
The Reality Of Applying Management Engineering In College Of Education For Pure Sciences / Ibn Al-Haitham

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Abstract: The main objective of the research is to identify the reality of applying management engineering at Ibn al-Haitham College of Education at Baghdad University, as well as the significant differences from the perspective of the targeted sample according to gender and years of service. The researcher addressed the problem of the search as well as its importance. The researcher adopted the analytical descriptive approach by identifying the research community which consists of 55 members with senior administrative positions from Dean to an manager unit official at the college for the academic year (2019-2020). The research sample consists of 39 membrs that cover 71% of the community. The researcher has used a special search technique for the (questionnaire) consists of four fields to ensure its reliability. The theoretical aspect and previous studies on the subject were presented, besides, the researcher analyzed, discussed then submitted the results, the most important of which is that the application of management engineering in the college was of a moderate and near-weak level, while no significant differences appeared in the service variable. Differences in gender and female-favor appeared. The researcher then drew up several conclusions, recommendations, and proposals.

Keywords: management engineering, College of Education, University of Baghdad.

Research problem: The world is witnessing development and progress in economic, administrative, information, etc., as the twenty-first-century management has become an important concern for any development and progress related to peoples, individuals, or institutions.

It is necessary to look for new and modern management methods to deal with these developments and changes in the environment and society, besides, for survival, continuity, and achievement of the desired goals, educational institutions are required to pursue the implementation of modern management.

The College is one of the main pillars of the University's cultural structure and the foundation of the science, knowledge, and scientific research that feeds society, meets its needs, and contributes to its progress and development.

The efficiency of the administrative system and the availability of a highly qualified administrative group capable of modern management techniques in the intellectual and scientific development of university members. ((Al-Nayef and Al-Sharifi, 2004, p. 3) in the study of Al-Zahawi 2004).

This has made it necessary for colleges in all their scientific and administrative structures to adopt new methods that have the greatest impact in enabling these colleges to play their real role in change and development. One of the most prominent of these modern methods is the management engineering and the necessity of applying it as one of the concepts that proved its success in many university institutions.

Since the administrative reality and process at the Education college for Pure Sciences/Ibn al-Haitham is not as high as required, it follows bureaucratic methods with a traditional characteristic, and that administrative work and applications tend to be diligent management; this indicates the need to apply the re-engineering approach and method in this college. The researcher found that there was a problem with the administrative transactions in the various administrative formations of the college, which requires administrative improvements in performance and administrative work through the application of the management engineering method.

This was an obsession for the researcher to discuss this subject, which crystallized the problem of research through the next question.

What is the reality of applying the management engineering at the Faculty of Education for Pure Sciences / Ibn al-Haitham from the perspective of the targeted sample?

The importance of research: management engineering is one of the important administrative methods that help in the quality of administrative work and the administrative and educational scientific processes.

Recognizing the importance of university management in the development of administrative and academic work to keep up with the latest developments, colleges must be more advanced by using sophisticated technology and management techniques such as management engineering, which achieve the objectives of the College and university.

Many studies and research have recommended the importance of applying the principles and method of management engineering in educational reform within the educational institutions. (Thomas and Margaret, 2003) .

The colleges are the units that make up the university organization and its cornerstone, and the university can only fulfill its mission and achieve its desired goals through these faculties, which are the real acts of change and development.

Re-engineering is an important issue in the process of administrative and academic development of these faculties, as a method of administrative improvement, reducing errors and accurately assuming responsibilities, which is an important concern for those concerned in educational and university institutions in particular.

Applying and restoring management engineering at university colleges is very important and necessary especially in the Education college for Pure Sciences / Ibn Al-Haitham, since the administrative and academic work of these colleges is unavoidable work to review and improve development.

The importance of the research can be summarized by the following points:

1. This research addresses an important institution of the University, a college of Baghdad University colleges.
2. The importance of the re-engineering method for the college's administrators and academic staff.
3. This study is considered one of the first to address this method (according to the researcher's knowledge), particularly, its application at the Education college for Pure Sciences/Ibn al-Haitham.
4. It is hoped to submit a study with important results that serve the (Deanship, Scientific Departments, Administrative formations) to develop and improve the performance of the college.
5. To enrich the administrative and educational library by submitting a new study that was not discussed before (according to the researcher's knowledge).
6. The researcher's desire to employ modern management techniques in the research.
7. This research should be reflected by a new addition to the field of educational management.

Research aims: The search aims to:

1. Learn about the application of management engineering at the Education college for Pure Sciences/Ibn al-Haytham- University of Baghdad.
2. Are there statistically significant differences in the answers of the targeted samples according to (gender, years of service)?

Research limits: All the teaching staff and employees who hold administrative positions at the College (Dean, Associate Dean, Head of Department, Department Rapporteur, Division Officer, and Unit Officer) at the Education college for Pure Sciences/Ibn al-Haytham for the 2019-2020 academic year.

Terminology identification

First: The management engineering

1. (Oqaili, 2001) identified it as one of the modern radical organizational changes that organizations use to make fundamental and radical changes to their operations, methods, and procedures. (Oqaili, 2001, p.94).
2. (Al-Hammadi, 2006) defined it as a fundamental rethinking and radical redesigning of administrative processes to achieve substantial improvements. (Hammadi, 2006, p. 124).
3. (Fairchid, 2001) defines it as a technology for building an organization or its divisions to achieve a smooth workflow (Fairchid, 2001).

The researcher defines it as an application for changing and updating reality and redesigning administrative processes to achieve the fundamental improvement of the academic and administrative work of the college, which is achieved through the answers of the targeted sample to the research questionnaire prepared for this purpose.

Second: College of Education/ Ibn Al-Haytham: It is one of the oldest colleges in Iraq established in 1923 and is connected to the higher teachers' home in Iraq and has gone through several stages and developments until 1988, when the College of Education, Ibn al-Haytham, is involved in scientific study, which includes five scientific departments (Chemistry, Physics, biology, mathematics, computers). (Ibn Al Haytham College of Education Handbook, 2013, p. 1).

Theoretical background: The researcher will submit theoretical topics related to the subject matter as follows:

The concept of re-engineering: The concept of re-engineering of administrative processes emerged at the beginning of the 1990s when American researchers Hammer and Shambi wrote the term "reengineering" in their famous author (institutional reengineering).

Since then, reengineering has revolutionized modern management with its unconventional ideas, and an explicit call for a radical reconsideration of all the activities, procedures, and strategies that have been built upon by many organizations and companies operating in our business today (Lee&Dale, 1998,214-215).

The concept of management engineering has become common and is being deliberated in most institutions, especially in the United States, and sometimes called reengineering. It means the reconstruction of companies or some of their processes after their dismemberment and elimination of their functional administrations, as

engineering is concerned with processes, rather than organizations, like the process of developing the product from an idea to a model, the process of meeting the demand from receiving the request to receive the value of this order or paying for it, and the process of servicing from inquiry to solution submission (Kasasbah, 2004).

Hammer & Champpt (1993, 32) define re-engineering processes as a fundamental rethinking, radical redesign of business processes to achieve significant improvements in critical performance standards such as cost, quality, service, and speed.

Accordingly, Service or productive enterprises generally need such a method in it works in terms of redesign and radical analysis of its structure to achieve performance improvement and the desired goals.

This topic was addressed by many researchers in their definitions and description, and (Dessler, 2003) defined management engineering as a fundamental rethinking and radical redesign of operations to achieve substantial, rather than gradual, marginal improvements. (Dessler, 2003,31), besides, (Oqaili, 2001) defined it as one of the modern types of radical organizational change that all types of organizations can use to make fundamental and radical changes to their processes, methods, and procedures (Oqaili, 2001, 94).

(Al Hammadi, 2006) considers the re-engineering as one of the modern ways of managing change and development. Re-engineering depends on radical change rather than restoration. (Al Hammadi, 2006, p. 122).

As for (Boerer and Walker), they have been further expanding the concept of re-engineering by analyzing several related concepts, defining that re-engineering of management processes is one of the modern, radical organizational change methods that can be used by all types of organizations to make fundamental and radical changes to their processes, methods, and procedures. They include a number of concepts:

1. The re-engineering process starts from zero, as it is a radical redesign.
2. The re-engineering processes is not a process of restoration or reform of existing processes, but a renewal.
3. Re-engineering is a revolution to give up all the old.
4. Re-engineering processes are general, meaning that they can be applied to all types of processes and all types of organizations.
5. It is a systematic management tool based on the organizational reconstruction and based on the restructuring and design of administrative processes to achieve a substantive and ambitious development in the performance of organizations that ensures rapid performance, cost reduction, and product quality. It focuses on administrative processes, results-oriented, customer's need- focused, structuring the work based on the process as a whole, starting with questioning the legitimacy of the management process and the necessity to remain there, and is based on criticism of oversight and review activities in their large traditional form, and their high ambitions.

From the foregoing, it is clear that re-engineering is the product of several basic and important specifications for the success of any institution:

1. Focus on change for all basic enterprise processes.
2. An approach to broad change based on the enterprise's formations.
3. Try to make all processes of the organization more efficient than ever.
4. Reduce the traditional work routine.
5. Focus on examining each step or stage of processes.

Management engineering objectives: Researchers and specialists have identified a set of objectives achieved by this concept for the individual and the organization, each according to his directions (Oqaili, 2001) has defined the objectives of management engineering objectives as follows:

1. Eliminate old routine, rigid working style, and transition to freedom and flexibility.
2. Reduce the cost of performance and production.
3. The supervision over the work of individuals changed, instead they have work in which they have powers and responsibilities.
4. High-quality performance is a prominent feature.
5. Integrate and link components of a single process.
6. The management engineering redesigns the process in all its stages and steps, from its beginning to its end.
7. Fast and distinguished service.
8. It is based on information technology and decentralization in its use.
9. Management engineering seeks to consolidate integrated subtasks into a single task.
10. Delegate sufficient authority to staff to perform their duties efficiently after engineering operations.
11. Provide sufficient flexibility in the implementation of process phases and steps.
12. Designing a single operation in a way that can do more than one job.
13. Reduce audit and review times to provide faster performance.

(Oqaili, 2001, p. 6).

The re-engineering processes is particularly aimed at improving inefficient administrative processes, overall product quality, and performance to meet the variables that are taking place, reduce costs, speed of delivery, improve quality, and reduce wasted time.

(Al-Ajami, 2008) has listed the most important objectives for the restoration of management processes:

1. Make the system more competitive.
2. Improvements in administrative processes.
3. Encouragement of working people to participate in setting the organization's goals.
4. Reduce cost, increase productivity, and satisfy the needs of beneficiaries.
5. Define the future shape and framework of the management process within the Organization.
6. Merge multiple processes into one process and assign it to one person or workgroup.
7. Work and decision-making are inseparable, as the workers themselves make the decision.
8. Centralization and decentralization advantages can be combined within the education system, i.e. from centralization to decentralization within the educational system.
9. Improve data recording speed.
10. Providing electronic registration security.
11. Eliminate loss of effort, unnecessary administrative procedures, and ineffective administrative processes.
12. Moving from routine to work mechanism within the educational organization.
13. Help the high-level organizations to stay at the same level, and enabling the other organizations to be more competitive.
14. Speed of performance and product quality. (Al Ajami, 2008)

The researcher sets several goals in addition to the above achieved by the re-engineering of an institution, which are:

1. Makes a fundamental change in performance.
2. Reduce costs.
3. Help speed up achievement.
4. Works on the quality of the services and products provided.
5. Focuses on the needs of beneficiaries.
6. Enterprise's modern style is in line with developments.

The need to apply management engineering: The introduction of the reengineering has raised many disputes and controversy among specialists, including the emphasis on its application, and those who remain silent because it is a new type and style that quickly vanishes as the rest of the methods of administrative thought.

Others confirmed that the re-engineering method has served large enterprises by brainstorming a set of new and innovative ideas.

However, increasing competition, market needs, meeting the needs and requirements of work, various service and productivity institutions, including educational institutions encouraged the emergence and acceptance of the revolution launched by Hammer and Chambén in their new style of management engineering.

The structure of the work in this method, as Hammer and Shambei have pointed out, is to replace backward technology with a high-tech technology to perform the same old work, or to provide advanced methods to perform the same mistakes. (Fahd, 1998, p.63)

The results of a global survey involving a large number of executives in global corporations showed that management engineering or reengineering was on the list of efforts by different organizations to address changes.

Hammer and Shambei, 1995 indicate the different types of institutions that will need to re-engineer processes:

First: Organizations with a deteriorating situation

These low-performance organizations, which suffer from high operating costs and low quality of their products, have no competitiveness and high profits, such organizations need to re-engineer to address their problems and return to brilliance.

Second: Organizations that will be deteriorated

Organizations that have not yet deteriorated, but there are strong indications that they are on their way to decline, such as a declining market share in favor of competitors, gradual increases in operating and production costs, declining stock value and lower profits. These organizations that struggle to survive, cannot keep pace with development and competition will inevitably need to re-engineering processes to regain their market position.

Third: Outstanding organizations that have reached the peak of excellence and success

They are organizations that have no problems at all, there are strong indicators that they control the market, have a very high share compared to competitors, experience a gradual rise in their profits, shares, and market share, have no increase in operating costs, or have a lower quality of their services and products, these organizations need re-engineering processes so they can stay at the top and keep the gap between them and their competitors. (Hammer and Champaign, 1995, p.20)

The educational institutions need to implement reengineering more than the productive institutions, as they have direct contact with the individual and society.

Application of reengineering in the educational sector:

The Arab Human Development Report (2002), entitled "Quality of Education", referred to the need to adopt a modern and comprehensive management system in education, to raise the level of education and its output by bringing about a comprehensive and continuous change in the mechanisms of work and the quality of services provided by Arab educational institutions. The report also showed that there are many indications that the internal efficiency of education in the Arab world is decreasing, which is reflected in the high rate of classroom repetition at schools, thus, waste of time, money, and effort. The report shows showed that the most worrying aspect of the education crisis in the Arab world is the inability of education to provide development requirements of Arab societies (Jarad, 2003).

It is worth mentioning that attention has recently be paid to the re-engineering in educational institutions, as a distinct administrative approach capable of meeting the surrounding challenges and developments and capable of achieving the desired objectives.

Previous studies: the researcher will submit previous studies as much as they relate to the subject matter, according to their timeline, as follows:

1. **(Thomas and Margret,2003) study**

(Application of the principles of re-engineering in primary and secondary education in Singapore)

The study aims at identifying the principles and application of reengineering in the process of reforming Singapore's primary and secondary education system using information and communication technology (ICT) and distance education. The research community included primary and secondary schools, the research was conducted in (125) schools, (77) of which are primary schools, and (48) are high schools. The researchers concluded the following:

- The application of management engineering required various radical changes.
- Increased attention to primary and secondary education in terms of increasing education technology.
- Management engineering is a necessary model of application for educational reform (Thomas and Margret, 2003).

2. **(Al-Harhi, 2007) study**

(The possibility of using reengineering method in Colleges of Education for Girls in the Kingdom of Saudi Arabia)

The study was intended to identify the possibility of using the reengineering technique as a new approach and concept that contributes to reducing costs in university institutions, such as Colleges of Education in Saudi Arabia. The research community has included all Colleges of Education for Girls, which is (37) colleges in the Kingdom for the academic year (2006-2007), the targeted sample was selected randomly by selecting (12) Colleges of Education for Girls. The researcher prepared and developed a proposed model for reengineering processes that reduce costs in higher education institutions, especially in Colleges of Education for Girls. The researcher reached a number of results, the most important of which are: the proposed model for reengineering processes in all Colleges of Education for Girls will achieve a cost reduction annually, and the application of the management engineering curriculum will make the colleges mentioned different from those currently. (Al-Harith, 2007).

3. **(Mustafa, 2008) study**

(The reality and requirements of applying the concept of re-engineering in Egyptian university education)

The study aimed at identifying the reality of Egyptian university education and indicating the extent to which the concept of re-engineering can be applied in Egyptian university education institutions. The researcher has developed a proposed model for the reengineering method in Egyptian university education, where a methodology called (Project process Engineering) was used, it reshapes and updates the old educational structure according to the reengineering method. The researcher submitted previous studies and relied on them in his research methodology to develop his proposed model. The study has come up with the following results:

- There is a large number of experts and consultants in various disciplines in Egyptian education colleges who are considered strengths of these institutions.
- Lack of comprehensive visibility in universities in addition to the lack of availability characteristics, skills, and outputs of the educational system which represented weaknesses to the educational institutions in Egyptian University.

4. **(Bani Issa, 2009) study**

(The possibility of educational faculties in Jordanian universities to apply the reengineering process and application obstacles)

The study aimed to identify the possibility of implementing the reengineering process in Colleges of Education in Jordan and the obstacles of application from the point of view of the faculty deans and department heads, where the

research community included all the deans and heads of departments in the Faculties of Education. The targeted sample was surveyed and covered (47) deans and department heads. The researcher prepared a (questionnaire) to collect data to achieve the research objectives. After conducting the survey, the researcher reached the following results: the possibility of applying the reengineering by the deans of these colleges in the value system field came first, and the field of value system has been very high. (Bani Issa, 2009).

5. (Aoun, 2011) study

(The impact of the reengineering on the development of university education in light of academic accreditation in Saudi Arabia)

The study aimed at identifying the impact of the concept of re-engineering on the development of university education from the perspective of graduates of the Faculty of Education of King Saud University in Saudi Arabia, besides, identify the relationship between the concept of management engineering and graduates consent with the quality of the college's output and the extent to which it is compatible with labor market needs. The targeted samples were (50) graduates of the Faculty of Education (2010-2011) at King Saud University in Riyadh. The sample was chosen randomly, the researcher used the questionnaire as a tool for obtaining data. The study concluded a set of findings:

- The concept of re-engineering has an important role in the quality of university education.
- Re-engineering increases the productivity and efficiency of faculty members. (Aoun, 2011)

6. (Turkey, 2016) study

(Management Development at Baghdad University using Management Engineering)

The study aims at building a model for administrative development in the management engineering, also, identify the reality of the administrative processes in Baghdad University as well as developing a future vision of the University's management development. The research surveyed the deans of colleges and higher institutes at Baghdad University, their assistants as well as the heads of scientific departments, the managers of research centers and faculty members for the academic year (2014-2015). The research community included (2,482 individuals), the targeted samples were selected randomly of (380) individuals. Moreover, the researcher conducted two questionnaires for data and information collection. The study has come up with the following results:

- The need to use management engineering in the university's administrative organizational structure.
- The university and its colleges need training programs in line with modern management methods and techniques. (Turkey, 2016)

Research procedures and methodology: The researcher carried out several procedures as describing the research community, characteristics, sample research, how to conduct the research as well as indicating the validity and stability of the tools used and the implementation mechanism as follows:

First: Research methodology: the research has been based on the descriptive analytical approach to achieving objectives. It is one of the most common and widespread approaches to human research, which is based on the description of the phenomenon, data collection, tabulation, analysis, and identification of the relationship between its components and extract conclusions and interpretations (Abbas, 1996, p. 22).

Second: the research community

The research community is composed of the 55 teaching staff who hold administrative positions in the various departments and administrative structures of the college of Education for Pure Science/Ibn Al Haytham for the Academic 2019-2020, as (Dean, Associate Dean, department head, department Rapporteur, division officer, unit officer), where the number of males was (27), and females were (28). The number of those who have more than 10 years of service were (29). On the other hand, those who have less than 10 years of service were (26), as explained in table (1)

Table (1), the research community by gender and service

No.	Position	Number	Males	Females	More than 10 years	Less than 10 years
1.	dean	1	1	-	1	-
2.	Associate Dean	3	3	-	2	1
3.	Head of Department	5	4	1	4	1
4.	department Rapporteur	5	4	1	4	1
5.	division officer	13	8	5	4	9
6.	unit officer	28	8	20	14	14
Total		55	28	27	29	26

Third Characteristics of the research community:

1. The teaching staff of the Faculty of Education for purely Sciences/Ibn Al Haitham.
2. Those who hold administrative positions in the college from the dean to the administrative unit.
3. Years of service (more than 10 years / less than 10 years).
4. Male / female.

Fourth: research targeted sample

The next step after selecting the research community is to select the targeted sample which is an important step that should be taken when the researcher starts identifying the research's problems and objectives (Obeidat, 2001, p.92).

The research sample was selected randomly with (39) individuals in the aforementioned college, where the percentage was about (71%) of the research community. Males represented (21) individuals and females (18) individuals. The targeted sample included (17) individuals who have more than 10 years of service, and (22) individuals who have less than 10 years of service which is acceptable for the implementation of the survey. Table (2) indicates the targeted sample.

Table (2) shows the percentage of the males, females, and service years of the targeted sample

Gender	Number	Percentage	Service	Number	Percentage
Male	21	%54	More than 10	17	%44
Females	18	%46	Less than 10	22	%56
Total	39	%100	Total	39	%100

Fifth: the research tool: The current nature of research requires the preparation of a research tool which is the (questionnaire) to identify the reality of applying the management engineering technique in the Faculty of Education for purely Science/Ibn Al Haytham, where the researcher used his tool according to set of steps:

1. To be familiar with the previous researches and studies related to the research subject, especially those related to the concept of management engineering and its applications.
2. Reference should be made to the public administration and the field of educational administration as well recommendations of conferences and symposia on management development and modern management techniques such as the management engineering approach in terms of organizational structure, application mechanisms and constraints as well as the processes, procedures, and applications of information technology and the required output in terms of the submitted quality.
3. Meeting with a number of specialists, stakeholders, and officials in the educational institutions, including deans, assistants, and department heads to come up with several observations and indicators that help to draw a real picture of reality.
4. To be involved with a number of questionnaires and tools that have been adopted by researchers and studies related to the research subject to identify the existing fields, axes, and paragraphs and how to utilize these tools to help and support the research.

Thus, the researcher produced several paragraphs within the fields and concluded (38) paragraphs distributed among four fields (organizational structure, procedures, and processes, information technology, provided quality standards), which represent the most important basis of the management engineering technique to formulate the questionnaire in its initial form as indicated in the table (3).

Table (3) shows the questionnaire's paragraphs, their fields, and their initial form

No.	Fields	Paragraphs numbers	Percentage
1.	Organizational structure	10	%26
2.	Procedures and processes	10	%26
3.	Information Technology	9	%24
4.	Provided quality standards	9	%24
Total		38	% 100

After the paragraphs have been drafted, the researcher set three levels for the availability (large, medium, small) per paragraph corresponding to (1, 2, 3) respectively.

Six: the tool's validity: validity is important while carrying out the questionnaire, besides, the questionnaire should be characterized by reliability to be more objective, accurate, and useful (Al-Zahir, and others, 1999, p. 132).

Also, the researcher submitted the questionnaire to a group of experts and specialists in public administration and educational administration, who were (7), and after surveying their opinions and ideas regarding the paragraphs of the (questionnaire) and its fields, the paragraphs that obtained an acceptance rate of 80 percent or more have been

adopted. The experts and specialists modified, deleted, and added, and amended the questionnaire linguistically and scientifically. Finally, the questionnaire's final form included 29 paragraphs.

Seventh: the tool's stability: to obtain a tool capable of collecting accurate and clear information, the tool must provide relatively stable answers, stability is a requirement for the necessary research conditions. The researcher exited stability by dividing into parts, where he classified the paragraphs of the questionnaire into two categories, single paragraphs, and even paragraphs. The stability that is measured by this method is called the partition method or the internal stability method (Al-Dulaimi and Al-Mahdawi, 2005, p. 135). The tool stability factor (questionnaire) for the management engineering application is at 0.87 and is, therefore, acceptable.

Eighth: Application: after testing the validity and stability of the questionnaire and verifying all the procedures, the questionnaire is ready to be carried out. The questionnaire was implemented on the research community member of (55) individuals, however, the researcher received only (39) completed questionnaires, which consists (71%) of the research community, the implementation period lasts for (15) days.

Submission and discussion of the findings: The researcher will submit the findings, interpret them as well as submitting conclusions, recommendations, and proposals for the research.

The first objective: related to (identifying the application of management engineering at the Faculty of Education for Pure Sciences / Ibn Al-Haytham), the researcher will verify the first objective according to the fields, where he depends on the arithmetic mean and standard deviation. The tool for identifying the reality of applying management engineering has been applied to the research sample that consists of (39) faculty members and employees who occupy administrative positions at colleges, starting from the dean to the unit official. In general terms, it is clear that the grades for the targeted sample ranged between an arithmetic mean of (117,903) and a standard deviation of (118,130) degrees. Thus, when comparing the arithmetic mean of the responses of the targeted sample with the hypothetical mean which is (120), using the T-test of the research sample, it turns out that the calculated T value of (1,993) is less than the tabular T value which is (2) with (37) degree of freedom and a level of significance (0.05), which indicates that the reality of applying management engineering in the College of Education for Pure Sciences / Ibn Al-Haitham, is less than the middle, or weak. Table (4) confirms that.

Table (4) shows the calculated and tabular T value and the arithmetic mean of the application of management engineering

No.	arithmetic mean	hypothetical mean	standard deviation	Freedom degree	T-value		Significance level
					calculated	tabular	
39	117,903	120	118,130	37	1,993	2	Statistical function

Regarding the level of the tool and the calculation of fields to achieve the objective of the research according to the table (5), which shows that the arithmetic averages and standard deviations of the four fields of the tool by which the fields are arranged in descending order, where the arithmetic averages ranged between (1.82-1.94) and a standard deviation (0.61 - 0.68) degrees as shown in Table (5)

Table (5) indicates the arithmetic averages and the standard deviation for the fields of management engineering application

No.	Rank	Fields	Paragraphs numbers	arithmetic mean	standard deviation
2	1	Processes and procedures	8	1,94	0,68
1	2	Organizational structure	7	1,90	0,67
4	3	Provided quality standards	7	1,87	0,66
3	4	Information and communication technology	7	1.82	0,61
Overall rate			29	1,88	65,5

From the table above, it is clear that the field of (processes and procedures) ranked first according to the fields in the tool with an arithmetic mean of (1.94) and a standard deviation of (0.68), while the field of (Organizational Structure) ranked second with an arithmetic average (1, 90) with a standard deviation (0.67). The third place was for the field (provided quality standards) with arithmetic mean (1.87) and a standard deviation (0.66), and the fourth and last rank was for the field (information and communication technology) with an arithmetic average (1.82) with a standard deviation (0.61), while the overall average for the tool's fields whose paragraphs (29) with arithmetic mean (1.88) and a standard deviation of (65.5). It is a lower rate than the calculated average for the degree of the answer alternatives which is (2). Below that is considered medium level and closer to the weak, as these results indicate the

application of the concept of management engineering in the College of Education for Pure Sciences / Ibn Al-Haytham is weak and that the administrative and structural procedures and processes, quality standards, services provided, and technology applications in terms of communication and information do not rise to embodiment and application of this modern management concept, and it does not live up to the required ambition.

The second objective: To identify individual differences of statistical significance in the application of management engineering at the Faculty of Education for Pure Sciences / Ibn Al-Haytham according to (gender, years of service).

- The gender variable (male-female): The research sample included all the teaching staff and employees holding administrative positions in the college from both genders, with 21 males and 18 females as the arithmetic mean of the male sample was (122,357) with a standard deviation (18,682), while the arithmetic mean of the female sample was (128,684) and a standard deviation (24,094). This result indicates that there are statistically significant differences for the sex variable in favor of the females in the research sample, and Table (6) illustrates that.

Table (6) arithmetic mean, standard deviation, and the calculated and tabular T-value of the gender variable.

Gender	Number	arithmetic mean	standard deviation	T-value	
				calculated	tabular
Male	21	122,357	18,683	2,418	2
Female	18	128,684	24,094		

The researchers believe that the variation in the answers of the research sample in the sex variable for the favor of females is due to the awareness of the females of the research sample of the importance of the role they play and that they are keen to perform duties and work accurately and modernly according to the modern administrative concepts, especially the concept and method of management engineering.

- **Years of service variable (more than ten years - less than ten years):** The researcher calculated the reality of applying management engineering at the Faculty of Education for Pure Sciences/Ibn al-Haytham and according to the years of services variable. The number of the targeted sample within (more than 10 years) category were (17), with arithmetic mean (124,730) and a standard deviation (16,641), while the targeted sample within (less than 10 years) category were (22), with arithmetic mean (130,085) and a standard deviation (27,898). By using the T-test for two independent samples in the statistical treatment, it was found that the calculated T value is (0.896), which is less than the tabular value which is (2). This result indicates that there was no statistically significant differences can be attributed to the variable of years of service among the targeted samples in the application of the management engineering method, as indicated in table (7).

Table (7) the arithmetic mean, standard deviation, and the calculated and tabular T-value of the years of service variable

Gender	Number	arithmetic mean	standard deviation	T-value	
				calculated	tabular
Male	17	124,730	16,641	0,896	2
Female	22	130,085	27,898		

The researcher believes that the lack of statistically significant differences in the application of management engineering is since all the employees of these positions, whether teaching staff or employees have had previous experience in administrative and academic work and that they equally value these management concepts, particularly the concept of management engineering and its applications. This result has shown that the years of service have not affected the application of this concept.

Conclusions

The researcher drew the following conclusions:

1. Weak degree in the application of the management engineering technique in the formation of the Faculty of Education for Pure Sciences/Ibn Al-Haytham.
2. The results showed that those in managerial positions at the Faculty of Education for Pure Sciences/Ibn Al-Haytham do not understand the importance of the concept of management engineering.
3. The results showed no significant individual differences in the years of service for the targeted sample on the application of the management engineering technique.
4. The results indicate that females are more serious in applying the concept of management engineering at the college.

5. The current reality does not encourage the application of management engineering at colleges for the time being.

Recommendations

1. The need to involve senior management leaders in training courses in modern management concepts.
2. Provide the right physical, human and infrastructure resources for the implementation of modern management concepts such as management engineering and electronic governance.
3. Utilizing the search results to employ them to modify the course and procedures of administrative work in the college as future feedback.
4. Promote a culture of management engineering among workers, middle and lower administrations to be more widespread in the college.

Proposals

1. Conduct a study to identify the reality of applying the management engineering technique in Colleges of Baghdad University.
2. Conducting a study to build a proposed model for management engineering at Iraqi universities that simulates the reality of these colleges and universities.
3. Conducting a comparative study for the application of management engineering at corresponding colleges or other universities such as Baghdad University and Al-Mustansiriya.

References:

1. Bani Issa, Haitham (2009), The extent to which the faculty of education deans in Jordanian universities can apply the administrative capacity process and its constraints from the dean and department heads viewpoint, (Unpublished thesis), Yarmouk University, Irbid, Jordan.
2. Turkey, Muthanna Ismail (2016), Model of Management Development at the University of Baghdad using management engineering method, Unpublished Thesis, University of Baghdad / College of Education for Pure Sciences / Ibn Al-Haitham.
3. Jarad, Alaa Karim (2003) Quality of Education Why? How? Internet link.
4. Al-Harathi, Suad (2007), reducing costs in higher education institutions by following the method of administrative processes engineering, Riyadh, Arab Education Library for the Gulf States.
5. Al-Hammadi Ali (2006), the Road to Excellence, Amman, Dar Ibn Hazm, pp. 124-127.
6. College of Education Guide for Pure Sciences / Ibn Al-Haitham, (2013), University of Baghdad.
7. Al-Dulaimi, Ihsan and Al-Mahdawi, Adnan (2005), Measurement and Evaluation in the Educational Process, 2nd Edition, Ahmad Al-Dabbagh Office for Printing - Baghdad / Iraq.
8. Al-Zahir, Zakaria, and others (1999), Principles of Measurement and Evaluation in Education, House of Culture Library for Publishing and Distribution, Amman - Jordan.
9. Abbas, Faisal (1996) Psychological tests, their techniques and procedures, 1st Edition, Arab Thought House, Beirut - Lebanon.
10. Obaidat, Salman Ahmad (2001) Educational Measurement and Evaluation, 1st Edition, Cooperative Press Workers Association, Amman - Jordan.
11. Al-Ajmi, Muhammad Hussein (2008), Strategies for Self-Management for School and Classroom, Amman, Dar Al-Masirah for Publishing and Distribution.
12. Oqaili, Omar Waheed, (2001), Introduction to Integrated Methodology for Total Quality Management, Wael Publishing and Distribution House, Amman - Jordan.
13. Aoun, Wafa (2011), The Impact of the Ability to Develop University Education Outcomes from the Perspective of Female Education Graduates of King Saud University, Saudi Women's Education Conference, and Muhammad bin Saud Islamic University, Riyadh.
14. Fahd Bin Saleh Sultan (1998), Re-engineering processes, a radical shift in management concepts and technology, Riyadh, Khaled Press, p. 63.
15. Michael Hammer, James Champy (1995), Re-engineering work systems in organizations, an explicit call for the new administrative revolution, translated by Shams al-Din Othman, first edition, Cairo, The Arab Company for Scientific Information, p. 20.
16. Mustafa, Youssef Abdel-Moati (2008), Educational Administration, New Entrances to a New World, Cairo, Arab Thought House.

Foreign references

1. Dissler, Gray, (2003), "Human **resource management**", 9th edition, New Jersey, prentice. - Hall.
2. Fairchild, a **management guide for the 21st century, computer technology Research Corporation**, p.3.

3. Hammer, M.& Champy , J,(1993) "**re-engineering the corporation – Amanifesto for business revolution**", Nicholas Brealey , London.
4. Lee, R.G & Dale, B.G, (1998), "**Business process management: a review and evaluation**" Business process management journal, vol.4 No.3: 214-225.
5. Poirier, Charles & malker, Ian, (2005), "**Business process management applied to create the value managed enterprise**", J.Ross publishing Inc, U.S.A.
6. Thomas T & Margaret T, (2003), "**using business process reengineering principle in educational reform.**"