Presenting a Model Determining Readiness Level of Personnel Admission to Establishment TQM[1] in Isfahan Behr is Spinning and Weaving Company

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Abstract

Total quality management (TQM) is one of the most common business terms applied to promote the quality improvement recently.TQM has been applied in Japanese firms but no enough attention has been paid to it for improving the quality methods as TQM in Iran. In this research the feasibility of TQM establishment in Behr is Company has been studied. This is a descriptive-measuring research. Statistical population involves 152 persons of Behris company workforce and the sampling was conducted using formula n is equal 84 persons. The tool used was a researcher-made questionnaire that its validity confirmed by scholars and reliability by Cronbach's alpha coefficient of 0.804. The methods used are the confirmatory factor analysis, T test and F test.According to the data analysis, all of six suggested components for determining conceptual framework were approved and committed management, training and management based on the realitycomponents are provided for performing TQM.But the conditions aren't appropriate foremployee involvement, continual improvement and the customer satisfaction components. In addition, there are differences among the ideas of tree group of managers, employees, and workers.

Key words: feasibility- management- quality- Total Quality Management(TQM)

1. Introduction

Needless to say, the quality is of paramount concern to everyone. Therefore,enhancing the quality is of importance to both researchers and practitioners.

Over the past decades, Total quality management (TQM) has been considered as anessential element in organizations that was instrumental in increasing their competitive advantage and overall performance towards achieving world-class status.(Ooi&Cheah, 2010) The function of TQM is extensivelyrecognized as being a critical determinant in the success and survival of anyorganization, whether in manufacturing or service industries.

Total Quality Management has become a widespread philosophy in today's American businesses as a means ofimproving competitive positions. This is accomplished by placing an emphasis on the customer and striving for continuous improvement.An organization aspiring to become customer-oriented with emphasis on qualitywill implement the TQM concepts throughout the organization including the information systems department.(Monica & Ravinder, 1998)

1-Total Quality Management

Implementation of TQM within anorganization or individual department can be difficult since it is a philosophy andgenerally requires a major change in organizational culture. Many TQM efforts havefailed. One key and often cited reason for failed TQM programs is thelack of proper implementation.

Total quality management (TQM), as a managingconcept and method, achieved much in every Aspect of life, has been praised highly by variousmanagers and supervisors, and has been commonlyapplied in libraries, Industrial, and company in the world.

Regarding the importance of TQM in customers' satisfaction, quality improvement, and lowering the costs as well as interest and attention that recently created toward TQM resulted in the necessity of conducting such a research in Behris Company.

Given the above reasons, this paper presents an empirical study where the mainobjectives to identify TQM establishment factors in Isfahan Behr is spinning and weaving company.

2. Literature

The concepts and principles of TQM were first articulated in 195l by Feigenbaum whose work was largely ignoredby American management at that time. However, inspired by Deming and Juran, Japanese management embraced these concepts with an almost religious fervour. In the postWorld War II 1950s era, Japan began using principles taught by Deming, an American statistician, to help deal with long termcompetitive and quality control problems. It is believedthat the use of these TQM practices helped Japanese productsgradually outperform and outsell American-made products overthe next 30 years.(chen& Christy,1998)

The American TQM movement gained widespread attention in the 1980s in an attempt to improve quality related issues such as customer dissatisfaction, rising operating costs employeerelatedproblems, and other competitive barriers. (chen& Christy,1998)

TQM undergoes continuous development and improvement while being applied in factories, enterprises and libraries, while greatly promoting global quality management. Ewards Deming and J.M. Juan are the twopeople who gave birth to TQM (Viljoen and Underwood,1997). Some forty years ago, Deming, thefather of quality management revolution, pointed outthat the TQM philosophy is based mainly on the followingideas:

(1) Strong focus on the client, knowing user'sneeds and meeting those needs, even exceeding userexpectations.
(2) Commitment to quality and continuous improvement,adopting systematic and scientific approachto operations.(Yan& Kang, 2005)

It may be stated that the onset of introducing TQM in America was around 1980 in reaction to a competitive challenge with Japanese companies. Identifying TQM a competitive advantage become widespread in different parts of the world particularly in western nations. Nowadays, there are a few companies that may ignore TQM (Prajogo, 2001). Recently, TQM has been extensively considered and this research is also conducted in this regard.

3. Total Quality Management

TQM is defined as a holistic management approach that aims to achieve organizationalobjectives and fulfill customer needs by integrating every organizational function(Kumar& colleagues, 2009).

TQM is a philosophyintegrating humanistic principles as well as scientific methodologies for the purpose ofcontinuous improvementas a management philosophy; TQM is based on a set of theoretical principles that seek to mobilizeorganizational resources to better stakeholder requirements.(Guillen& Gonzalez, 2001)

Tobin (1990)defines TQM as ''the totallyintegrated effort for gaining competitive advantage by continuously improving everyfacet of organizational culture'' and lists several differences between this philosophy andtraditional management. These are:

1. Customer Focus versus Management Focus
2. Quality First versus Profits First
3. Multiple Quality Dimensions versus Single Quality Dimension

4. Management and Worker Involvement versus No Worker Involvement
5. Process Oriented versus Results Oriented.(chen& Christy,1998)

Total quality management (TQM) provides the concepts promoting continuous development in an organization. TQM philosophy emphasizes on an organizational, strategic, integrated, continual, and extensive prospect involving everyone and everything (MC Gregor, 2004). TQM is a key strategy to protect competitive advantage and a way for organizations management to improve efficiency and general performance toward attaining a better world position (ooi and colleagues, 2007).

Some outputs of TQM may be referred as; increased competitiveness, promotion and profitability, lowered costs, creating innovation, synergy, better organization, decreased production time, optimal use of the human resources and flexibility toward the customers (Siddiqui, 2007).

TQM differs from other management techniquesbecause it focuses on the outcome not the output of a particular organization. The culture of TQM is a comprehensive one, integrated, holistic, andphilosophically embedded in the basic assumptions of the organizationalculture.(Farazmand,2005)

Powell's (1995) research instrument encompassed various facets of TQM and was close to being comprehensive. Powell's instrument consisted of 12 factors: executive commitment, adopting the Philosophy, closer to customers, closer to suppliers (manufacturing only), benchmarking, training, open organization, employee empowerment, zero-defects mentality, flexible manufacturing (manufacturing only), process improvement, and measurement. For the most part,

Powell generated these elements based on normative writings rather than on empirical evidence supported by controlled, scientific studies.

A survey titled as "self-evaluation of total quality management practices" has been conducted by Arumugam & colleagues (2009). This research shows the companies power in implementing TQM principles properly in which two important principles, focus on the customer and processes management, have the most effect on gaining the success. Although the factors as communicating with providers and information have more adjusting roles, they are not of importance as the mentioned cases.

A survey titled as total quality management practices and its relationship with production personnel has been done by Ben Ooi (2007). The results of this research show that all of the practices in TQM do not affect on production and increased job satisfaction of the personnel to the same extent. Only organizational culture and team working show a positive relationship with increased job satisfaction of the personnel. This research states that when team working becomes as TQM dominating principle on the whole organization, increased job satisfaction is revealed significantly.

Timothy (1994) measured the performers and regulators readiness of central Florida University to implement TQM and study probable problems and obstacles on performing TQM in that university and found the following obstacles about performing TQM: persistence of the professors and top manager commitment, lack of a special model to perform TQM and inadequate experience of top managers and university personnel.

4. Dimensions of TQM

Frameworks required to perform TQM have been developed and improved by Crosby 14 steps, Deming 14notes, and Joran's 3-fold suggestion. These three scholars have introduced a set of key variables required to achieve the best results about the required quality. For an instance, Deming philosophy is based on improving the products and services through lowering uncertainty and changing the process of design and production (Motwani, 2001).
Some of the scientists raise four basic principles in TQM philosophy as following:

1-Culture: common values that direct the people's behavior in an organization and have a key role in customer satisfaction.
2-Teams: making benefit from personal differences within the teams to solve the problems creatively and to improve organization performance.
3-Training: instructing human capital through changing the behaviors and views of the persons (Shenawy and colleagues, 2007).

4-Leadership: ability of directing operation toward meeting the customers need.
Based on Brooks and Zetis recommendation, there are six dimensions that make the key bases of TQM programs including:

1-supporting TQM by the manager
2-using information by personnel
3-customer satisfaction
4-training support
5-involvement support
6-involvement in functions (Brooks&Zetis, 1999)

On the basis of the TQM literature, six dimensions of TQM have beenselectedas the TQM practices for this study. These six dimensions are namelycommitted management, Employee involvement, training, customer satisfaction, continual improvement, and management based on the reality.

4.1 Committed management

All TQM studies address management'srole in the implementation of a quality program. These factors are termed''Leadership'' or ''Commitment'' and are reflected in the policies and culture of theorganizations adopting the quality concepts. (Monica & Ravinder, 1998)

Leadership in an organization can be defined as the ability of a roleplayer to influence a team of employees to follow his or her instructions or missionsin order to achieve the goals or objectives that have been preset by the company.(Ooi&Cheah, 2010)

4.2 Employee involvement

Teamwork is defined as a work or project done by associates, where eachmember does a part in line with the efforts from subordinates in hierarchical levels(Mac Neil,2003), structuring the organization into work-teams is one of TQM'S basic ideologies. (Molina& colleagues, 2007)

4.3 training

Training and development has been recognized as vital to the implementation of TQM (Snape& colleagues, 1995). Formal training and development programs can stem fromhiring trainers and facilitators to provide in-house development programs, outstationtraining for employees, and e-learning courses that are provided by service providers(Lamoureux, 2006).

4.4 Customer satisfaction

Customer satisfaction is an underlying principle of the TQMconcept. It can be found in most all the discussions that address quality in general suchas the Malcolm Baldrige Award.(Powell, 1995) Customer focus can be defined as the degree to which a companyembarks to satisfy the customers' needs and expectations in a continuous manner(Ooi&Cheah, 2010).

4.5 Continual improvement

According to this principle organization management should be such a way that creates required incentives in the personnel so that organization moves toward continual improvement(Doherty, 1990).

4.6 Management based on the reality

In TQM, having the knowledge of the current performance level about products and services available for the customers and gaining information from organization personnel performance level is the first step in moving toward improvement. If we know where the beginning point is, we may be able to evaluate the progress and improvement rate resulted from our processes, products, and services. Giving true information to the persons for decision makings based on the truth than decision makings based on the feelings is one of the necessary practices in continual improvement (Hsu&Shen, 2005).

5. Methodology

This survey is an applied survey. Since the aim of this survey is to collect, describe, analyze, and give a framework, the research method is a descriptive-measuring one. Statistical population of this survey involves the whole workers and employees in administrative department and managers of Isfahan BehrisCompany with 152persons. Sampling method to this research is a classified sampling. The size of the statistical sample for this research regarding that the size of populationis definite and limited was obtained 84 at confidence level of 0.95 and certainty level of 0.01 using the following formula.

$$n = \frac{N \times Z_{\frac{\alpha}{2}}^2 \times \sigma^2}{\varepsilon^2 \quad (N-1) + \quad Z_{\frac{\alpha}{2}}^2 \times \sigma^2} = \frac{152\,(1.96)^2 \quad \times (0.667)^2}{(0.1)^2 \quad (152-1) + \quad (1.96)^2 \quad \times (0.667)^2} = 84$$

Questionnairevalidity confirmed by scholars and reliability by Cronbach's alpha coefficient of 0.804. The methods used are the confirmatory factor analysis, T test and F test

6. Findings

First question: What are TQM components in Isfahan Behris spinning and weaving company?

Table 1: KMO and BartletsTest

KMO	***0.898***
Bartlets Test of Sphericity	***Approx. Chi-Square 2398.740Df43Sig 0.000***

In order to classify the questions related to TQM evaluation in BehrisCompany, confirmatory factor analysis has been applied in which the sum of "KMO Test" was obtained 0.898 indicating the adequacy of the sample size for implementing confirmatory factor analysis. Additionally, the sum of "Bartlets Test of sphericity" was obtained 2398.740 at the significant level of p=0.000 indicating the correct separation of the factors based on the factor load coefficients. Behris Company, the following components have been confirmed and referred in table 2, respectively. Note that if factor load indicator of question is lower than 0.4, it will be omitted.

Table 2: TQM basic components

Components	***Questions***	***Accepted questions***	***Verification* variance**
committed management	***7***	***6***	***20.54***
employee involvement	***5***	***5***	***15.33***
Training	***6***	***6***	***13.53***
continual improvement	***5***	***4***	***11.51***
customer satisfaction	***5***	***5***	***7.6***
management based on the reality	***5***	***4***	***7.1***
TQM	***33***	***30***	***75.68***

Second question:According to confirmed components, what suitable framework for TQM may be given in Isfahan Behris spinning and weaving company?

According to the information of table (2), it is observed that by factorizing the questions to about 75.68 of the total variance, we may clarify TQM based on 6 factors. Moreover, to separate and name the factors, rotation technique of Varimax has been used.It was revealed that the results of Factor Analysis are consistent with the initial classification of the questions. For this purpose, factorization of the questions has been reported.

Table 3: related to verification of final variance based on six-fold factors

Extraction Sums of Squared Loadings				**Rotation Sums of Squared Loadings**		
Components	***Total***	***% of Variance***	***Cumulative%***	***Total***	***% of Variance***	***Cumulative%***
1	***15.25***	***51.74***	***51.75***	***6.16***	***20.54***	***20.54***
2	***1.99***	***6.65***	***58.40***	***4.6***	***15.33***	***35.87***
3	***4.48***	***4.94***	***63.35***	***4.06***	***13.53***	***49.41***
4	***1.47***	***4.93***	***68.25***	***3.45***	***11.51***	***6.92***
5	***1.18***	***3.93***	***72.21***	***2.29***	***7.65***	***68.58***
6	***1.03***	***3.64***	***75.68***	***2.13***	***7.1***	***75.68***

By applying the information of table (3) an appropriate framework of TQM may be designed for Behris Company

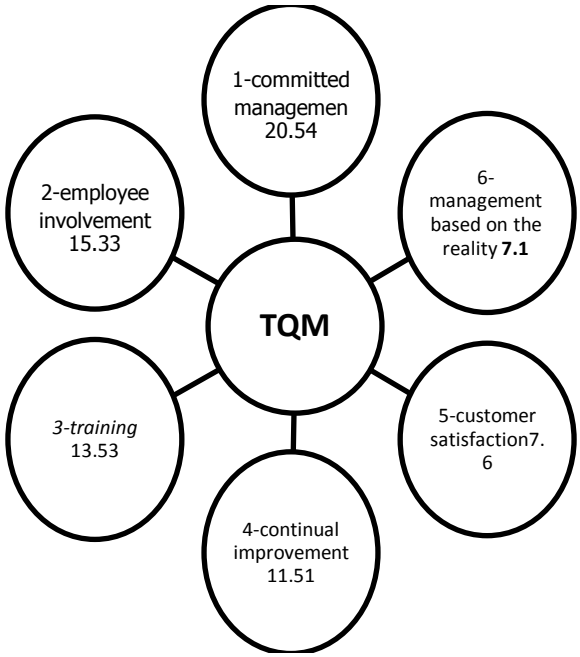

Figure (1): The appropriate framework of TQM for Behris Company

Third question: Is there the feasibility of implementation and accomplishment of TQM based on confirmed components in BehrisCompany of spinning and weaving?

To measure the feasibility of performing TQM in Isfahan BehrisCompany, T-Test has been applied.

Table 4: T Test

Factor	Mean	Std. Deviation	*t*	*Sig*	*Test result*
committed management	*3.34*	*0.95*	*3.20*	*0.002*	*Accepted* H_1
employee involvement	*2.85*	*1.28*	*-0.99*	*0.324*	*Accepted* H_0
Training	*3.61*	*0.82*	*6.66*	*0.000*	*Accepted* H_1
continual improvement	*2.77*	*1.27*	*-1.58*	*0.118*	*Accepted* H_0
customer satisfaction	2.99	*1.26*	*-0.07*	*0.94*	*Accepted* H_0
management based on the reality	*3.5*	*0.95*	*4.7*	*0.000*	*Accepted* H_1

On the basis of the T Test,factors of committed management, training and management based on the realityare provided for performing TQM.But the conditions aren't appropriate for the components of employee involvement, continual improvement and the customer satisfaction.

Fourth question: is there any difference among the managers, employees in administrative department, and workers' views about the feasibility of TQM implementation?

Since the variables have been fixed at three-status nominal level and the views variable of these three groups also fixed at a distance measured level, variance analysis test has been used.

Table 5: One- Way ANOVA

	Sum of squares	*df*	*Mean squares*	*F*	*Sig*
Between group	***45.839***	***2***	***22.92***	***73.62***	***0.000***
Within group	***23.97***	***77***	***0.311***		
Total	***86.80***	***79***			

According to the table 5 regarding that F=73.62 and Sig=0.000 it may be concluded that zero assumption meaning the lack of difference among three groups is rejected and H1 assumption accepted, that is, there is a significant difference among the views of three manager, employee, and worker groups about the feasibility of TQM implementation.

7. Results

According to the data analysis and on the basis ofthe confirmatory factor analysis,all of six suggested components for determining conceptual framework were approved .

On the basis of the confirmatory factor analysis and clarified variance, a suitable framework was attained to perform TQM in Isfahan Company of Behris. Among these six components, committed management is the first and most important component suggested in an appropriate framework of TQM for Isfahan Company of Behris. The rest components of clarified variances are as following, respectively:employee involvement ،training ، continual improvement ،customer satisfaction وmanagement based on the reality.

According to the data analysis and on the basis of T test, Components ofcommitted management, training and management based on the realityare provided for performing TQM.But the conditions aren't appropriate for the components of employee involvement, continual improvement and the customer satisfaction. In addition,on the basis of F test there are differences among the ideas of tree group of managers, employees, and workers.

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