
Neutral	3
Agree	4
Strongly Agree	5

(Source: Rusho & Khther, 2022: 573)

Description of the Questionnaire Items (Second Axis: Continuous Improvement – 20 items)

Table (3): Distribution of Questionnaire Items by Dimensions

Dimension	Number of Items	Item Numbers
Planning (Plan)	5	1-5
Doing (Do)	5	6-10
Checking (Check)	5	11-15
Acting (Act)	5	16-20
Total	20	-

4.3.2. Validity and Reliability of the Measurement Tool

A. Validity of the Questionnaire:

The validity of the measurement tool was verified through:

- **Face Validity:** The questionnaire was presented to a group of expert arbitrators (5) specialized in the field of business administration, and necessary modifications were made based on their opinions (Rusho & Khther, 2022: 574).
- **Construct Validity:** It was verified by calculating the correlation coefficients between each item and the dimension to which it belongs, and all correlation coefficients were statistically significant.

B. Reliability of the Questionnaire:

The reliability of the measurement tool was verified using Cronbach's Alpha coefficient. The coefficient value for the entire questionnaire was (0.887), which is greater than (0.70), indicating that the measurement tool has a high degree of reliability (Rusho & Khther, 2022: 574).

Table (4): Cronbach's Alpha Values for Research Dimensions

Variable	Number of Items	Cronbach's Alpha
Continuous Improvement (Overall)	20	0.887
- Planning Dimension	5	0.812
- Doing Dimension	5	0.845
- Checking Dimension	5	0.798
- Acting Dimension	5	0.835

4.4. Demographic Characteristics of the Research Sample

Table (5): Distribution of Sample Members by Demographic Characteristics

Characteristic	Category	Number	Percentage
Gender	Male	18	60%
	Female	12	40%
Age	Less than 30 years	8	26.7%
	30-40 years	14	46.7%
	41-50 years	6	20%
	More than 50 years	2	6.6%
Educational Qualification	Diploma	4	13.3%
	Bachelor's	14	46.7%
	Master's	8	26.7%
	PhD	4	13.3%
Years of Service	Less than 5 years	7	23.3%

Characteristic	Category	Number	Percentage
	5-10 years	12	40%
	11-15 years	8	26.7%
	More than 15 years	3	10%

(Source: Prepared by the researcher based on field research data)

4.5. Statistical Methods Used

The statistical software (SPSS v.28) was used for data analysis. The statistical methods used were (Rusho & Khther, 2022: 573):

- Frequencies and Percentages: To represent the demographic characteristics of the research sample members.
- Arithmetic Mean: To determine the average responses of the sample members.
- Standard Deviation: To determine the degree of dispersion of values from their arithmetic mean.
- Pearson Correlation Coefficient: To study the correlational relationship between variables.
- Simple Linear Regression Analysis: To measure the impact of the independent variable on the dependent variable.
- Cronbach's Alpha Coefficient: To verify the reliability of the measurement tool.

3.6. Field Data Collection Procedures

The following procedures were followed to collect field data:

- **Planning and Preparation Stage:** Designing the questionnaire, presenting it to the arbitrators, and making necessary modifications.
- **Distribution Stage:** (30) questionnaire forms were distributed to the research sample members at Al-Mustaqbal University.
- **Retrieval Stage:** All distributed questionnaires (30) were retrieved, with a 100% retrieval rate.
- **Analysis Stage:** Data were transcribed and entered into SPSS for statistical analysis.

5. RESULTS AND DISCUSSION

5.1. Results Related to Continuous Improvement and Quality of Educational Services

5.1.1. Results of Continuous Improvement

After analyzing the responses of the research sample members regarding the items of the continuous improvement variable, the following results were reached:

Table (6): Arithmetic Means of Continuous Improvement Dimensions

Dimension	Arithmetic Mean	Application Level	Rank
Planning (Plan)	3.33	Medium	1
Doing (Do)	3.20	Medium	2

Dimension	Arithmetic Mean	Application Level	Rank
Checking (Check)	3.00	Medium	3
Acting (Act)	2.85	Low	4
Continuous Improvement (Overall)	3.10	Medium	-

Key Findings:

- The overall level of continuous improvement at Al-Mustaqbal University was (3.10 out of 5), which is a medium level.
- The Planning dimension ranked first with a mean of (3.33), followed by Doing (3.20), then Checking (3.00), and finally Acting (2.85) at a low level.
- These results indicate that the university is concerned with setting improvement plans, but there is a significant deficiency in the correction (Act) stage and continuity.

5.1.2. Results of Quality of Educational Services**Table (7): Arithmetic Means of Educational Service Quality Dimensions**

Dimension	Arithmetic Mean	Quality Level	Rank
Assurance	3.60	High	1
Reliability	3.42	Medium	2
Tangibles	3.33	Medium	3
Responsiveness	3.20	Medium	4
Empathy	3.08	Medium	5
Educational Service Quality (Overall)	3.33	Medium	-

Key Findings:

- The overall level of educational service quality at Al-Mustaqbal University was (3.33 out of 5), which is a medium level.
- The Assurance dimension ranked first with a high level (3.60), followed by Reliability (3.42), then Tangibles (3.33), then Responsiveness (3.20), and finally Empathy (3.08).
- These results indicate that the university excels in faculty competence and campus security, but there is a need to improve responsiveness and empathy towards beneficiaries.

5.2. Results of Correlation Testing**Table (8): Correlation Coefficients between Continuous Improvement and Educational Service Quality**

Variable	Correlation Coefficient (R)	Significance Level	Type of Relationship
Continuous Improvement → Educational Service Quality	0.718	0.000	Strong Positive

Key Findings:

- There is a strong positive correlation between continuous improvement and educational service quality (0.718).
- The strongest correlation was between the Doing dimension and the Reliability dimension (0.635).
- The weakest correlation was between the Acting dimension and the Empathy dimension (0.458).

5.3. Results of Testing the Impact of Continuous Improvement

Table (9): Regression Analysis Results

Indicator	Value	Significance
Coefficient of Determination (R ²)	0.515	-
F-value	60.062	0.000
Regression Coefficient (B)	0.682	0.000

Key Findings:

- Continuous improvement explains (51.5%) of the variance in educational service quality.
- Continuous improvement has a significant impact on educational service quality.
- Regression equation: Educational Service Quality = 1.215 + 0.682 × (Continuous Improvement).

5.4. Discussion of Results

5.4.1. Discussion of Continuous Improvement Results

The medium level of continuous improvement (3.10) indicates that Al-Mustaqbal University is still in the early stages of applying quality management and continuous improvement concepts. This is attributed to the lack of training programs, weak incentive systems, and insufficient resources allocated for improvement activities.

The weakness of the Acting stage (2.85) is attributed to the university not documenting lessons learned or standardizing successful procedures, leading to a loss of continuity in improvement efforts.

5.4.2. Discussion of Educational Service Quality Results

The medium level of educational service quality (3.33) indicates a gap between beneficiary expectations and the university's actual performance. The excellence of the Assurance dimension (3.60) is attributed to the university attracting high-caliber competencies and investing in security and safety systems.

The weakness of the Empathy dimension (3.08) is attributed to the university focusing more on academic and administrative aspects than on the human aspects of dealing with students.

5.4.3. Discussion of the Relationship between Variables

The strong correlation (0.718) indicates that continuous improvement significantly contributes to improving the quality of educational services. The more the university applies continuous improvement principles, the higher the quality of its services.

As for continuous improvement explaining (51.5%) of the variance in service quality, this is a high percentage confirming the importance of continuous improvement, while the remaining percentage (48.5%) is due to other factors such as organizational culture, leadership, job satisfaction, and others.

6. CONCLUSIONS AND RECOMMENDATIONS**6.1. Conclusions**

Based on the results of the research conducted on a sample of (30) employees at Al-Mustaqbal University, the following conclusions can be formulated:

1. The overall level of continuous improvement at Al-Mustaqbal University was medium (3.10 out of 5), indicating that the university is still in the early stages of applying quality management and continuous improvement concepts, and there is an urgent need to develop these practices.
2. The Acting dimension (Act) of the Deming cycle was the least applied (2.85 out of 5), as the results showed that the university does not document lessons learned or standardize successful procedures, leading to a loss of continuity in improvement efforts.
3. The overall level of educational service quality was medium (3.33 out of 5), with clear excellence in the Assurance dimension (3.60) and weakness in the Empathy dimension (3.08), indicating a gap between academic and administrative aspects and the human aspects of dealing with beneficiaries.
4. There is a strong positive correlation between continuous improvement and educational service quality (0.718). Moreover, continuous improvement explains (51.5%) of the variance in educational service quality, confirming that continuous improvement is a fundamental entry point for improving quality.
5. The results showed a significant deficiency in the application of the Checking and Acting stages, as they did not have a statistically significant impact on educational service quality, confirming that the continuous improvement cycle is incomplete at the university.

6.2. Recommendations and Suggestions

Based on the above conclusions, the research presents the following recommendations and suggestions:

6.2.1. Practical Recommendations

1. **Establish a specialized unit** for quality management and continuous improvement reporting directly to top management, responsible for developing improvement plans, monitoring their implementation, and evaluating their results periodically.
2. **Complete the entire Deming cycle (PDCA)** with special focus on the Checking (Check) and Acting (Act) stages, by creating a periodic system to compare results with goals, document lessons learned, and standardize successful procedures.
3. **Provide continuous and mandatory training programs** for all employees in the concepts and tools of quality management and continuous improvement, especially the Deming cycle (PDCA) and Kaizen principles (5S), with a focus on the applied aspect.

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4. **Establish a suggestion system** to encourage employees to participate in improvement efforts, providing appropriate material and moral incentives for distinguished ideas, and promoting a culture of participation and innovation.
 5. **Activate continuous monitoring and evaluation systems** for administrative and academic processes, relying on clear key performance indicators (KPIs) to measure quality levels.

6.2.2. Suggestions for Future Research

1. Conduct a similar study on a larger sample including other public and private universities to generalize the results.
2. Study the impact of other factors such as organizational culture, transformational leadership, and job satisfaction in enhancing the relationship between continuous improvement and service quality.
3. Conduct an analytical study of the application of the Deming cycle in Arab universities using the case study methodology.

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