

**THE IMPACT OF APPLYING TOTAL QUALITY MANAGEMENT ON
EDUCATION QUALITY CASE : BAGHDAD UNIVERSITY –IRAQ**

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ABSTRACT:

Quality has become an integral part of management in large and medium organizations in developing and developed countries. Total Quality Management (TQM) is new practices that lead to apply quality in all aspect of organizational functions and departments. The aim of this study is to examine the effect of TQM practices on the education quality in Baghdad university in Iraq. The researcher used quantitative approach to collect data from 285 respondents inside the University of Baghdad. The result revealed that applying the seven principles of ISO quality are very important to develop the education quality through TQM practices. It is recommended to focus on ISO quality standards in the whole educational process and open a quality office in the university to monitor the practicing the standards of TQM by the staff and teachers inside the university.

Keywords: Total Quality Management TQM, Higher Education Quality, ISO standards

1. Introduction

TQM is considered as a philosophy of modern management, which depends on several modern concepts and philosophies based on a combination of basic administrative means, innovative efforts and specialized technical skills to improve the level of performance and keep continuous improvement (Khadijah et al., 2016).

TQM has proved to be efficient and effective management in all areas of an organization, in respect to its processes, products, employees, and for the satisfaction of relevant customers and shareholders (Osuagwu, 2002).

The Higher Education in its various dimensions of knowledge, technology and research is important for developed and developing countries alike, according to the developed ones is to maintain its leadership, and for developing countries to get along with developed countries, hence, the higher education institutions play an important role in building a good man, and an important tool to achieve progress and development in the educational process (Ghnaim, 2013)

Higher education Institutes in Iraq are exercising mainly three functions, namely “teaching”; “research”; and “community services” and the role of above mentioned agencies is to monitor these Institute’s performances in these three types of functions. Teaching here is the core of all types of education and serving to transfer knowledge and skills from teacher to students (Reyaz, 2012). Academics drew on notions of quality as understood within traditional academic discourses of excellence in scholarly endeavor, where TQM in higher is deployment to achieve the desired goals of the education institutes. (Anderson, 2006).

TQM is a new philosophy of management that was established in United Arab Emirates and Gulf region in general not a long time ago. Total Quality Management in Iraq however, received little attention and researches from academics and practitioners regarding the critical success factors and continuous improvement (Iman, 2015). For this reason, this study will introduce the concept of TQM and examine the application of ISO TQM principles in Baghdad university in Iraq.

2. The Objectives of the study

This paper focuses on the concept of TQM and its effect on developing the level of quality in education. The aim of the study is to achieve the following objectives in Baghdad University:

1. Identify the basic principles of Total Quality Management.
2. Examine the effect of Total Quality Management on Education Quality.
3. Understanding the concept of quality within the academic environment.

To achieve the above objectives, the researcher conducted a survey in Baghdad University. The population consists of employees and managers in the university. The total number of collected questionnaires equal to 383.

3. The problem statement

Today, one of quality problems that are facing educational institutes is low education quality, where ISO defined these principles as an important success factor for applying TQM in any organization (Roettger et al., 2007). The problem that is discussed in this study is the weak implementation to the principles of TQM in higher education in general and in Baghdad University in particular.

4. The Methodology

The study uses quantitative approach, where the survey is employed to collect the primary data from respondents in Baghdad university. The main reason for using quantitative approach is that hypotheses can be tested accurately. The study sample consists of staff, students, and teachers as in Baghdad university. The total number of collected questionnaire equal to (385). The analysis of primary data which are collected through the questionnaire will be conducted by using Statistical Package for the Social Sciences (SPSS) version 20.0 to make the statistical analysis from the collected data. SPSS is a program for managing data for statistical analysis. The program is modular with a comprehensive basic module in addition to the most common calculations in statistics, including data management and tools for graphical representation of the result.

5. The Significance of the study

This study is focused principally on the implementation of TQM in the education sector and evaluating the effect of TQM on the performance of lecturers and professors in educational institutes. The researcher will apply the most important statistical analysis. In addition to that this is the first study that examined the effect of ISO quality management principles on education quality in Iraq, and particularly in Baghdad university.

6. The contribution of the study

This study will enhance the knowledge in TQM and its main principles as defined by ISO and scholars in quality management, the result of this study will help modern organizations within the context of higher education to develop their educational system and attract more students looking for education based on the principle of high quality in whole learning system.

7. The Concept of TQM

The TQM philosophy provides the overall concept that fosters continuous improvement in organizations. Continuous improvements (see Figure. 1) can be achieved through internal and external quality improvements (David and Shmuel, 2008). TQM calls for a cultural transformation that requires employee involvement at all levels and a spirit of teamwork among customers, suppliers, employees and managers. Employee involvement, participation and empowerment form the cornerstones of TQM (Sarhan, 2012). Quality means the 'Fitness for purpose' and 'Conformance to requirements (Pariseau and McDaniel, 1996).

The original versions of Quality Management System Standards (eventually merged to ISO 9001) were designed to contract manufacturers to produce better products, consistently and were focused on Producing, Checking and Quality Control (ISO, 2016).



Figure. 1: The main principles of TQM

Quality is a term that carries important meaning to both producer and customer. In the global marketplace today, many organizations realized that its survival in the business world depend highly on producing high quality product and services (Iman, 2015). In business, engineering and manufacturing, quality has a pragmatic interpretation as the non-inferiority or superiority of something; it is also defined as fitness for purpose. Quality is a perceptual, conditional, and somewhat subjective attribute and may be understood differently by different people (Phillips, 2008).

TQM is a management strategy developed in the 1950s and 1960s by Japanese industries, based on the practices promoted by the expert on quality control W Edwards Deming, the promoter in Japan of quality circles, also known in that country as "Deming circles" (Deming, 1986).

Indeed, a lot of organizations including those working in education have emphasized that quality should have to be put in place, integrated within the management system, especially in terms of bringing the end products or services to the customers, especially with the intense competition arriving from the rivals (George, 2012).

Today, TQM has become increasingly prevalent as one of the management strategies in ensuring customer satisfaction and loyalty and improving products. There are five aspects of quality in organizational context (Jens et al, 2002):

1. Producing by providing something.
2. Checking in a way that something is confirmed has been done correctly.
3. Quality Control in which controlling a process so that to ensure that the output is predictable.
4. Quality Management which means directing the organization towards optimization and develop its performance through various analysis, techniques and improvement plans.

5. Quality Assurance by obtaining a high level of confidence that a service or a product will be satisfactory to the customer.

8. The Principles of ISO in Higher Education

ISO, the International Organization for Standardization, is the world's largest developer of voluntary, consensus-based International Standards. The increasing international recognition of the economic, environmental and social importance of International Standards is being reflected by the inclusion of standardization as a subject in higher education programs (George, 2012).

ISO has therefore decided to create a specific award to encourage and recognize successful educational programs. ISO standard 9001 is one of a set of management tools that libraries have adopted in recent years. The ISO Award for Higher Education in Standardization is introduced in 2011. The first ISO Award was granted for China Jiliang University in 2007. The second ISO Award in education awarded in 2009 for Rotterdam School of Management, Erasmus University, Netherlands.

The ISO specified the following seven standards for all kind of organizations including educational institutes to achieve TQM (ISO, 2016):

1. Meeting customer needs
2. Leadership
3. Employees participation
4. Work engagement
5. Organized management approaches
6. Continuous Improvement
7. Sharing decision-making

Based on the above, it is evident that the seven basic standards of ISO are the pillars of TQM and are very important to achieve quality in the outcome of any organization. Moreover, if all ISO standards applied without exception in the educational process then no doubt they will enhance the educational quality. Therefore, the study tests the following hypothesis:

(There is a statistical and causal relationship between TQM practices and Education Quality.)

The researcher suggests that ISO Standards contribute effectively to sustainable improvement in the educational process by providing good practices on the use of organization resources. It is assumed that meeting customer needs, good leadership, staff participation, work engagement of all individuals in the university, good management approaches, continuous Improvement in the whole educational process, sharing decision-making should improve the educational quality in Baghdad university

9. TQM in Higher Education

Higher education plays a leadership role in education. Higher education plays a vital role in the development of society (Mustafa, 2008). Universities, for centuries, had a crucial role in educating the potential professionals, businessmen, political leaders, religious and social scholars, who serve the society, to enrich its values and develop its resources (Garrin, 2008).

The Higher Education in its various dimensions of knowledge, technology and research is important for developed and developing countries alike, according to the developed ones is to maintain its leadership, and for developing countries to get along with developed countries, hence, the higher education institutions play an important role in building a good man, and an important tool to achieve progress and development through roles such like (teaching and scientific research, and community service). To achieve these roles effectively, the institutions of higher education must be with high quality (Ghnaim, 2013). Therefore, to improve competitiveness in the domain of higher education, universities and colleges looking for a higher level of effectiveness in teaching students across all functions and educational processes should adopt TQM as the main strategy to sustain success (Bunoti, 2011). If implemented well, TQM can assist universities to improve the knowledge of students in a continuous process, and provide better educational service for students (Carroll et al., 2009; Iman, 2015; Stensaker, 2008).

Bunoti S. (2011) argued that the challenges in higher education influenced by several factors including quality of students & faculty, and academic factors associated with quality assurance. While, Al-Atiqi and Deshpande (2009) found that higher education institutes are facing many challenges such as low rate graduations, apprehension among students, rising questions of relevance of college education for public good, they suggested that applying TQM is the key factor for success in higher education

Quality in educations is an educational definition is that of an ongoing process ensuring the delivery of agreed standards. These agreed standards should ensure that every educational institution where quality is assured has the potential to achieve a high quality of content and results. The quality in educational institutes should include the following standards (Federal Quality Institute, 2014):

- **Quality Control**

Quality control refers to the verification procedures (both formal and informal) used by institutions in order to monitor quality and standards to a satisfactory standard and as intended.

- **Quality Enhancement**

Quality Enhancement is the process of positively changing activities in order to provide for a continuous improvement in the quality of institutional provision.

- **Quality Assessment**

Quality Assessment is the process of external evaluation undertaken by an external body of the quality of educational provisions in institutions, in particular the quality of the student experience.

- **Quality Culture**

Quality Culture is the creation of a high level of internal institutional quality assessment mechanisms and the ongoing implementation of the results. Quality Culture can be seen as the ability of the institution, program to develop quality assurance implicitly in the day to day work of the institution and marks a move away from periodic assessment to ingrained quality assurance.

It is evident that the implementation of quality in education through the practices of TQM is considered as one of the most major challenges that faced modern universities in applying the education systems. Communities at various levels and forms face many challenges that influenced the process of development and evolution of their educational system. Thus, this challenge did not happen coincidentally but as a result of the scientific, technological, economic and social developments. Consequently, it was necessary for the educational institutions to play its role as a pioneer of adapting the requirements and spirit of the age; thus, the adoption of quality system and considered it as a primary objective which these institutions will depend on its ability to meet the challenges as would reflect positive impact on the education policy as a whole.

10. Results and Discussions

The test of the correlation between TQM and education quality is achieved through testing following hypothesis:

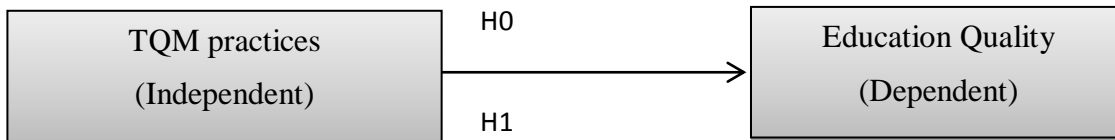
H1: There is a statistical and causal relationship between TQM practices and Education Quality.

H0 (Null Hypothesis): There is no statistical and causal relationship between TQM practices and Education Quality.

The analysis examines the above hypothesis using a simple linear regression model as shown in the following figure:

Figure (4. 2)

Regression model between TQM practices and Education Quality



The output from SPSS software result in the following model summary that shows the degree of associations between TQM practices and Education Quality (correlation coefficient R) and coefficient of interpretation (R^2) for the regression model.

Table (4. 1)

Model Summary of Simple Linear Regression output between TQM practices and Education Quality.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.626 ^a	.401	.391	.43625

The table of regression summary indicates data about the R and R^2 and shows how well the regression model predicts the variance between the two variables. The R value here equal (0.626), which is considered a moderate degree of correlation. The interpretation R^2 indicates the total variation in Education Quality that can be explained by the TQM practices. As shown above, $R^2 =$

.401 suggests that (40.10%) of the variance in Education Quality can be explained and interpreted by the variance in TQM practices. This value is statistically accepted. The adjusted R-Square value equal 39.10% which is a very small (0.1) between the adjusted R-Squared and Predicted R² from the regression output.

The ANOVA Output

ANOVA output informs about the degree of fit of the regression relationship with the data. In addition to that the ANOVA output inform if the correlation between TQM practices and Education Quality is statistically significant ($p\text{-value} < 0.05$).

Table (4. 2)

ANOVA Output

Model		Sum of Squares	df	Mean Square	F	Sig.(α) = 0.05
1	Regression	47.197	1	47.196	248.011	.000 ^b
	Residual	72.888	382	.190		
	Total	120.084	383			

a. Dependent Variable: Y_ Education quality

As shown in the table above it is obvious that the regression correlation is significantly good because ($\rho = 0.000$), which tells that, the overall regression model is statistically significant and predicts Education Quality from the TQM practices very well. In other words the output of regression indicates a good level of fit for the data.

A large F ratio specifies that the variation among independent variable is statically ($p < 0.05$). As ANOVA table indicates ($F = 248.011$), which is a large ration and indicates that the variance between TQM practices and Education Quality is statistically highly significant. Thus the null-hypothesis (H_0) is rejected and (H_1) the alternative hypothesis is true.

The Coefficients

The Coefficients table provides the necessary information to predict Education Quality from TQM practices, as well as determine whether TQM practices contributes statistically. The data in the coefficient table shows that the significance ($p < 0.05$) is statistically significant for the relationship between TQM practices and Education Quality, as shown below:

Table (4. 3)

Coefficients of regression

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.719	.117		14.679	.000
	X_TQM	.458	.029	.627	15.748	.000

a. Dependent Variable: Y_ Education Quality.

The regression equation of this model as follow:

$$Y_{\text{(dependent variable)}} = B + B1 * X_1_{\text{(independent variable)}}$$

$$\text{Education Quality} = 1.719 + 0.627 * \text{TQM practices} + 0.627$$

Based on the output of coefficient table (B= 0.627at Sig. = 0.000). This result indicates that Education Quality is highly predicted by the change in TQM practices which approves H1 and rejects H0.

The following table shows the summary of simple regression result between MIS and Education Quality:

Table (4. 4)

Summary of Regression Analysis

Output	Value	Output Table	Sig. level ($\rho < 0.05$)	Description
Pearson Correlation R	0.627	Regression	.000	Positive, moderate, and significant
R- Square R ²	0.401(40.10%)	Regression		moderate degree of variance interpretation
F- Test	248.011	ANOVA	.000	Regression model fits the data well.
Regression Coefficient	0.627	Coefficients	.000	Regression coefficient positive and statistically highly significant.

Based on the outputs of model summary, ANOVA, and Coefficients, the study rejects the null hypothesis (H0) and accepts the alternative hypothesis (H1). Therefore, it is concluded that TQM practices is highly correlated with Education Quality.

11. Conclusions and Recommendations

This study introduces the principles of TQM practices and tested its association with Education Quality. It is found that the practices of ISO standards by educational institutes is an important and reflects a good application of TQM practices and improve the academic environment in Iraq through the increase of education quality. It is concluded that the Education Quality play a significant role in development of education in the country if it followed the principles of TQM practices. The best way to achieve high level of quality in education is to apply the principles of TQM practices by the management of the university, where the result of this study reveals a statistical and significant relationship between TQM practices and Education Quality.

The study recommends to focus on ISO quality standards in the whole educational process and open a quality office in the university to monitor the practicing of TQM by the staff and teachers inside the university.

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