The impact of conducting a short-term improvement process on TQM practices implementation, customers' satisfaction and loyalty

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Abstract: Total quality management (TQM) can be defined as the agreed company-wide and plant-wide operating work structure, documented in effective, integrated technical and managerial procedures, for guiding the co-ordinated actions of the people; the machines, and the information of the company and plant in the best and most practical ways to assure customer quality satisfaction and economical costs of quality. Total quality management (TQM) has become popular in the hospitality industry. Many organizations working in the field of hospitality industry have already realized that their only way of surviving in today's competitive global market is to become a successful "total quality management organization. The aim of this part of the research is to re-test the validity of the introduced theoretical model in the first part of the research, the validity of such a model can provide guidance for managers, decision makers and quality practitioners aiming to implement TQM in 5-stars hotels business to achieve their long and/or short - terms quality goals, the hotel that was selected to conduct the TQM practices improvement process in the third part of the research , was re-used as a case study for primary data collection, the statistical package for social science (SPSS) approach was used for hypotheses testing, Furthermore, a future scope is also presented at the end of this part of the research.

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1-INTRODUCTION

Total quality management (TQM) is a management philosophy that help managing organizations to improve its overall performance and effectiveness in achieving quality status at global level (Zhang et al,. 200; Yusof and Aspinwall, 1999; Arumugam et al,. 2008). Voluminous work has been done and still been undertaken on TQM practices and business performance in the service sector. Many empirical studies have reported strong and positive results on the link between TQM practices and quality performance (Lakhal et al., 2006; Prajogo and Sohal, 2003; Fryer et al., 2007; Samat et al., 2006; Wali et al., 2003; Kaynak, 2003; Powell, 1995; Hafeez et al., 2006; Mellahi and Eyuboglu, 2001). The goal of the whole research with its various parts was to empirically assure the direct and strong relationship between a carefully selected TQM practices (CSFs) and the organization performance and its impact on acquiring and sustaining customer's loyalty.

For so, in the first part of this research see (Walid Montasser & Abd Alhakim Almanhawi, IJSER magazine, volume 4, issue 2, February edition), the researcher conducted a pilot study in five well known quality – oriented 5 – stars Egyptians hotels, the aim of this study was to try to benefit from the quality management experience possessed by these hotels managers particularly in the field of TQM practices and applications to help in identifying the TQM critical success factors with the greater direct and positive effect on 5-stars hotels performance using service quality as a performance indicator , and as a result a constructed theoretical model and a set of four main hypotheses and 20 sub-hypotheses were introduced, in the second part of the research see (Walid Montasser & Abd Alhakim Almanhawi, IJSER magazine, volume 4, issue 4, April edition),the researcher statistically tested the proposed hypotheses in part one using a group of five 5-stars Egyptian hotels as a case study (Note, the five hotels used in the second

part are not those used in the first part of the research), however, the results realized from the testing process proved the validity of the theoretical model, but the researcher believed that there was a need to assure the validity of the model through conducting a TQM practices improvement process, the goal of this improvement process was to enhance the TQM practices implementation and to measure the realized effectiveness on the level of service quality and customer's satisfaction and loyalty, but because of reasons related to time consuming, financial resources and the difficulty to conduct ant monitor the TQM improvement process in the five hotels at the same time, the researcher selected one of the pre –selected five hotels in part two to be used as a case study in the third part of the research, in the third part see (Walid Montasser & Abd Alhakim Almanhawi, IJSER magazine, volume 4, issue 5, May edition), a TQM improvement team was selected and trained on quality related issues and tools including the TQM-based self-assessment tool proposed in the fourth part of the research see (Walid Montasser, Abd Alhakim Almanhawi & Essam Alanany, IJSER magazine, volume 4, issue 7, July edition), this assessment tool was used to identify the weak areas in TQM practices implementation as shown in table (8), each of this weak areas represented a quality objective to achieve, based on these objectives an improvement plan was formulated and implemented, in the current part of the research the assessment tool was used again to measure the degree of improvement in TQM practices implementation, then the proposed hypotheses was tested, taking in consideration that the hypotheses testing process is limited to one hotel only, but as a future work, a TQM improvement processes could be conducted in the other four hotels selected in the second part of the research, the feedback from the improvement processes of the whole five hotels could be

analyzed and used for hypotheses re-testing and then compared to the results realized in the second part of the research to assure once more the validity of the theoretical model.

2-Research methodology

In the second part of the research, the researcher selected a group of five 5-stars Egyptian hotels to be used as a case study as mentioned before, primary data for each of the five hotels was collected and analyzed, the proposed hypotheses were tested for each of the selected five hotels and also for the combined five hotels that were handled as one unit, but due to text limitation only the results of hypotheses testing for the combined five hotels were demonstrated, for so, the researcher will display the results of hypotheses testing for the hotel used as a case study (Hotel no. 3) before and after the TQM practices improvement process as follows

2-1-Before the TQM improvement process the research was preceded through 4 steps as demonstrated below.

Step 1

In order to test the main hypothesis H1 and its 10 sub-hypotheses $H1_1$ to $H1_{10}$, a questionnaire composed of 10 constructs representing the chosen 10 CSF was disseminated over the selected hotel experts (50 questionnaires), as to determine the extent of the 10 TQM CSFs implementation in the hotel.

Step 2

In order to test the main hypothesis H2 and its 10 sub-hypotheses $H2_1$ to $H2_{10}$ it was important to evaluate the quality of service offered by the hotel from the professionals point of view, so the researcher communicated the Egyptian ministry of tourism to obtain this necessary information as appraised by auditing companies hired especially for this matter.

Step 3

In order to test the two main hypotheses H3 and H4, a questionnaire composed of 4 parts was disseminated over a sample size of (88), this sample size was calculated in the second part of the research.

-The first part of the questionnaire was used to describe the demographic characteristic of the hotel customers.

-The second part composed of 22 questions to measure the 5 dimensions of quality of service identified by (Parssuraman, 1980) as perceived by the hotels customers. (These 5 dimensions are reliability, assurance, tangibles, empathy and responsiveness).

-The third part composed of 5 questions to measure the degree of customer satisfaction.

-The fourth part composed of another 5 question to measure the degree of customer loyalty.

Step 4

In order to identify the weak areas in the TQM practices implementation as a vital step in the TQM improvement process, the selected TQM improvement team distributed a total of 31 assessment tool forms on the hotel's head of divisions and departments.

Results

First it should be noted that the internal reliability of the constructs of all the questionnaires in addition to the assessment tool used in the current research with their different numbers of statements were measured in the previous parts of the research; Cronbach's alphas were calculated for each construct and all values were larger than 0.7 (a level considered "acceptable" in most social science research).

As for step 1

The means and standard deviations of the expert's answers extracted from the gathered 50 questionnaires are shown in table below:

Table1: means and standard deviations of hotel 3 (before improvement).

TQM critical success factors for 5-stars hotels	hotel 3	
	Mean	STD
1- Leadership.	3.67	0.840
2- Customer focus.	3.39	1.335
3- Teamwork.	3.08	0.954
4- Organizational culture.	3.92	0.641
5- Benchmarking.	3.90	1.449
6- Training and education.	3.62	0.768
7-HRM practices.	4.30	0.675
8- Communication.	4.10	1.370
9- Supplier relationship management.	3.70	1.337
10- Process management.	4.50	0.707
Perceived mean, st.dev of the 10 TQM CSFs for the 5 hotels.	3.82	1.01

- Testing the first main hypothesis H1

The results in table (1) showed that the perceived mean value of the implemented 10 TQM CSFs is equal to (3.82) which is a moderate value, and that the standard deviation is equal to (1.01), this calculated mean is less than the expected mean value which was estimated before in the second part of the research by (4.35) according to Likert scale, so it is clear that there is a gap existence between them.

To confirm this result the researcher developed a one sample T-test that revealed a significant difference between the perceived value of the implemented 10 TQM critical success factors and of the expected value through calculating (P value=0.00) which is less than (0.05) which mean that the null hypothesis is rejected and the alternative hypothesis is accepted, also by measuring the value of (T calculated= -3.71) it is less than the value of (T tabulated= -2.010).

These results were confirmed by measuring the upper confidence interval limit equal (4.059) which is less than the expected value estimated by (4.35).

- **From the above results it is clear that the first main hypothesis H1 is rejected.**

-Testing the 10 sub-hypotheses $H1_1$ to $H1_{10}$

The researcher developed 10 one sample T tests, and the results are shown in table (2).

Table 2: one sample T test

CSFs	Mean	St.DEV	T	P value	U.C.I.L
1- Leadership.	3.67	0.840	-5.72	0.00	3.869
2- Customer focus.	3.39	1.335	-5.08	0.00	3.707
3- Teamwork.	3.08	0.954	-9.41	0.00	3.306
4- Organizational culture.	3.92	0.641	-4.74	0.00	4.072
5- Benchmarking.	3.90	1.449	-2.20	0.00	4.243
6- Training and education.	3.62	0.768	-6.72	0.00	3.802
7-HRM practices.	4.30	0.675	-0.52	0.301	4.460
8-Communication.	4.10	1.370	-1.29	0.101	4.430
9- Supplier relationship management.	3.70	1.337	-3.44	0.000	4.017
10- Process management.	4.50	0.707	1.50	0.930	4.667

It is clear from table that (P value= 0.00) for only seven tests which are less than (0.05), while the other three tests have a (P value) that ranges between (0.101 & 0.930) which are greater than (P value= 0.05), also these seven tests have (T calculated) which ranges between (-9.411 & - 2.20) that are less than (T tabulated=-2.010), while the other three tests have (T calculated) which ranges between (-1.29 & 1.50) which are greater than (T tabulated=-2.010), also these seven tests have an upper confidence interval limit that ranges between (3.306 & 4.243) which are less than the expected value estimated by (4.35), while the other three tests have an upper confidence interval limit which ranges between (4.430 & 4.667) which include the expected value estimated by (4.35), for so, only seven sub- hypotheses which are $H1_1$, $H1_2$, $H1_3$,$H1_4$,$H1_5$,$H1_6$,$H1_9$ are rejected while the other three sub-hypotheses $H1_7$,$H1_8$,$H1_{10}$ are accepted

- **From the above results it is clear that the 10 sub-hypotheses $H1_1$ to $H1_{10}$ are partially rejected.**

 As for step 2

The feedback from the Egyptian ministry of tourism revealed that the selected hotel was audited through the last two months of year 2012, and the service quality offered was evaluated for the selected hotel, The result in table (3) below shows that the perceived mean value of service quality is equal to (3.415) which is a moderate value, and is less than the expected mean value of service quality which was estimated before by (4.25), so it is clear that there is a gap existence between them.

Table3: the mean value of service quality for the hotel

Hotels	Mean values the hotel
Hotel 3	3.415

(Source: Egyptian ministry of tourism)

- Testing the second main hypothesis H2

The researcher developed Pearson correlation matrix between the mean value of 10 TQM critical success factors and the mean value of service quality, the results revealed a direct and strongly positive relationship between them, their values ranges between (0.75 & 0.87) and significance with (P value = 0.00), that indicates that as the mean value

of the implemented TQM CSFs increases the quality of service increases.

Also, a multiple regressions model was developed between the 10 TQM critical success factors as independent variables and service quality as dependent variable, and the results revealed that the model is significant through a (P value= 0.00) which is less than (0.05), and confirmed by (F calculated = 8.734) which is greater than (F tabulated = 2.084), also the effect of the 10 TQM CSFs on the service quality was proved through the P values for the coefficients of the multiple regression which ranges between (0.000 & 0.005) that is less than (0.05), so it is clear that all of the 10 TQM critical success factors have a positive impact on service quality, to ensure the previous results the coefficient of determination was calculated and its value was (r^2= 80.75%) and that indicate that all of the 10 TQM critical success factors have a strongly positive impact on service quality,

- **From the above results it clear that the second main hypothesis H2 is accepted.**

- Testing the 10 sub-hypotheses $H2_1$ to $H2_{10}$

The researcher developed a 10 simple regression models between the quality of service as dependent variable and each of the 10 TQM CSFs as independent variable, and the results showed that all models proved to be significant through (P value) that ranges between (0.012 & 0.023) which are less than (0.05), and confirmed by (F calculated) which ranges between (19.550 & 46.687) that are greater than (F tabulated = 4.043), also the coefficients of determination r^2 were calculated and it ranges between (34% & 52%), these results mean that each of the 10 TQM CSFs positively affect the service quality.

- **So it is clear that the 10 sub- hypotheses $H2_1$ to $H2_{10}$ are accepted.**

As for step 3

The researcher determined the Sample Size for customers for hotel 3 through the following.

First: without taking into account the research population using equation number (1):

$$n = \frac{t^2 p(1-p)}{d^2} \qquad (1)$$

Where:
n: is the sample size required

t: is the number of standard units, ± 1.96 for the 95 % confidence level.

p: is the proportion of vocabulary having the characteristics in question that are 50%.

d: is the limit of error of 5% to 95% confidence level.

$$n = \frac{1.96^2 \ x \ 0.5(1-0.5)}{0.05^2} = 384.16 \cong 385$$

The researcher found the required sample size n = 385.

Second: the size of the sample was determined taking into consideration the size of the community using equation number (2).

4

$$n1 \ = \ \frac{n}{1 + n/N} \qquad (2)$$

Where:

n1: sample size modified with size of research community.

n : sample size without taking into account research community

N: size of research community existing in the chosen population and due to the statistics presented by the managers of the selected 5 hotels, the researcher found that (11800) customers had stayed in the hotels between 15/12/2012 – 15/1/2013.

$$n1 \ = \ \frac{385}{1 + 385/11800} \ \cong \ 373$$

From the above result the researcher chosen a sample size of 380 customers representing the five hotels, and a 380 questionnaire forms were distributed over the customers, the number of questionnaires that was distributed to each of the 5 hotels customers are shown in table (4).

Table 4: number of questionnaires introduced for each hotel.

Hotels	No. of customers stayed between 15-12-2012 / 15-1-2013	No. of questionnaires introduced for each hotel
Hotel 1	2411	77
Hotel 2	2381	76
Hotel 3	2774	88
Hotel 4	2019	66
Hotel 5	2213	73
Total	11800	380

Descriptive analysis of the sample

The analysis includes the demographic variables for personnel of the study sample:

- **Gender**
- **Age**
- **Qualification**

Gender:

It is the distribution of personnel on the sample according to the variable gender.

Table (5) shows the number and percentage of males and females who had replied the 88 questionnaires.

Table 5: Sample Distribution of Members According to Gender

Gender	Hotel 3	Percentage %
Male	40	45.5%
Female	48	54.5%
All	88	100%

Age:

It is the distribution of personnel on the sample according to the variable age

More than 85% of respondents were above 30 years, which is an evidence for the presence of personnel with experience

The percentage of young personnel is less than (15%)

Table (6) represents data.

Table 6: Sample Distribution of Members According to Age

Age	Hotel 3	Percentage%
Below 30	13	14.8%
30-45	40	45.5%
Above 45	35	39.7%
Total	88	100%

Qualification:

It is the distribution of personnel on the sample according to the variable qualification

More than 81% of respondents were highly qualified, which is evidence for the presence of qualified personnel in the sample.

The percentage of personnel with low qualification is less than (19%).

Table (7) represents data.

Table 7 Sample Distribution According to Qualification

Qualification	Hotel 3	Percentage%
Under grad.	16	18.2%
Graduated	50	56.8%
Post grad.	22	25%
Total	88	100%

- Testing the third main hypothesis H3.

The means and standard deviation of the customer's answers from the gathered 88 questionnaires are shown in table (8) below.

Table 8: Means and standard deviation of the hotel

Variables		hotel 3	
		Mean	STD
5 Dimensions of Service quality	Reliability	3.92	0.741
	Assurance	3.74	0.860
	Tangibles	4.00	0.594
	Empathy	3.60	0.678
	Responsiveness	3.40	1.121
Perceived Service Quality for hotel 3.		3.73	0.80
C. satisfaction		3.35	0.675
C. loyalty		3.22	1.025

The researcher developed Pearson correlation matrix between the mean value of the 5 dimensions of service quality and the mean value of customer satisfaction, the results revealed a direct and strongly positive relationship between them, their values ranges between (0.80 & 0.87) and significance with (P value = 0.00), and indicates that as the mean value of the quality of service dimensions increases the value of customer satisfaction increases.

Also, a multiple regressions model was developed between the 5 dimensions of service quality as independent variables and customer's satisfaction as dependent variable, and the results revealed that the model is significant through a (P value = 0.000) which is less than (0.05), and confirmed by (F calculated = 6.250) which is greater than (F tabulated = 2.326), also the effect of the 5 dimensions of quality of service on customer's satisfaction was proved through the P values for the coefficients of the multiple regression which ranges between (0.000 & 0.003) that is less than (0.05), so it is clear that all these dimensions have a positive impact on customer's satisfaction, to confirm the previous results the coefficient of determination was calculated and its value was (r^2= 83.15%) and that indicates that all of the 5 dimensions of quality of service have a strongly positive impact on customer's satisfaction,

The researcher developed a 5 simple regression models between the customer satisfaction as dependent variable and each of the 5 dimensions of service quality as independent variable, and the results showed that all models proved to be significant through (P value) that ranges between (0.009 & 0.02) which is less than (0.05), and confirmed by (F calculated) which ranges between (35.535 & 51.054) that are greater than (F tabulated = 3.952), also the coefficients of determination r^2 were calculated and it ranges between (31% & 43%), these results mean that each of the dimensions of service quality positively affect customer's satisfaction.

- **From the above results it clear that the third main hypothesis H3 is accepted.**

- Testing the fourth main hypothesis H4

The researcher calculated Pearson correlation between the mean value of the customer's loyalty and the mean value of customer's satisfaction , the result revealed a direct and strongly positive relationship between them, their value equal (0.89) and significance with (P value = 0.00), and indicate that as the mean value of customer satisfaction increases the value of customer loyalty increases.

Also, a simple regression model was developed between customer's loyalty as dependent variable and customer satisfaction as independent variable, the results revealed that the model is significant through a (P value = 0.005) which is less than (0.05), and confirmed by (F calculated = 8.150) which is greater than (F tabulated = 3.952), so it is clear that customer's satisfaction has a positive impact on customer's loyalty, to confirm the previous result the coefficient of determination was calculated and its value was (r^2= 87.60%) and it indicates that customer's satisfaction has a strongly positive impact on customer's loyalty.

- **From the above results it clear that the fourth main hypothesis H4 is accepted.** .

As for step 4

The results of the gathered 31 TQM-based self-assessment tool forms are demonstrated in table below.

Table 9: assessment of TQM CSFs implementation (before improvement)

TQM Practices	Addressed Areas	Scores	Strengths and Weaknesses
Top management commitment	- Senior executives communicate the company's policy, and values to the customers, employees, suppliers.	3	Weak
Pursuit of long-term business success	-Senior executives actively develop one integrated quality plan to meet business objectives.	2	Very Weak
Partnership with Suppliers	-Works together with suppliers for mutual benefits. -The hotel involves the suppliers in the service development process.	2 3	Very Weak Weak
Supplier selection criteria	-Reliance on reasonably few dependable suppliers who are evaluated and selected based on their capability and commitment to service quality, and value for money.	3	Weak
Vision statement	-Has a long-term vision statement.	2	Very Weak
Overall business performance plan	-The hotel has a long-term overall business performance plan.	2	Very Weak
Quality improvement Plan	-The hotel Implements the quality improvement plan in practice.	2	Very Weak
Evaluation of overall business performance	-Has data on employee satisfaction, and evaluates employees' satisfaction.	4	Weak
Benchmarking	-The hotel carries out informal benchmarking to identify best practices for improvements and opportunities.	2	Very Weak
Quality costs	-The hotel has an accurate and efficient database that provides information on its quality costs.	4	Weak

Information system	-Has a computer-based integrated information system.	4	Weak
Process capability	-Controls and improves process capability.	2	Very Weak
Inspection	-Inspection, review, and checking the process implement continuously.	4	Weak
Use of quality tools	-Uses the seven QC tools extensively.	3	Weak
	-Uses the seven new QC tools extensively.	3	Weak
ISO 9000 certification	-The hotel Implements all quality system documents in practice.	4	Weak
Quality control (QC) Circle	-Has some QC circles.	2	Very Weak
	-Encourages employees to participate in QC circles.	3	Weak
	-Evaluates the effects of QC circles.	3	Weak
Information communication	-Stimulates mutual communication among people at different levels.	3	Weak
Improving employee commitment	-Encourages employees to report their own working problems.	2	Very Weak
Job rotation	-Rotates employee jobs regularly.	3	Weak
Salary promotion	-Salaries and wages are satisfactory.	4	Weak
Working condition	-the working conditions are appropriate, and the attention is given to the health of the workers.	4	Weak
Education and training plan	-Provides sufficient resources for implementing the education and training plan.	3	Weak
Team learning	-Arranges for skillful employees to present their working experiences.	2	Very Weak
	-Encourages team members to present their ideas during the process of team activities.	3	Weak
	-Shares knowledge among team members.	3	Weak
Quality awareness Education	-Quality related training program is provided to managers, supervisors and employees.	3	Weak

Training for quality management knowledge	-Trains employees on using the seven QC tools, the seven new QC tools, and statistical process control.	2	Very Weak
Job training	-Provides job training for employees to perform their jobs better.	4	Weak
Market investigation	-Collects information about customers' needs and expectations through market investigation.	4	Weak
	-Obtains information about customers' potential needs and expectations.	4	Weak
Customer relationship	-The hotel has developed a program to maintain good customer relationship.	3	Weak

Note: only weak areas of the hotel's TQM implemented practices are presented due to the text limitation

The findings of the hotel data analysis before the improvement process can be summarized as follows:

- According to the analysis of the gathered data, it was obviously clear that 7 of the TQM CSFs were not effectively implemented in the hotel, as their calculated mean values were less than the expected mean value.
- The evaluation of service quality offered by the selected hotel, whether through professional's appraisal or through investigating the hotel customers point of views showed that the perceived mean value of the offered service quality was less than the expected mean value.
- It was also proved that there is a strongly positive relationship between the implemented 10 TQM CSFs and the service quality offered by the selected hotel, so as the degree of implementation of the 10 critical success factors increases the value of service quality offered increases and vice versa.
- Data analysis also revealed that the levels of both customer's satisfaction and customer's loyalty were less than the expected ones.
- Furthermore strongly positive relationships existed between both service quality and customers satisfaction and between customer's satisfaction and customer's loyalty, so as the level of service quality increases the levels of both customer's satisfaction and loyalty increase.

The above results can be briefly explained, that the low degree of implementation of most of the selected 10 TQM CSFs caused a low level of the perceived service quality, which in return led to a low levels of both customer's satisfaction and loyalty, and this prove that the proposed theoretical model is valid to be used.
Finally the weak areas of the TQM practices implementation were identified and used in setting the TQM practices improvement plan, this plan was implemented through three programs and lasted for three months from 7/2/2013 till 7/5/2013.

2-2-After the TQM improvement process the research was preceded again through 4 steps as follows.

Step 1

In order to evaluate the degree of improvement in the weak areas of TQM practices implementation, the selected TQM improvement team re-distributed the same number of 31 assessment tool forms on the hotel's head of divisions and departments.

Step 2

In order to test the main hypothesis H1 and its 10 sub-hypotheses $H1_1$ to $H1_{10}$, a questionnaire composed of 10 constructs representing the chosen 10 CSFs was disseminated over the selected hotel experts (50 questionnaires), as to determine the extent of the 10 TQM CSFs implementation, after the improvement process in the hotel.

Step 3

In order to test the main hypothesis H2 and its 10 sub-hypotheses $H2_1$ to $H2_{10}$, it was important to evaluate the quality of service offered by the hotel from the professional's point of view, so the researcher communicated the Egyptian ministry of tourism again to obtain this necessary information as appraised by the auditing companies hired especially for this matter.

Step 4

In order to test the two main hypotheses H3 and H4, a questionnaire composed of 4 parts was disseminated again over the previously calculated sample size of (88).

-The first part of the questionnaire was used to describe the demographic characteristic of the hotel customers.

-The second part composed of 22 questions to measure the 5 dimensions of quality of service identified by (Parssuraman, 1980) as perceived by the hotels customers. (These 5 dimensions are reliability, assurance, tangibles, empathy and responsiveness).

-The third part composed of 5 questions to measure the degree of customer satisfaction.

-The fourth part composed of another 5 question to measure the degree of customer loyalty.

Results

As for Step 1

The results of the gathered 31 self-assessment tool forms are demonstrated in table below.

Table 10: assessment of TQM CSFs implementation after improvement.

TQM Practices	Addressed Areas	Scores	Strengths and Weaknesses
Top management Commitment	- Senior executives communicate the company's policy, and values to the customers, employees. suppliers	5	Average
Pursuit of long-term business success	-Senior executives actively develop one integrated quality plan to meet business objectives.	6	Strong
Partnership with suppliers	-Works together with suppliers for mutual benefits.	5	Average
	-The hotel involves the suppliers in the service development process.	5	Average
Supplier selection criteria	-Reliance on reasonably few dependable suppliers who are evaluated and selected based on their capability and commitment to service quality, and value for money.	6	Strong
Vision statement	-Has a long-term vision statement.	7	Strong
Overall business performance plan	-Has a long-term overall business performance plan.	7	Strong
Quality improvement plan	-Implements the quality improvement plan in practice.	5	Average
Evaluation of overall business performance	-Has data on employee's satisfaction and evaluates employee satisfaction.	7	Strong
Benchmarking	-The hotel carries out informal benchmarking to identify best practices for improvements and opportunities.	6	Strong
Quality costs	-The hotel has an accurate and efficient database that provides information on its quality costs	6	Strong
Information system	-Has a computer-based integrated information system.	4	Weak
Process capability	-Controls and improves process capability.	4	Weak
Inspection	-Inspection, review, and checking the process implement continuously.	4	Weak
Use of quality tools	-Uses the seven QC tools extensively.	5	Average
	-Uses the seven new QC tools extensively.	5	Average
ISO 9000 certification	-Implements all quality system documents in practice.	5	Average
Quality control (QC) Circle	-Has some QC circles.	5	Average
	-Encourages employees to participate in QC circles.	6	Strong
	-Evaluates the effects of QC circles.	4	Weak

8

Information communication	-Stimulates mutual communication among people at different levels.	5	Average
Improving employee commitment	-Encourages employees to report their own working problems.	5	Average
Job rotation	-Rotates employee jobs regularly.	6	Strong
Salary promotion	-Salaries and wages are satisfactory.	5	Average
Working condition	-the working conditions are appropriate, and the attention is given to the health of the workers	4	Weak
Education and training plan	-Provides sufficient resources for implementing the education and training plan.	5	Average
Team learning	-Arranges for skillful employees to present their working experiences.	6	Strong
	-Encourages team members to present their ideas during the process of team activities.	5	Average
	-Shares knowledge among team members.	5	Average
Quality awareness Education	-Quality related training program is provided to managers, supervisors and employees.	6	Strong
Training for quality management knowledge	-Train employees on using the seven QC tools, the seven new QC tools, and statistical process control.	5	Average
Job training	-Provides job training for employees to perform their jobs better.	7	Strong
Market investigation	-Collects information about customers' needs and expectations through market investigation.	4	Weak
	-Obtains information about customers' potential needs and expectations.	6	Strong
Customer relationship	-The hotel has developed a program to maintain good customer relationship.	6	Strong

Note: only weak areas of the hotel's TQM implemented practices are presented due to the text limitation

As for Step 2
The means and standard deviations of the expert's answers extracted from the gathered 50 questionnaires are shown in table below:

Table11: means and standard deviations of the hotel

TQM critical success factors for 5-stars hotels	hotel 3	
	Mean	STD
1- Leadership.	4.03	0.923
2- Customer focus.	3.93	0.467
3- Teamwork.	3.68	1.048
4- Organizational culture.	4.31	0.704
5- Benchmarking.	4.29	0.592
6- Training and education.	4.00	1.153
7-HRM practices.	4.43	0.742
8- Communication.	4.51	1.506
9- Supplier relationship management.	4.07	0.470
10- Process management.	4.75	0.713
Perceived mean, st.dev of the 10 TQM CSFs for the 5 hotels.	4.20	0.832

- Testing the first main hypothesis H1
The results in table (10) showed that the perceived mean value of the implemented 10 TQM CSFs is equal to (4.20) which is above moderate value, and that the standard deviation is equal to (0.832), this calculated mean is less than the expected mean value which was estimated before by (4.35) according to Likert scale, so it is clear that there is a gap existence between them.

To confirm this result the researcher developed a one sample T-test that revealed there is no significant difference between the perceived value of the implemeted10 TQM critical success factors and of the expected value through calculating (P value=0.104) which is greater than (0.05) which mean that the null hypothesis is accepted and the alternative hypothesis is rejected, also by measuring the value of (T calculated= -1.27), it is greater than the value of (T tabulated= -1.677).

These results were confirmed by measuring the upper confidence interval limit equal (4.397) which includes the expected value estimated by (4.35).

- **From the above results it is clear that the first main hypothesis H1 is accepted.**

-Testing the 10 sub-hypotheses $H1_1$ to $H1_{10}$
The researcher developed 10 one sample T tests, and the results are shown in table (12).

Table 12: one sample T test

CSFs	Mean	St.DEV	T	P value	U.C.I.L
1- Leadership.	4.03	0.923	-2.45	0.009	4.250
2- Customer focus.	3.93	0.467	-6.36	0.000	4.040
3- Teamwork.	3.68	1.048	-4.25	0.000	3.928
4- Organizational culture.	4.31	0.704	-0.4	0.345	4.477
5- Benchmarking.	4.29	0.592	-0.72	0.238	4.430
6- Training and education.	4.00	1.153	-2.15	0.018	4.273

7-HRM practices.	4.43	0.742	0.67	0.775	4.606
8-Communication.	4.51	1.506	0.75	0.772	4.867
9- Supplier relationship management.	4.07	0.470	-4.21	0.000	4.181
10- Process management.	4.75	0.713	3.97	1	4.919

It is clear from the table that for only five tests (P value) ranges between (0.00 & 0.018) which are less than (0.05), while for the other five tests (P value) ranges between (0.238 & 1) which are greater than (0.05), also the values of (T calculated) for the first five tests ranges between (-6.36 & - 2.15) which are less than (T tabulated=-1.970), but for the other five tests (T calculated) ranges between (-0.4 & 3.97) which are greater than (T tabulated=-1.970), also by calculating the values of the upper confidence interval limit for the first five tests they ranges between (3.928& 4.273) which are less than the expected value estimated by (4.35), while for the other five tests the upper confidence interval limit ranges between (4.430 & 4.919) which include the expected value estimated by (4.35) for so, only five sub-hypotheses which are $H1_1,H1_2,H1_3,H1_6,H1_9$ are rejected while the other five sub-hypotheses $H1_4,H1_5,H1_7,H1_8,H1_{10}$ are accepted

- **From the above results it is clear that the 10 sub-hypotheses $H1_1$ to $H1_{10}$ are partially accepted.**

As for step 3

The feedback from the Egyptian ministry of tourism revealed that that because of some managerial and financial restrictions, the ministry sent a committee of three quality experts working in the field of hospitality, instead of hiring a professional company, as happened in part two of the research, as to evaluate the service quality offered by hotel, The result of the evaluation process as shown in table (13) clarify that the perceived mean value of service quality is equal to (3.953) which is an above moderate value, and is less than the expected mean value of service quality which was estimated before by (4.25), so it is clear that there is a gap existence between them.

Table 13: the mean value of service quality for the hotel

Hotel	Mean values for the hotel
Hotel 3	3.953

(Source: Egyptian ministry of tourism)

- Testing the second main hypothesis H2

The researcher developed Pearson correlation matrix between the mean value of 10 TQM critical success factors and the mean value of service quality, the results revealed a direct and strongly positive relationship between them, their values ranges between (0.81 & 0.90), and significance with (P value = 0.00), and indicate that as the mean value of the implemented TQM CSFs increases the quality of service increases.

Also, a multiple regressions model was developed between the 10 TQM critical success factors as independent variables and service quality as dependent variable, and the results revealed that the model is significant through a (P value= 0.00) which is less than (0.05), and confirmed by (F calculated = 13.01) which is greater than (F tabulated =

2.084), also the effect of the 10 TQM CSFs on the service quality was proved through the P values for the coefficients of the multiple regression which ranges between (0.000 & 0.004) that is less than (0.05), so it is clear that all of the 10 TQM critical success factors have a positive impact on service quality, to confirm the previous results the coefficient of determination was calculated and its value was (r^2= 85.8%) and that indicate that all of the 10 TQM critical success factors have a strongly positive impact on service quality,

- **From the above results it clear that the second main hypothesis H2 is accepted.**

- Testing the 10 sub-hypotheses $H2_1$ to $H2_{10}$

The researcher developed a 10 simple regression models between the quality of service as dependent variable and each of the 10 TQM CSFs as independent variable, and the results showed that all models proved to be significant through (P value) that ranges equal (0.000) which is less than (0.05), and confirmed by (F calculated) which ranges between (26.07 & 54.53) that are greater than (F tabulated = 4.043), also the coefficients of determination r^2 were calculated and it ranges between (38% & 57%), these results mean that each of the 10 TQM CSFs positively affect the service quality.

- **So it is clear that the 10 sub- hypotheses $H2_1$ to $H2_{10}$ are accepted.**

As for Step 4:

Descriptive analysis of the sample

Before conducting this analysis, it should be noted that the researcher was eager to select a sample size that possessed a demographic characteristic as identical as possible to those possessed by the sample size that was selected before the improvement process was conducted, as to ensure the validity and credibility of this part of the research.

The analysis includes the demographic variables for personnel of the study sample:

- **Gender**
- **Age**
- **Qualification**

Gender:

It is the distribution of personnel on the sample according to the variable gender.

Table (14) shows the number and percentage of males and females who had replied the 88 questionnaires.

Table 14: Sample Distribution of Members According to Gender

Gender	Hotel 3	Percentage %
Male	44	50%
Female	44	50%
All	88	100%

Age:

It is the distribution of personnel on the sample according to the variable age

More than 80% of respondents were above 30 years, which is an evidence for the presence of personnel with experience

The percentage of young personnel is less than (20%)

Table (15) represents data.

Table 15: Sample Distribution of Members According to Age

Age	Hotel 3	Percentage%
Below 30	17	19.3%
30-45	43	48.9%
Above 45	28	31.8%
Total	88	100%

Qualification:

It is the distribution of personnel on the sample according to the variable qualification

More than 80% of respondents were highly qualified, which is evidence for the presence of qualified personnel in the sample.

The percentage of personnel with low qualification is less than (20%).

Table (16) represents data.

Table 16 Sample Distribution According to Qualification

Qualification	Hotel 3	Percentage%
Under grad.	17	19.3%
Graduated	52	59.1%
Post grad.	19	21.6%
Total	88	100%

- Testing the third main hypothesis H3.

The means and standard deviation of the customer's answers from the gathered 88 questionnaires are shown in table (17) below.

Table 17: means and standard deviations of the 5 hotels.

Variables		hotel 3	
		Mean	STD
5 Dimensions of Service quality	Reliability	4.00	0.751
	Assurance	4.15	0.635
	Tangibles	4.05	0.455
	Empathy	3.65	1.135
	Responsiveness	4.30	0.660
Perceived Service Quality for the hotel.		4.23	0.73
C. satisfaction		4.05	0.678
C. loyalty		3.875	0.550

The researcher developed Pearson correlation matrix between the mean value of the 5 dimensions of service quality and the mean value of customer satisfaction, the results revealed a direct and strongly positive relationship between them, their values ranges between (0.84 & 0.91) and significance with (P value = 0.00), and indicate that as the mean value of the quality of service dimensions increase the value of customer satisfaction increases.

Also, a multiple regressions model was developed between the 5 dimensions of service quality as independent variables and customer's satisfaction as dependent variable, and the results revealed that the model is significant through a (P value = 0.000) which is less than (0.05), and confirmed by (F calculated = 15.750) which is greater than (F tabulated = 2.326), also the effect of the 5 dimensions of quality of service on customer's satisfaction was proved through the P values for the coefficients of the multiple regression which ranges between (0.000 & 0.004) that is less than (0.05), so it is clear that all these dimensions have a positive impact on customer's satisfaction, to assure the previous results the coefficient of determination was calculated and its value was (r^2= 85.42%) which confirm that all of the 5 dimensions of quality of service have a strongly positive impact on customer's satisfaction ,

The researcher developed a 5 simple regression models between the customer satisfaction as dependent variable and each of the 5 dimensions of service quality as independent variable, and the results showed that all models proved to be significant through (P value) that equals (0.000) which is less than (0.05), and confirmed by (F calculated) which ranges between (38.97 & 55.054) that are greater than (F tabulated = 3.952), also the coefficients of determination r^2 were calculated and it ranges between (36% & 49%), these results mean that each of the dimensions of service quality positively affect customer's satisfaction.

- **From the above results it clear that the third main hypothesis H3 is accepted.**

- Testing the fourth main hypothesis H4

The researcher calculated Pearson correlation between the mean value of the customer's loyalty and the mean value of customer's satisfaction, the result revealed a direct and strongly positive relationship between them, their value equal (0.92) and significance with (P value = 0.00), and indicate that as the mean value of customer satisfaction increases the value of customer loyalty increases.

Also, a simple regression model was developed between customer's loyalty as dependent variable and customer satisfaction as independent variable, the results revealed that the model is significant through a (P value = 0.000) which is less than (0.05), and confirmed by (F calculated = 16.03) which is greater than (F tabulated = 3.952), so it is clear that customer's satisfaction has a positive impact on customer's loyalty, to ensure the previous result the coefficient of determination was calculated and its value was (r^2= 88.35%) and it confirms that customer's satisfaction has a strongly positive impact on customer's loyalty.

- **From the above results it clear that the fourth main hypothesis H4 is accepted.**

The findings of the hotel data analysis after the improvement process can be summarized as follows:

- The analysis of the data from the gathered 31 assessment tool forms showed a considerable improvement in the targeted areas of the implemented TQM practices, which encouraged the researcher to complete the research; however the results are below expectancy.

- According to the analysis of the gathered data, it is obviously clear that the extent of implementation of the 10 TQM CSFs was enhanced after the improvement process was conducted, and this result was concluded through the results that showed an increase in the calculated perceived mean value of the implemented 10 TQM CSFs from (3.82) to (4.20), also showed that the

number of the effectively implemented TQM practices increased from three to five factors, however the demonstrated results are below the expectancy.

- The evaluation of service quality offered by the selected hotel, whether through professional's appraisal or through investigating the hotel customers point of views showed that the perceived mean values of the offered service quality increased after the improvement process was conducted, however the demonstrated results are also below the expectancy.

- It was also proved for the second time that there is a strongly positive relationship between the implemented 10 TQM CSFs and the service quality offered by the selected hotel, and is clearly expressed through the coefficient of determination that increased after the improvement process was conducted from (r^2= 80.75%) to (r^2= 85.8%) so as the degree of implementation of the 10 critical success factors increases the value of service quality offered increases and vice versa.

- Data analysis also revealed that the levels of both customer's satisfaction and customer's loyalty had increased after the improvement process was conducted; however the results are below the expectancy.

- Once more the strongly positive relationships existing between both service quality and customers satisfaction and between customer's satisfaction and customer's loyalty were confirmed, so as the level of service quality increases the levels of both customer's satisfaction and loyalty increase.

The above results can be briefly explained, that after the improvement process was conducted, a slight increase in the degree of implementation of the 10 selected TQM CSFs was detected, which caused an average increase in the level of the perceived service quality, which in return led to a considerable increase in the levels of both customers satisfaction and loyalty, and this prove that as the proposed theoretical model was valid to be used before conducting the improvement process, it is also valid to be used after the improvement process was conducted.

3-Conclusion

However despite the overall findings produced in this part of the research, there are still open opportunities for further studies to assure the validity of the theoretical model, so as a future work shall include two researches that will be conducted in parallel, through the first research, the researcher will conduct a four short-term TQM practices improvement processes in the other four hotels that were selected in the second part of the research (Hotels 1,2,4,5) then the combined results that will be obtained, shall be compared with the demonstrated results in the second part of the research through hypotheses testing, this research is excepted to take about 18 months, while through the second research the researcher will conduct a long-term TQM practices improvement process in (hotel 3), this research is expected to take about 36 months, the TQM practices improvement processes will be carried out in coordination with the top managers of the selected 5 hotels, then after the completion of the improvement process, the validity of the proposed theoretical model will be re-tested, and once more the statistical package for social science (SPSS) approach will be used for hypotheses testing.

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