

Simulate the Role of the Principles of Total Quality Management (TQM) in Enhancing the Participation of Workers / Applied Study

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Abstract

The study aims to simulate the role of the principles of TQM, (Top management support, customer focus, process management, continuous improvement, Relationship with Suppliers, training and learning) in enhancing the participation of workers (Suggestion Programs, Financial Participation, Self – Management Team, Quality Circles, Representation In The Board Of Directors, Joint Decision – Making), in the company of food industries / sugar refinery. The method was used in a way simulation Monte Carlo data all the paragraphs of the questionnaire form the main and sub-which has been designed strictly through Delphi scenarios based on a number of experts with competence, According to the five-Likert scale. The study tried to answer a number of questions, the most important ones being (Is there a relationship between the principles of TQM and participation of workers?, Is there the effect of the principles of TQM in enhancing the participation of workers?). The study reached a number of conclusions, the most important (There is a strong correlation relationship between the principles of TQM and workers participation), (The existence of a significant influence relationship between the principles of TQM and workers participation). The most important recommendations were (The need to give the management of the company more attention to focus on the customer because of this dimension of importance in expressing understanding of the needs of current and future customers and work to meet and seek to overcome them), (The need to give the management of the company more attention to the extent of financial participation of its influence in raising the morale of workers and improve their performance through the material returns they receive, which are outside the scope of salaries and wages).

Keywords: Principles of Total Quality Management (TQM), workers Participation, Simulation, Delphi Scenarios.

1. Introduction

Human resources (workers) occupy an advanced position in the management of organizations, Whatever levels of science and technology and their applications, The human factor remains the decisive factor in the successes of business organizations, The task of finding and maintaining human resources and their participation in work is one of the challenges faced by organizations today. The adoption of modern methods of work is primarily aimed at achieving a high level of quality for the product or service provided by the organization, In such a way as to secure the means of competition and influence in the environment and thus stay, Among what it takes to achieve that instill a culture of participation among workers.

This study represents an attempt to demonstrate the application of the principles of TQM and its role in enhancing the participation of workers, TQM is one of the important topics that have received great attention in the modern business environment, They are applied in many organizations, In order to improve and develop its products and services, Help meet challenges, And earn customer satisfaction, As well as the great challenge facing the world today under the framework of globalization has led to increased global competition, Companies were not only concerned with local competition but had to be aware of the risk of global competition in light of the wide spread of global markets, free trade and the emergence of multinational corporations.

2 - Methodology of the study:

2.1 - Problem of the study: The problem of the study is reflected in the answer to the following questions:

- A. How much understanding of the company's management of the principles of TQM?
- B. To what extent the company applies the principles of TQM?
- C. Is there a relationship between the principles of TQM and workers participation?
- D. Is there an impact of TQM principles in enhancing the participation of workers?

2.2 - The importance of the study: The importance of the study is reflected in the light of the following points:

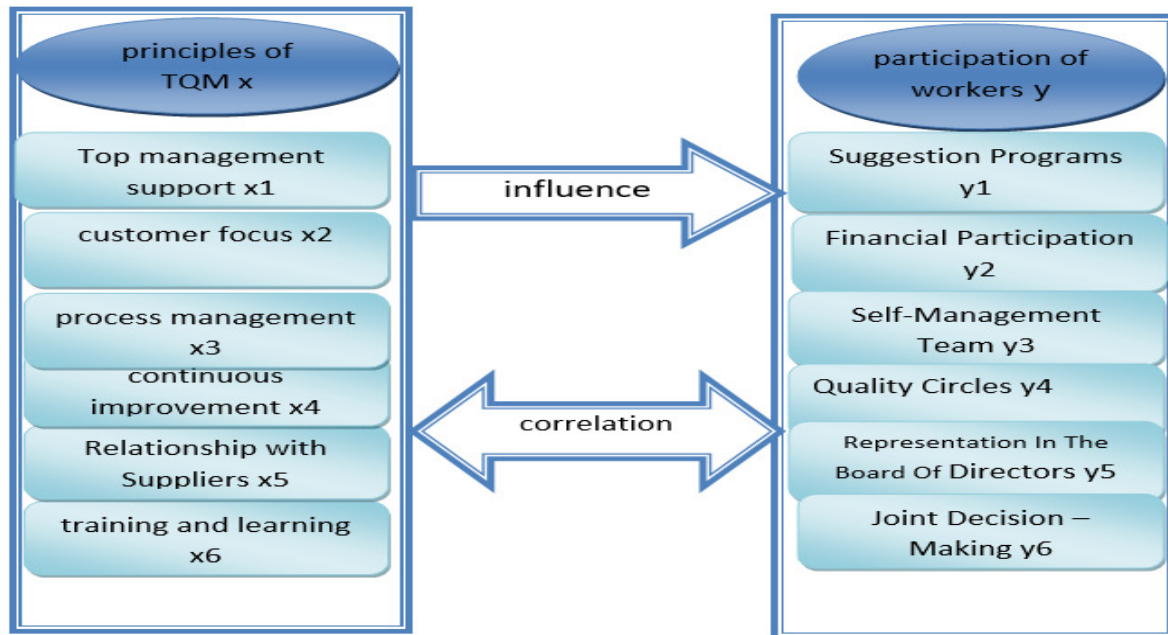
- A. The company helps in understanding how to apply the principles of TQM, The managers of departments and divisions in the company can use the results of this study to apply the principles of TQM and its role in enhancing the participation of workers.
- B. The importance of the two variables of research (principles of TQM and workers participation) because they have an impact on the performance of the company and achieve its objectives.
- C. The attention of the modern departments to address the principles of TQM and its role in enhancing the

participation of workers, which contributes to increasing the ability of companies to strengthen their competitive position in the local and global market, and to meet the current challenges.

2.3 - Objectives of the study: The study seeks to achieve a number of goals:

- A. Identify the extent of the application of the principles of TQM in the company.
- B. Diagnose and analyze the application of TQM principles and their role in enhancing workers participation.
- C. To reach the relationship and impact results between the principles of TQM and workers participation.
- C. Adoption of important proposals and recommendations in light of the results of the field realities can be used in the future of the company.

2.4 - The outline of the study:



Form (1) The outline of the study

Source: Preparation of the Researchers based on the variables of the study.

3-Literature review:

3.1 - Principles of Total Quality Management(TQM) :

A. TQM concept: TQM is one of the most prominent intellectual and philosophical concepts that has attracted wide attention by researchers, administrators and academics who are particularly interested in developing and improving production or service performance in various organizations (Azher & et al: 2013:2). We will discuss the most important concepts of TQM by presenting the definitions of researchers and specialists in Table (2):

Table (2)

The concept of TQM according to the opinion of some researchers

S	the source	Definition of Total Quality Management
1	Zakuan & et al: 2012 : 20	Integrated management philosophy concerned with the composition of a deep culture of quality and control, Its axes consist of technical and social systems and administrative processes that are based on the needs of the client and the other parties concerned with the organization to create the appropriate atmosphere and build the organizational culture that makes the organization a suitable land for applying this philosophy.
2	Heizer & Render: 2014: 198	Organization management of the whole in order to achieve excellence in all aspects of work through the provision of goods and services that are necessary for the customer.
3	Varma: 2015 : 32	Each step in production Include the entire organization from supplier to customer,
4	Alimohammadlou & Eslamloo: 2016: 105	A holistic management approach that attempts to sustain sustained improvement in the overall performance of the organization.

Source: Preparation of the Researchers based on the sources contained therein.

B.Principles of Total Quality Management:

1-Top management support: Without this commitment and support, Total Quality Management will not achieve the desired success (Dahlgaard & et al: 2007: 17), Sees (Slack & et al: 2010: 506) The attribution of senior management beyond the mere allocation of resources for the program, Such as setting priorities for the whole of the organization and starting their commitment to implementation.

2- customer focus: Customer focus is the core of TQM concept, Here, we must take into consideration that the quality of products are what the customer thinks, Not what we think (Luburic: 2014: 68).

3- process management: The philosophy of TQM emphasizes the need for processes designed to meet quality requirements, from necessary These operations are important, essential and committed (Jorgensen& Nielsen: 2013:18).

4- continuous improvement: It is a wheel for the organizational vehicle It is the effort produced by the wheels that make the vehicle moving forward (Zakuan & et al: 2012: 27).

5- Relationship with Suppliers: That an average of 40% of the cost of a product or service is due to purchased materials or the cost of obtaining information, Therefore, a large part of the quality problems are caused by the supplier, The organization must therefore partner with suppliers To achieve the success of quality improvement (Besterfield: 2009: 51).

6- training and learning: workers training and learning is a fundamental principle of TQM It represents the best ways to improve the level of individuals (Goetsch & Davis: 2006:14).

3.2-workers participation:

A. workers participation concept: The development of human resources management in the last few decades emphasizes the direct relationship between the management and its workers , And the participation of workers is the way to deal with them to meet their interests and thus the interests of the Organization (Mchunu: 2012: 61), We will discuss the most important concepts of participation of workers by presenting the definitions of researchers and specialists in table (3):

Table (3)
The workers participation concept according to the opinion of some researchers

S	the source	Definition of workers participation
1	Farnham: 2003: 440	Individual or collective arrangements through which managers and individuals working directly or with their representatives negotiate for things that benefit both parties.
2	Wegge & et al: 2010: 162	A comprehensive term referring to the regular participation of workers in decision-making, It means sharing power, influence and responsibility between management and workers, or groups of workers, Or participating bodies at the career level.
3	Owolabi&Abdul-Hamed: 2011:9	The extent to which employees contribute to express their views in the strategic structure of the organization.
4	Sofjanova & Chatleska: 2013: 31	The process of involvement and empowerment of workers to use inputs towards achieving the highest individual and organizational performance, And the participation of workers in decision-making and problem-solving, And increased independence in the work procedures.

Source: Preparation of the Researchers based on the sources contained therein.

B.workers Participation Methods:

1- Suggestion Programs: It is one of the methods of workers participation, Under this method, workers are invited to make suggestions regarding improvement of work, And how to avoid accidents and hygiene and so forth (Sheik: 2009: 199).

2- Financial Participation: Financial participation refers to the ways in which workers can Participation of financial results or ownership in the organization (Kassler: 2010: 341), This means that workers have a financial stake in the organization.

3- Self-Management Team: Are groups of interrelated workers Who have collective authority and responsibility In the management and performance of relatively complete tasks to achieve the objectives of the group (De Jong & et al: 2004: 20), (Eseryel & Eseryel: 2013: 103), (Ferguson: 2014: 51).

4- Quality Circles: Is one of the most widespread scientific methods To achieve a greater recovery of human resources This is due to remarkable results that can be obtained from teamwork, Be set up Quality Circles To improve overall activity and production capacity in particular (Blaga & Jozsef: 2014: 145).

5- Representation In The Board Of Directors: It is one of the methods of workers participation According to which one or two representatives of workers are nominated to the Board of Directors. And that the basic idea behind representation in the board of directors Is to involvement workers into the organization ,maintain the benefit of workers ,Industrial harmony and good relations between management and workers (Khanka: 2009: 221).

6- Joint Decision – Making: Participation in decision-making refers to the participation of workers in decision-

making Which was the responsibility of the manager or employer (Wickramasinghe & Wickramasinghe: 2011: 821).

4-Applied side

4.1 This study was applied in the company of food industries / sugar refinery, On the administrative leadership within the factory (Higher Management, Heads and sections And units In the company in question), The questionnaire was distributed to the intended sample Amounted to (45) respondents, Forty (40) questionnaires were recovered and analyzed. The recovery rate was 88%.

4.2 - Formulation of the questionnaire form through Delphi scenarios:

The questionnaire formed the baseline source Which was adopted by researchers in obtaining information related to the applied side, Where the researchers developed them, relying on some previous studies, It has been taken into account in the drafting of this form Simplicity and clarity in the diagnosis of study variables, In order to obtain more accurate data regarding the dependent variable (Principles of TQM) and Relationship and impact on the independent variable (workers Participation) A Delphi Scenarios was used.

first round: To obtain study data, the questionnaire form should be designed after the maximum amount of information has been identified Depending on the relevant sources of the study, For the purpose of achieving the accuracy Delphi scenario Expert opinions were taken from universities Kufa, Karbala and Babil, who numbered 12 experts To determine the sub-dimensions of TQM principles And sub-dimensions of workers participation. Are they six dimensions, seven or eight dimensions, Is the meter used five or seven or eleven.

Second round: The questionnaire is designed on the basis of what has been obtained from experts, Was the agreement on the sub- dimensions, Six dimensions to the principles of Total Quality Management And six dimensions for employee participation.

Third Round: In this round, the questionnaire questionnaire was redistributed to a number of experts, in which the sub-dimensions of the principles of TQM and workers participation were modified, We have thus obtained the questionnaire in its final form.

4.3 - Hypothesis of the study

1. There is a significant correlation between the principles of TQM and the participation of workers in indicators.
- 2 - There is a significant impact of the principles of TQM in the participation of workers with indicators.

4.4 - Test the first hypothesis of the study:

For the purpose of giving a precise decision on the validity of the first hypothesis of the study (**There is a significant correlation between the principles of TQM and the participation of workers in indicators**) Must for researchers tested sub-hypotheses emanating from it and as follows:

Table (4) Estimation of correlation coefficients relationships Between the principles of TQM and employee participation

Dimensions of the ependent variable principles of TQM	Indicators Independent variable	
	Employee participation In their indicators	
	r	Z
Top management support	0.50	3.12
customer focus	0.52	3.24
process management	0.51	3.18
continuous improvement	0.46	2.87
Relationship with Suppliers	0.63	3.93
training and learning	0.49	3.05
Z= 1.96 the level tabular		0.01
		n=40

Source: Preparation of researchers based on the statistical program SPSS.V.17

It is seen from the table (4) the following:

1 - a medium and positive correlation relationship Between the Top management support and the participation of workers in its indicators, As the value of the correlation coefficient (0.50) It is an medium value Reflect a positive relationship of statistical significance at the level of confidence (99%), Is a relationship Significant As the value of (Z) calculated (3.12), Which is greater than its tabular value (1.96) at a significant level (0.01).

2- a medium and positive correlation relationship Between customer Focus and workers participation with its indicators, As the value of the correlation coefficient (0.52) It is an medium value Reflect a positive relationship of statistical significance at the level of confidence (99%), Is a relationship Significant As the value of (Z) calculated (3.24), Which is greater than its tabular value (1.96) at a significant level (0.01).

3- a medium and positive correlation relationship Between process Management and the workers participation of

with its indicators, As the value of the correlation coefficient (0.51) It is an medium value Reflect a positive relationship of statistical significance at the level of confidence (99%), Is a relationship Significant As the value of (Z) calculated (3.18), Which is greater than its tabular value (1.96) at a significant level (0.01).

4- a Weak and positive correlation relationship Between continuous improvement and workers participation with its indicators, As the value of the correlation coefficient (0.46) It is an Weak value Reflect a Weak positive relationship of statistical significance at the level of confidence (99%), Is a relationship Significant As the value of (Z) calculated (2.87), Which is greater than its tabular value (1.96) at a significant level (0.01).

5- a medium and positive correlation relationship Between the relationship with suppliers and the workers participation in its indicators, As the value of the correlation coefficient (0.63)) It is an medium value Reflect a positive relationship of statistical significance at the level of confidence (99%), Is a relationship Significant As the value of (Z) calculated (3.93), Which is greater than its tabular value (1.96) at a significant level (0.01).

6- a Weak and positive correlation relationship Between training and learning and workers participation with its indicators, As the value of the correlation coefficient (0.49) It is an Weak value Reflect a Weak positive relationship of statistical significance at the level of confidence (99%), Is a relationship Significant As the value of (Z) calculated (3.05), Which is greater than its tabular value (1.96) at a significant level (0.01).

For the purpose of giving a precise decision on the validity of the first hypothesis of the study (**There is a significant correlation between the principles of TQM and the participation of workers in indicators**). Table (5) indicates the correlation relationship results Between the principles of TQM (x) and the participation of workers (y), With the value (Z) calculated.

Table (5) Results of correlation relationship between the principles of TQM (x) and the participation of workers (y)

Independent variable	workers participation y		Value (Z) Tabulated
principles of TQM x	r	z	1.96
	0.72	4.49	
n=40		the level tabular	0.01

Source: Preparation of researchers based on the statistical program SPSS.V.17

It is clear through the final results in Table (5) That there is a strong and positive correlation Between the principles of TQM and workers participation It was the correlation coefficient (0.72) It reflects the high value A positive correlation relationship Statistically significant confidence level (99%), The calculated (Z) value of (4.49) Greater than the value of (Z) of the tabular (1.96) at a significant level (0.01). Any increase in the company's interest in the study sample with the principles of TQM will have a positive impact on workers participation.

Based on the above, the first hypothesis is accepted which states (There is a significant correlation between the principles of TQM and the participation of workers in indicators).

4.5 Test the second hypothesis of the study:

(There is a significant impact of the principles of TQM in the participation of workers with indicators). In the light of this hypothesis, a dialectic relationship was forged Between the real value of the variable (Y) workers participation And the principles of TQM (X) The regression equation was as follows:

Table (6) Estimating the parameters of the simple linear regression model To measure the impact of the principles of TQM in the of workers participation

Dimensions	Constant	principles of TQM x	Value(t)		Interpretation coefficient R ²
	A		B	calculated	
workers participation y	0.314	0.923	6.55	2.42	0.53
n=40		the level tabular			0.01

Source: Preparation of researchers based on the statistical program SPSS.V.17

Is evident from the table results (6) as follows:

The value of (T) calculated (6.55) Which is larger than the tabular value of (2.42) At a level of significance (0.01) This shows the regression coefficient (B = 0.923) At the moral level mentioned, A change of one unit Of the principles of total quality management affects the participation of employees by (0.923), This means that the simple linear regression model is proven. Accordingly, the principles of TQM (X) With a significant indication of the impact of the workers participation (Y). The value of interpretation coefficient reached (R²) (0.53), This demonstrates that the principles of TQM (X) explains the percentage of (53%) Of changes in workers participation (Y). The remaining percentage goes back to the contribution of other variables outside of the current study.

Table (7) the effect of each variable of variables Principles of TQM in workers Participation

Dimensions	Constant	workers participation B	Value(t)		R ²
			calculated	tabular	
Top management support	1.43	0.59	3.60	2.42	0.25
customer focus	1.67	0.56	3.17	2.42	0.27
process management	1.56	0.55	3.67	2.42	0.26
continuous improvement	1.51	0.57	3.18	2.42	0.21
Relationship with Suppliers	1.52	0.57	4.95	2.42	0.39
training and learning	1.22	0.71	3.41	2.42	0.24
n=40			the level tabular 0.01		

Source: Preparation of researchers based on the statistical program SPSS.V.17

Is evident from the table results (7) as follows:

The values of (T) calculated for the variables (Top management support, customer focus, process management, continuous improvement, Relationship with Suppliers, training and learning) Respectively (3.60 ,3.17 ,3.67 , 3.18 ,4.95 ,3.41) It is bigger than Tabulated value of (2.42) This indicates the Proven Regression coefficients, In other words, A change of one unit of the principles of TQM affects workers participation such (0.59 ,0.56 ,0.55 , 0.57 ,0.57 ,0.71) Respectively, Accordingly, all principles of TQM have a significant impact on workers participation, Amounted to Interpretation coefficient values (R2) Principles of TQM (Top management support, customer focus, process management, continuous improvement, Relationship with Suppliers, training and learning) Respectively (0.25 ,0.27 ,0.26 ,0.21 ,0.39 ,0.24) This means that these variables are interpreted The percentage (%24 ,%39 ,%21 ,%26 ,%27 ,%25) Respectively of changes Occur on workers participation, The remaining percentage goes back to the contribution of other variables outside of the current study.

Based on the above, the second hypothesis is accepted which states (There is a significant impact of the principles of TQM in the participation of workers with indicators).

4.6-Factor Analysis Component:

Table (8) Component Matrix

Component Matrix ^a	
Component	
1	
.948	Top management support
.858	customer focus
.968	process management
.927	continuous improvement
.933	Relationship with Suppliers
.785	training and learning
Extraction Method: Principal Component Analysis.	

Source: Preparation of researchers based on the statistical program SPSS.V.17

The results of Table (8) show the following:

Results of the extraction of vehicles according to the method of analysis of basic compounds, Where only one compound was extraction and the values of the variables variables on the compound as in the table, According to standard (Stevens : 1996) Convulsions greater than 0.50 Are fundamental and therefore reflect the importance of these dimensions In the study of the variable principles of TQM.

Table (9) Component Matrix

Component Matrix ^a	
Component	
1	
.817	Suggestion Programs
.763	Financial Participation
.855	Self – Management Team
.790	Quality Circles
.847	Representation In The Board Of Directors
.885	Joint Decision – Making
Extraction Method: Principal Component Analysis.	

Source: Preparation of researchers based on the statistical program SPSS.V.17

The results of Table (9) show the following:

Results of the extraction of vehicles according to the method of analysis of basic compounds, Where only one

compound was extraction and the values of the variables variables on the compound as in the table, According to standard (Stevens : 1996) Convulsions greater than 0.50 Are fundamental and therefore reflect the importance of these dimensions In the study of the variable workers participation.

4.7-simulation

Simulation is a natural and logical extension of analytical methods in all sciences. The simulation method is the language of the age because it helps researchers in the study The simulation is similar to the laboratory of researchers where the researcher generates data (views) After designing and building the study questionnaire, They are very useful if the requested data are not available Or the impossibility of obtaining them or to be of high cost Where data can be obtained close to reality (Obeidi, 2000).

Stages of the simulation experience:

The simulation program was written using the Excel program:

- (A) By give an order Ran – between (Randomized between)
- (B) Determine the minimum value of frequencies and the maximum value of frequencies.
- (C) choos the size of the sample, as (n = 197).
- (D) Data generation stage, It is one of the important stages on which the calculation of important standards depends, At this stage, the data (views) are generated for all sections of the questionnaire form that was previously designed according to the five- Likert scale for the sample size (n = 40).

Simulation results:

The use of simulation method has shown to generate data (views) On Questionnaire paragraphs size (n = 197) The arithmetic mean of each paragraph was calculated Of the main and sub-questionnaire sections.

Table (10) shows the arithmetic mean of the sample generated

	principles of TQM							workers participation						
	X1	X2	X3	X4	X5	X6	x	Y1	Y2	Y3	Y4	Y5	Y6	y
average	3.30	3.28	3.35	3.35	3.26	3.26	3.29	3.28	3.40	3.36	3.50	3.20	3.32	3.32

Source: Preparation of researchers according to the results of the computer using the Excel program.

The results of Table (10) show the following:

Reached the arithmetic mean to principles of TQM (X) (3.29) Which is higher than the default medium, (3), This indicates that the data are homogeneous, The sample assigns considerable attention to the variable of TQM principles Which reflected positively on the research sample answers.

Reached the arithmetic mean to Top management support (X1) (3.30) Which is higher than the default medium, This shows that the overall quality management in the company surveyed You enjoy, to a certain extent, senior management support. As well Reached the arithmetic mean to customer focus (X2)(3.28) Which is higher than the default medium, This shows that the company is fairly focused on the customer. Reached the arithmetic mean to process management (x3) (3.35) Which is higher than the default medium, This indicates that the leaders in the company are interested in managing the process To reduce the chances of loss, which is reflected positively on the process. Reached the arithmetic mean to continuous improvement (X4) (3.35) Which is higher than the default medium, This shows that the company is interested in continuous improvement considerable attention. Reached the arithmetic mean to Relationship with Suppliers (X5) (3.26) Which is higher than the default medium, This shows that the company is interested in Relationship with Suppliers considerable attention. Reached the arithmetic mean to training and learning (x6) (3.26) Which is higher than the default medium, This shows that the company is interested in training and learning

Reached the arithmetic mean to workers participation (y) (3.32) Which is higher than the default medium, (3), This indicates that the workers enjoy somewhat participation.

Reached the arithmetic mean to Suggestion Programs (y1) (3.28) Which is higher than the default medium, This indicates that the sample members of the study Have the right to make suggestions regarding the improvement of the work. Reached the arithmetic mean to Financial Participation (y2) (3.40) Which is higher than the default medium, This indicates that workers receive financial returns as a result of their performance in the company Which are outside the scope of salaries and wages. Reached the arithmetic mean to Self – Management Team (y3) (3.36) Which is higher than the default medium, This shows that the company fairly pays attention to the self-management teams. Reached the arithmetic mean to Quality Circles (y4) (3.50) Which is higher than the default medium, This shows that the company fairly pays attention to the Quality Circles. Reached the arithmetic mean to Representation In The Board Of Directors (y5) (3.20) Which is higher than the default medium, This shows that the company to some extent allow workers to representation in the Board of Directors. Finally Reached the arithmetic mean to Joint Decision – Making (y6) (3.32) Which is higher than the default medium, This shows that the company allows fairly to the workers to participate in decision-making.

5. Conclusions and recommendations:

Conclusions

1. The simulation results achieved good ratios for all Paragraphs the main and sub-, This indicates the awareness of all members of the sample to importance of the principles of TQM and its ability to enhance workers participation.
2. The results of the final simulation reflected the views of the administrative leaders (research sample), And that the highest percentage achieved by the principle of process management and continuous improvement of the principles of TQM, And the highest percentage achieved after the Quality Circles for the workers participation.
3. The analysis showed a strong correlation between the principles of TQM and workers participation, The greater the interest in applying TQM principles, the greater the workers participation.
4. The analysis showed an impact relationship between the TQM principles and workers participation, This means that the principles of TQM affect In enhancing the workers participation in the company in question.
5. Management of the company does not adopt the questionnaire To know customer opinions about product quality.
6. The management of the company does not compare itself With competing organizations to improve their products compared to them, This is important not only to gain a competitive position within the country but also to compete globally.
7. The management of the company does not allow workers to buy shares in the company, This may be important in increasing the sense of affiliation of workers of the company Increasing their loyalty and working to make this company a success.
8. The management of the company does not grant workers the authority to correct mistakes Concerning their work without the need to obtain approvals.
9. The company's management does not allow involvement of all administrative levels in the decision-making process.

Recommendations

1. It is important that the management of the company give more attention to focus on the customer because this dimension is important in expressing understanding of the needs of current and future customers and work to meet them and seek to overcome them.
2. It is important to give the company's management more attention to the financial participation of its influence in raising the morale of workers and improve their performance through the material returns they receive, which are outside the scope of salaries and wages.
3. It is important that the management of the company adopts the questionnaire method to know the opinions of customers about the quality of products, Which is important so that you can know what customers want about the quality of products and work to achieve their desires.
4. the need to compare the management of the company itself with competing organizations to improve their products compared to them, For the purpose of global competition, This may lead to the opening of markets outside the country and the marketing of its products globally.
5. the need to allow the company management for workers to buy shares in the company, And this cycle leads to raise the morale of the workers and increase the satisfaction of workers about the company.
6. The company's management should grant employees the authority to correct errors Concerning their work without the need to obtain approvals, Because they are the closest to work and the ability to correct mistakes that concern their work without reference to obtain approvals, which leads to the rapid completion of the work.
7. It is important that all administrative levels participate in the decision-making process, This may be important because each administrative level has information and perspectives that may be important in the decision-making process to make the decision-making process an integrated one.

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