

A New Approach Based on Total Quality Management (TQM) for Improving Academic Libraries Quality Service

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Received : December 18, 2011

Accepted : January 24, 2012

Abstract

This paper applied Total Quality Management (TQM) to identify service improvement techniques for an academic library. In order to reach the quality and making suitable changes, first reader needs and their importance, and satisfaction degrees were examined via questionnaires based on TQM methodology that is one of the important tools of improvement and management development. Second, the service improvement techniques for satisfying the reader needs were developed by interviewing experts. Following, a framework was constructed to implement a unified method for improving quality service based on TQM. The current research is descriptive – deductive type – which is resulted from the theoretical framework and research, rules in an explanatory style and styles of library, articles, magazines and internet. Also the theory test and gathering data has been done as analytical. The empirical study specifies reader needs and service improvement techniques respectively, and some practical suggestions are raised for academic libraries.

Keyword: Total Quality Management, Library Management, Quality Service, Academic Libraries

INTRODUCTION

Over the past three decades, the service sector has become the important element of the economy, and relevant studies have revealed that service quality is a prerequisite for success and survival in today's competitive environment. Inevitably, interest in service quality has noticeably increased [1]. Generally, the service quality of an academic library has been described in terms of its collections, its size and various service contents. The development of traditional orientation, to focus on collection, is no longer adequate to satisfy readers in the present era [2]. Therefore, identifying a new model to measure library service quality and designing a systemic method to enhance library service quality are necessary for academic libraries.

Marketing researchers acknowledge that service quality both directly and indirectly affects customer loyalty [3,4]. High willingness to revisit allows full utilization of public resources. Thus, most scholars presented some ways to measure or evaluate service quality and reach the object of achieving readers' satisfaction. Scholars had utilized the concept of the PZB model to measure and enhance library service quality [5,6].

Accordingly, this article would link readers' needs to library resources for guiding the ways to improve service quality of an academic library. The main focus of this methodology is that all the expert and managers must do their best, in order to improve the quality of goods and services according to the needs of users. In other words, in such a discipline – on one hand – the holistic

nature is accompanied by introvert and extrovert process. And on the other hand, the sense of shared responsibility among the expert and managers will result in responding to desired quality.

The purposes of an academic library are to support teaching, to research and to promote services for enhancing school's research and development ability. Each academic library needs to provide correct, prompt and effective service. With the increasingly intense competition in information services and the diversified society requirements, libraries must emphasize service quality to attract more readers and enhance their utilization. Aside from the traditional services a library should provide, enriching the electronic service is becoming another important task for all libraries. The goal of a library is to maintain a level of service quality and to satisfy readers at all times. Hence, it is necessary to determine the level of technical and reader services, as well as the measurement of service performance and service quality techniques to better understand readers and provide better services.

A questionnaire based on Total Quality Management Quality (TQM) is used to understand readers' needs. Using this approach we can help organizations understand their clients' needs and meet those needs within their own ability and resources. This approach can be combined with other methods to apply in many domains, such as service improvement by QFD and supplier selection [7,8]. To the best of our knowledge, such research using TQM to improve library service quality is rare. Accordingly, this research attempts to present some improved techniques for library managers to enhance their service quality.

The main aim of this paper is to use the main concept of total quality management to develop a framework for libraries to enhance library service quality. Total quality management is used to be a baseline for measuring the existing condition service. The rest of this paper is organized as follows. The literatures on library service quality will be reviewed in the next section. Next, the research methods and framework development process are presented. A real case application of the methodology is presented in Section 4. The case refers to an academic library operating in Iran. Concluding remarks are finally presented in the last section.

Literature Survey

The definition of a service is “work performed for someone else.” [9]. [10] also consider that quality consists of two parts: technical and functional quality. Technical quality refers to the tangible aspects of the service. It describes “what is delivered” to the customers or what core product features customers receive in the service encounter [11, 12]. Functional quality refers to the intangible aspects of the service. It describes how the service is delivered. Specifically, it means the interaction between employees and customers during the service encounters.

To determine service quality for a library, it is necessary to understand the characteristics of library services. Einasto [13] highlighted several features that are shown in the following:

1. Library services are shifting to the Web environment.
2. It is getting difficult to predict what kind of library services will be requested in the future.
3. The goal of a library is not to make a profit but to satisfy readers’ needs for information.
4. Libraries compete with other departments for gaining financial resources.
5. The financing support of an academic library would depend on the academic communities’ satisfaction with library services.
6. Library services do not have a measurable price; consequently, libraries can’t be compared in price but in their service quality

For improving the quality of services in academic library several researches is done. Currie [14] in Georgia training institute encouraged them to implement the quality management system and then discussed the realization level of managers and scientific board members from TQM and also their expectations from different aspects. The expectation of these three groups was measured about the current and desired situation in his research. Also their differences were considered. He checked the individuals’ attitude which affected their realization and also considered the differences of individuals regarding their work position, gender, age and education degree and finally reached a meaningful difference between these three groups regarding the current and desired situation by means of navigation method. Richardson [15] researched the TQM principals and managerial belief system in high training system and concluded that the continuous improvement of quality is due to implementation of the basic roles of this system. He regards “focus on client” as the basic rules of TQM and considers the individuals acceptance in training as a result of using management team. Also he considers the manager personal beliefs as an affecting factor in TQM (Deming commitment). This study has been done with 237 managers in high training institutes and investigates their attitude and ideas about TQM and cultural transition. Price [16] in a case study about implementing quality management in four high training institute; introduces a high level of adaptability

among the scientific board members and expert. He investigated the TQM implementation in Air Force university of Colorado in two quality navigation and interviewing 33 principals. In this research, the quality program guide had provided a unique opportunity of research for about two years. Price considered the cultural change as an important factor of TQM success. Roopchand [17] through a documentary analysis in high training institutes; considered the university as one of the most important and most effective unit in the US and – through interview – considers the continuous improvement in those centers as a result of TQM implementation. He tested two institutes as sample from the total 5 institutes. These samples were under the study of complete TQM tools in management unit. Roopchand [17] introduced some issues as the obstacles of TQM implementation in the investigation of scientific board members and employees attitude such as: lack of quality committee in some centers, no support from the scientific board members, no total attitude and view point toward the system, lake of strategic planning in implementation of quality to improve the organization which may have long term profit. Also Towler [18] considered a group of troubles in environment to implement the quality management and suggests that it is necessary to list all the trouble making aspects and considers the problem in all dimensions and they must act according to agreement. The problem solving group acts daily in order to change and transition and then the employees will understand the necessity of coordination with one another in order to make positive and real changes to improve the organization and solve the problems. The benefits of TQM mentioned by Towler [18], include: easing the issues, time saving, ease of relationship between manager and visitors.

Many researchers have developed various multi-criteria to measure library service quality. For example Landrum and Prybutok [19] suggested three dimensions of service quality as the service environment, service performance quality, and service delivery or customer care.

Several quality surveys undertaken for university and public libraries, banks, and hospitals, etc. have shown that standardized scales are not applicable in other service contexts and the determinants and measurement of service quality may be unique in different service sectors [20]. The aim of this study is to develop the readers’ service quality requirements to link up with improvement techniques as the primary reference source for an academic library. Therefore, we need to find out the readers’ requirements for further processes.

MATERIALS AND METHODS

In this section we explain the proposed methods step by step.

Scientific Merit

We live an era facing many organizations. The organizations have influenced in almost all lifestyles and in the human communities civilization trend, no phenomenon is as old as organizations. So in this regard, the subject of quality and management and paying attention to important managerial issues, especially widespread quality management role is an improved phenomenon in organization, particularly training organizations and it is very important. Libraries, information centers and document offering centers play an important role in offering the data needed by the professionals. Therefore, the main objective of implementing quality in training and service

centers is helping the visitors, the managers and experts will never have any kind of trainings in this regard and quality will be something unknown. This research will pave the way for more attention to system efficacy and reaching the organization quality improvement goals. Also the result of this study will be very important from economy point of view. Each year, a huge volume of costs are tolerated by the services with no quality while the scraps and repetitions are occurred in these services. By implementing this project, it is possible to avoid scraps and repetitions.

- Therefore Statement of Aims for this research is as follows:
1. How is the experts and managers attitude in Deming principals' format toward the current quality of Tehran university libraries?
 2. How is the difference between the attitude of experts and managers in Deming principals' format toward the desired quality of Tehran university libraries?
 3. How is the difference of managers' attitude toward the current situation and desired situation of Tehran university libraries?
 4. How is the difference of experts' attitude toward the current situation and desired situation of Tehran university libraries?
 5. Is there any meaningful difference between the attitude of experts and managers toward the desired and current situation in TQM implementation?

For implementing the proposed approach we use the following framework:

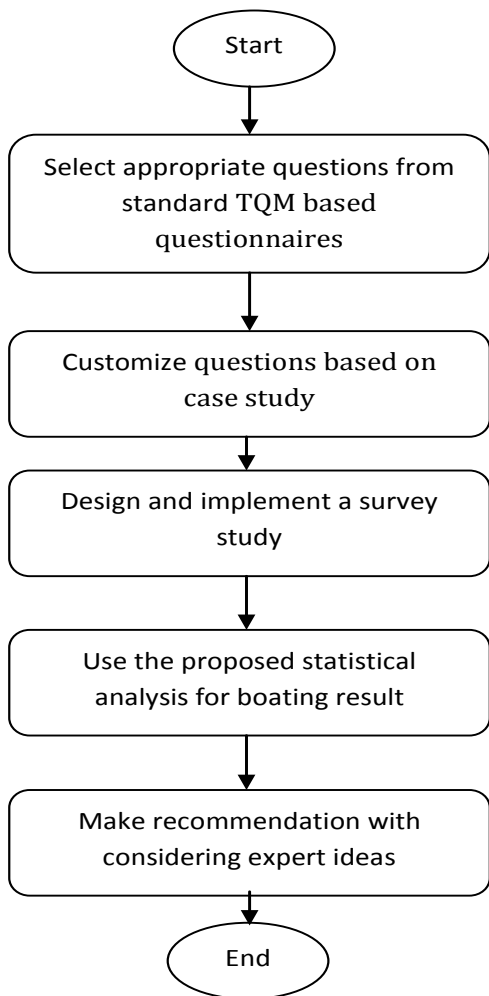


Fig.1. Proposed approach for implementing survey study.

Experimental design

In the allowing, methodical interpretation and reproducibility of the study is presented. *Data gathering:* In this research, questionnaires have been used to gather data. The questionnaire is rated on the basis of 5 options skill of likert which means excellent, good, average, poor and very poor, and was marked and used as follow. Then according to the number of questions related to each hypothesis, the total mark of each respondent is calculated. In entering the data to SPSS; there are 36 questions as the variables of q1 to q36. And the mark of each respondent is mentioned and so the matrix will be made like this (one of them is in the annex).

In the current research, Cochran sampling formula has been used to find the sample size, as follow:

- N= the whole number of sample
- n=Number of Subjects
- t= 1.96= Security coefficient, 95%
- d= 0.12= Error coefficient
- pq= 0.5= Variance pre estimate

$$N = \frac{(Nd^2 + t^2 pq)}{(Nt^2 pq)} = 45 \tag{1}$$

In order to implement the questionnaires, we visited Tehran training organization – as per the rules – and after the necessary permissions we started. we sent 45 questionnaires for the individuals (that were selected randomly) and finally 45 useful questionnaires were sent back.

Questionnaire Validity: The test will be valid when its questions are related to the scope of the subject of the test. E. g. a person who is specialized and experienced in a specific field can determine if the questionnaire contains the important objects and the scope of that subject or not; therefore, the validity of the scope is logical and it is not possible to determine the result as a number coefficient and according to statistical method.

Reliability: By reliability of the test, it means: the accuracy of measurement and its stability. The accuracy of measurement means that how much the score of the individual in this questionnaire shows its real grade. When the data collection has relied on only one test then the estimation of reliability will be through coordination among the questions. Of course, one of its limitations is that the whole measurement process will be performed by one single test in one single time. So it is not possible to reach any symmetry about the changeability over the time. The lowest numerator of the reliability analysis can be reached through cronbach Alpha:

$$\alpha = \frac{n}{(n - 1) \left(1 - \frac{\sum S_i^2}{\sum S_t^2} \right)}$$

In which, is the variance of the question, n is the number of test questions, is the variance of the whole test, i.e. The variance of total scores column in data matrix. In fact, this column variance is a measure which states the hidden property. If the cohesion of the question is very low then the level of reliability will be low as well. The amount of a which is calculated by SPSS is 0.90, that is an acceptable value

RESULT AND DISCUSSION

Statistical Analysis Methods: Analysis of the data in this research has been done in deduction level (it must be noted the gathered information is presented in appendix). In the deduction level we have used T-test in accordance with the data measurement level and basic hypothesis of the test. T-test: it is the most common – while the most useful – statistical tool which is used in research analysis that is performed by comparative scientific method. The reason is usage of low size research samples that are used for time saving and cost effectiveness. In T-distribution, the shape of the distribution is affected by the sample size and freedom degree, so we face a group of distributions practically. In this research, we use the below formula for T test:

$$t = \frac{\bar{x}_1 - \bar{x}_2 - (\bar{\mu}_1 - \bar{\mu}_2)}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}} \quad (3)$$

In the following, we impalement T test for questions:

Question1. How is the attitude of experts and managers in Deming principles’ format toward the current quality of Tehran university libraries?

	N	Mean	Std. Deviation	Minimum	Maximum
Manager-current status	45	3.4000	.65366	2.00	5.00
Expert-current status	45	3.6000	.91453	1.00	5.00

Results are presented for Question 1 above and for other questions, results are as presented above.

According to the resulted averages, we can conclude that the current manager with average 304 is not better than the current employers with average 306. According to the average of the scores resulted from Friedman test, we can conclude that the current manager with average score of 1041 is not better than the current employers with 106 average score. According to sig= 0.074 which is more than the meaning level of a= 0.05, so it is possible to conclude by 95% confidentiality that statistically there is no meaningful difference between the current management with average score of 1041 and the current employers with average score of 106.

Question 2. What is the difference between the attitude of managers and experts in Deming principles’ format toward the desired quality of Tehran university libraries?

According to the resulted averages, we can conclude that the desired situation with average of 305 is better than desired personnel average of 3034 average. According to the average of the scores resulted from Friedman test, we can conclude that desired management with score average of 1058 is better than desired personnel average of 1042. According to sig= 0.09 which is more than the meaning level of a= 0.05, so it is possible to conclude by 95% confidentiality that statistically there is no meaningful difference.

Question 3. What is the difference between the attitude of managers toward the current situation and desired situation of Tehran university libraries? According to the resulted averages, we can conclude that the desired management with average 305 is better than the current situation with average 304. According to the resulted ranking averages through Friedman test, we can

conclude that the desired management with average 1052 is better than the current situation with average 1048. According to sig= 0.594 which is more than the meaning level of a= 0.05, so it is possible to conclude by 95% confidentiality that statistically there is no meaningful difference between the managers attitude toward the current situation and desired situation.

Question 4. What is the difference between the attitude of experts toward the current situation and desired situation of Tehran university libraries?

According to the resulted averages, we can conclude that the current employees with average 307 are better than the desired employees with average 3034. According to the resulted ranking averages through Friedman test, we can conclude that the current employees with average 1068 are better than the desired employees with average 1035. According to sig= 0.003 which is less than the meaning level of a= 0.05, so it is possible to conclude by 95% confidentiality that there is some meaningful difference between the employees attitude toward the current situation and desired situation.

Question 5. Is there any meaningful difference between the attitude of the whole individuals – experts and managers – towards the current situation and desired situation in TQM implementation?

According to sig= 0.552 which is more than the meaning level of a= 0.05, so it is possible to conclude by 95% confidentiality that statistically there is no meaningful difference between the managers attitude toward the current situation and desired situation. According to sig= 0.173 which is more than the meaning level of a= 0.05, so it is possible to conclude by 95% confidentiality that statistically there is no meaningful difference between the employees attitude toward the current situation and desired situation. According to sig= 0.266 which is more than the meaning level of a= 0.05, so it is possible to conclude by 95% confidentiality that statistically there is no meaningful difference between the manager and employees attitude toward the current situation.

RESULT

The results of this research showed that most of the managers are highly skillful to hold widespread quality management courses. In line with social development and nation’s growth, also the libraries performance has changed. The libraries entered the discipline system and geographical and even global system. So it necessitates the revision of libraries management and implementing scientific methods. Ranganathan believed that library services and social developments are connected as chain loops. According to the other scholars, the libraries objectives are directly connected to the needs and goals of society. Also the information age and changes in the needs of these institute users together with the technology development made the libraries managers to implement a correct management style. This style must be able to combat the anti-human property of technology and it must use developed tools sheer as a tool and regardless of the daily management of the library, it must show the future path. The management must be able to observe a horizon exceeding the short term obstacles or other problems that impedes the organization from improvement, temporarily. So it is possible to respond the data needs of the users through they usage of quality management methods either in ISO9000, QS9000, TQM or EFQM standards groups. In fact, the libraries must leave a static management style by the help of “total quality management” method and use performance methods that are

compatible through the whole life of library. By implementing total quality management in libraries management, it is possible to inform rapidly and in-time and also increase the efficiency and provide the visitors satisfaction. The base of quality management is the quality management theories including Deming quality management theory. In the implementation of total quality management, the core concept of Deming involves 14 hints that help the quality and productivity:

1. Providing the objectives stability in order to correct and improve the products and services.
2. Embracing new philosophy.
3. Not having dependency on inspection to reach quality.
4. Ending the rewarding only through money and instead, replacing the minimum work value with one individual.
5. Constant and continuous development of each step from planning, production and service.
6. Holding work training.
7. Holding and institutionalizing leadership.
8. Eliminating fear.
9. Breaking the walls between the headquarters.
10. Omitting the slogans, recommendations and null objectives between the experts.
11. Omitting quantity portions of the expert and quantity goals of the management.
12. Omitting the barriers that vanishes the personal pride due to self-growth and also omitting the strong system of unusual grading.
13. Establishing a strong training and self-growth plan.
14. Appointing some individuals to do the transition.

Many believe that Deming idea provides the leadership principals of necessary trainings. One must pay attention to the important point that training and leadership play basic roles in TQM implementation. Therefore, total quality management exceeds just customers' satisfaction and offers qualified goods and services. Attention should be paid that administrators observe a customer as the customer of some product or service. The philosophic bases of total quality management in libraries and information services are as follow:

Process orientation: introvert (resources), (listing, summarizing and symbolizing) and extrovert (supplying the data needs of the users) are all some trends that are horizontally situated in the process and there is no vertical and hierarchical division.

Customer orientation: both the library staff and the data users are colleagues and partners, and the process and working health is dependent on the users' satisfaction and their ideas.

Continuous and widespread development of systems and processes: by focusing on enhancing processes and systems performance, we try to improve the systems and processes continuously to respond to customers' needs and expectations.

Below are four key questions in libraries management on the basis of total quality management which defines the visitors' needs so much better:

1. What do you need?
2. What are you going to do with what I will give you?
3. Is there any gap between what you need and what I offer you?
4. Is it possible that you do not need what I am going to offer you?

These discussions and questions allow the analysis of steps and exercises among work groups to meet the internal needs. Total quality management will be implemented successfully when it includes all the current processes of all departments

inherently from each department to symbolizing and listing and when it is not observed as a separate program. In total quality management; design, suitable production processes and technology selection, quality education, more involvement of the expert, considering the customers needs and measuring the work; are emphasized.

CONCLUSION

There are some differences between the managers and experts attitude toward the current quality of Tehran university libraries in Deming principals format. There is some difference between the managers and experts attitude toward the desired quality of Tehran university libraries in Deming principals format. There are some differences between the managers' attitude toward the current situation and desired situation of Tehran university libraries. There is some difference between the experts' attitude toward the current situation and desired situation of Tehran university libraries. There is some difference between the managers and experts attitude toward the current situation and desired situation.

Table.1. Gender Frequency Distribution of Participants in the Research.

Percentage	Number	Gender
63.6	28	female
36.4	17	Male
100	45	Total

Table.2. The Positional Frequency Distribution of the Participants in the Research.

Percentage	Number	Position
17.8	8	Manager
82.2	42	Expert
100	45	Total

Table.3. The Education Degree Frequency Distribution of the Participants in the Research.

Percentage	Number	Education degree
2.2	1	diploma
4.4	2	Associate diploma
60	27	Bachelor
28.9	13	Master
4.4	2	PHD
100	45	Total

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