Some obstacles that affect the TQM implementation in Bangladeshi RMG Sector: An empirical study

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Abstract

This paper empirically examines the TQM obstacles faced by the managers of RMG sector in Bangladesh. Now a day, the demand for quality improvement of the product has been raised to cope with the challenges in marketplaces. TQM implementation has already shown a positive attitude towards quality improvement. As a result, Bangladeshi RMG firms are trying to implement TQM in their organizations. Unfortunately, they are not able to implement TQM in their organizations. To determine the exact obstacles, two-pronged approached are used: first, an extensive literature review has been conducted to find out the obstacles of TQM implementation and second, data have been collected from some selected Bangladeshi RMG firms. 25 obstacles have been identified so far. Finally, five obstacles have been selected for empirical test according to the expert’s opinion. The findings of this study suggest that, the most important barriers are lack of: top-management commitment to quality, focus on customer, continuous improvement, quality management practice, and knowledge about quality cost. This study is unique in terms of investigating TQM obstacles in this sector. Therefore, this paper can contribute to meet an urgent need of successful implementation of TQM in Bangladesh and other developing countries in the world.

Keywords
TQM implementation, Continuous improvement, RMG sector.

1. Introduction

Bangladeshi firms are getting opportunities to explore their business in abroad due to globalization. For this reason, several firms are looking for sustainable business environment (Al-Zaabi et. al., 2013; Jaeger and Adair, 2016; Lee, 2012; Shen et. al., 2013; Weckenmann et. al., 2015). They are comparing their firms with other organizations as a benchmark to improve their quality (Sit et al., 2011). Total quality management (TQM) has played a positive role to achieve their goal. Now a day, several firms in different sectors are using the TQM philosophy to achieve their success across the globe (Mosadeghrad, 2014; Sit et al., 2011; Talib et al., 2013; Talib,2013). They are enjoying several sustainable competitive advantages. Among the several benefits enjoyed by the several successful TQM implemented firms, customer satisfaction and better organizational structure are most important, because these two benefits can lead a firm more towards sustainable development (Bhat and Rajashekhar, 2009; Mosadeghrad, 2014; Talib et al., 2011a, b & c). Similarly, readymade garments (RMG) sector in Bangladesh are trying hard to increase their quality of product through application of TQM. But, in most of the cases, the RMG firms are facing difficulties to implement TQM successfully in their organizations (Syduzzaman et. al., 2016). During the implementing of TQM, they become familiar with some obstacles that hinder the TQM implementation. As a result, this RMG sector fails to achieve the benefits of TQM implementation. To address this gap, it is essential to identify the important obstacles of TQM implementation in RMG sector in Bangladesh. Therefore, this research has given emphasis on:

i) To investigate the important obstacles of TQM implementation in Bangladeshi RMG sector.
ii) To develop a research framework that will investigate the effect of different barriers.
iii) To validate the framework empirically by exploratory and confirmatory factor analysis followed by structural equation modeling (SEM).
It is a survey–based research to study the potential obstacles related to TQM implementation in Bangladeshi RMG sector. The rest of the paper is arranged into five sections. The first section covers the literature review relating TQM obstacles. The second section provides design of current research. Research methodology is discussed in section three. The next section consists of data analysis and discussion on findings. Finally, in section fifth, limitations and scope of future studies are summarized.

2. Literature Review

It is essential to change the culture of the employees in doing their works before implementing TQM in that organization. There are several reasons for the failure of TQM implementation in an organization. The main aim of this literature review to find out the potential obstacles of TQM in Bangladeshi RMG sector. There are two common obstacles responsible for failure of TQM implementation (Bhat and Rajashekkhar, 2009). They are lack of strategic planning and supportive culture to implement TQM. In their study Liu (1998), Rahim and Whalen (1994) have identified lack of top management support, lack of proper training as most important TQM barriers. The implementation barriers of TQM are present in all sectors including service, production, Government and education (Claver et al., 2003; Hansson and Keflsjo, 2003; Seetharaman et al., 2006). Therefore, the necessity of understanding of these obstacles is very much essential for successful implementation of TQM (Bhat and Rajashekkhar, 2009; Haines III and St. onge, 2012; Sila., 2007; Soltani et al., 2005a&b; Venkatraman, 2007). A comprehensive list of 25 distinct TQM obstacles is prepared through an extensive literature review. This comprehensive list is presented in Table 1.

<table>
<thead>
<tr>
<th>No</th>
<th>Barriers</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lack of top-management commitment</td>
<td>Bhat and Rajashekkhar (2009), Venkatraman (2007), Soltani et al. (2005),</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mosadegh Rad (2005), Jun et al. (2004)</td>
</tr>
<tr>
<td>2</td>
<td>High turnover at management level</td>
<td>Jun et al. (2006), Soltani et al. (2005), Mosadegh Rad (2005), Jun et al. (2004)</td>
</tr>
<tr>
<td>3</td>
<td>Attitude of employees towards quality</td>
<td>Helms and Mayo (2008), Mosadegh Rad (2005)</td>
</tr>
<tr>
<td>4</td>
<td>Lack of proper training and education</td>
<td>Bhat and Rajashekkhar (2009), Jun et al. (2004), Huq (2005), Soltani et al. (2005), Mosadegh Rad (2005),</td>
</tr>
<tr>
<td>6</td>
<td>Human resource barrier</td>
<td>Bhat and Rajashekkhar (2009), Jun et al. (2004), Venkatraman (2007), Mosadegh Rad (2005),</td>
</tr>
<tr>
<td>7</td>
<td>No benchmarking</td>
<td>Bhat and Rajashekkhar (2009), Jun et al. (2004)</td>
</tr>
<tr>
<td>8</td>
<td>Poor planning</td>
<td>Bhat and Rajashekkhar (2009), Jun et al. (2004), Mosadegh Rad (2005)</td>
</tr>
<tr>
<td>9</td>
<td>Employee’s resistance to change</td>
<td>Bhat and Rajashekkhar (2009), Jun et al. (2004), Venkatraman (2007), Soltani et al. (2005)</td>
</tr>
<tr>
<td>10</td>
<td>Inadequate use of empowerment</td>
<td>Bhat and Rajashekkhar (2009), Jun et al. (2004), Mosadegh Rad (2005)</td>
</tr>
<tr>
<td>11</td>
<td>Lack of continuous improvement culture</td>
<td>Huq (2005), Mosadegh Rad (2005)</td>
</tr>
<tr>
<td>12</td>
<td>Lack of communication</td>
<td>Helms and Mayo (2008), Huq (2005), Mosadegh Rad (2005)</td>
</tr>
<tr>
<td>16</td>
<td>Bureaucracy or Structural rigidity</td>
<td>Gallacher (1991), Soltani et al. (2005b), Gijo and Rao (2005)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cândido and Santos (2011)</td>
</tr>
</tbody>
</table>
2.1 Obstacles of TQM implementation in various countries other than Bangladesh

Bhat and Rajashekhar (2009) have reported 21 obstacles that are faced by the managers during implementation of TQM in Indian industries. Their studies are aimed at understanding the barriers followed by a survey of quality award-winning industries in India. Further, a study by Cândido and Santos (2011) identified 22 barriers that organizations might have experienced during TQM implementation. The survey is conducted to assess the extent to which TQM is harder to implement compared to other strategies. Their analyses suggest that there is no ground to assume that TQM is more difficult to implement than other business strategies. Jun et al. (2004) examined some obstacles that the Mexico's Maquiladora industry experienced and compared their findings with similar research on US industries. The findings suggest that the most important barrier in the Maquiladora industry is "high employee turnover".

Again, the study conducted by Amar and Zain (2002), have listed 11 obstacles that are experienced by the managers of Indonesian manufacturing firms. The most important barriers are: lack of human resources, resistance to change, organizational culture, attitude towards quality, lack of information, and so on. Gunasekaran (1999) has arranged interviews of several employees working at different areas in manufacturing firms in the UK. He has given emphasis on investigating the enablers of TQM implementation empirically. His investigation reveals that the most important enabler is poor communication among the departments.

2.2 Obstacles of TQM implementation in Bangladesh

TQM philosophy is new for the managers of Bangladeshi firms (Akhter, 2015; Rahman and Masud, 2011; Seddiq and Basak, 2014). An extensive literature review suggested that no study has been conducted to empirically investigate the obstacles to implement TQM in this sector. It is essential to identify the barriers of TQM in order to increase its success rate of implementation (Jaeger and Adair, 2016; Ng et al., 2014; Rasid and Taibb, 2016; Wang et al., 2012).

2.3 Research gap

Based on the previous literature review, we have identified two important research gaps. First, no study has been conducted to investigate TQM obstacles in the RMG sector in Bangladesh. Second, no significant model has been developed so far to empirically investigate the TQM barriers in this sector.

To address the research gaps, we have established a model to empirically examine some common obstacles present in this sector.

3. Research framework and hypothesis development

Development of a framework is a primary task in each empirical study. We have gone through different models proposed by several researchers (Aamer et al., 2017; Dubey, 2015; Jayram et al., 2010; Koh and Low, 2010; Shahin and Dabestani, 2011; Zeng et al., 2015). As there is no significant model present in this sector, we find out the elements of this model as per extant literature review and expert’s opinion. We discussed our model with five experts of which three from industrial and two from academic. We simply used direct linkage model in this situation. Our proposed model is shown in the Figure 1. To validate the proposed model, the following hypothesizes are developed.
3.1 The effect of top management commitment on TQM implementation

In most of the cases, the top management feels that, quality is a less important activity than finance, production, and marketing (Balding, 2005; Harrington and Williams, 2004; Jacobsen, 2008). As a result, they are less committed to quality. They do not take initiative to make long-term strategy for quality improvement. They simply ignore the importance of sending their employees for quality training on regular basis (Abdullah, 2010; Ali et al., 2010; Das et al., 2011; Zelnik et al., 2012). For this reason, the improvement of quality culture is greatly hampered. As per literature, top management commitment plays a great role in the success of TQM implementation. We have built our hypothesis:

**H1:** Top management commitment to quality has a positive role on TQM implementation.

3.2 The effect of customer focus on TQM implementation

To bring long-term profit, it is essential to focus on customer-centered business (Mosadeghrad, 2006; Wakefield et al., 2001). The main principle of customer-centered business is to satisfy the customers by quality products. Very few firms are doing this kind of business; but in most of the cases, the firms have no idea about this business, even they have no customer feedback system in their organization (Baird et al., 2011; Gimenez et al., 2013). Beside this, they actually fears to receive customer complains (Fu et al., 2015). As a result, the firms are not able to satisfy their customers anymore and finally they are losing their business. The key component of TQM is to make an endless effort for maintaining the quality of the product (Sila, 2007). Therefore, TQM can help a business organization to do their customer centered business. As per literature, the customer focus plays a significant role on TQM implementation. Our hypothesis is:

**H2:** Customer focus has a positive role on TQM implementation.

3.3 The effect of continuous quality improvement practice on TQM implementation

Many firms have lost their business due to their ineffective plan for continuous quality improvement (Mosadeghrad, 2005). But, quality is considered as the best way for fighting against competitive business environment (Raja et al., 2007; Seetharaman et al., 2006). In order to build continuous quality improvement culture, an integration of tools, techniques, and training is very much essential. This right integration will ensure the improvement of operations in all disciplines of a firm. Three elements of continuous improvement are process improvement, total involvement, and customer focus. They are also the three best principles of TQM. To establish a continuous quality improvement culture, it is essential to implement TQM practices in the organization. As per literature, continuous quality improvement culture plays a significant role on TQM implementation. Our hypothesis is:

**H3:** Continuous quality improvement has a positive role on TQM implementation.

3.4 The effect of quality management practice on TQM implementation

The main aim of a quality management system is to ensure that organization will provide right quality of product according to the need of the customer (Hamidi and Zamanparvar, 2008; Kozak et al., 2007; Mosadeghrad, 2005). This can be achievable through regular and strict practice of quality management system (Chan and Ho, 1997; Francois et al., 2003; Hamidi and Zamanparvar, 2008; Oakland, 2011). In other word, quality management system is a set of requirements to ensure quality to the customers (Dahlgaard-Park, 2012; Zehir and Sadikoglu, 2012).
quality management system is considered as subset of TQM because; there are a lot of philosophical similarities between them (Mosadeghrad, 2005; Psychogios and Priporas, 2007; Soltani et al.,2005a&b). For example, there are eight philosophical similarities between ISO 9001:2008 and TQM. They are customer focus, leadership, people involvement, process improvement, system approach to management, continuous improvement, factual approach in decision-making, better supplier relationship. Therefore, practice of any quality management system helps to implement TQM easily. As per literature, quality management practice plays a significant role on TQM implementation. Our hypothesis is:

**H4: Quality management practice has a positive role on TQM implementation.**

### 3.5 The effect of quality cost knowledge on TQM implementation

Philip Cosby has defined cost of quality as awareness tool of quality importance. The cost of quality is divided into four categories (Abd-Manaf, 2005;Jain, 2013; Shortell et al., 1995; Zabada et al., 1998). They are prevention, appraisal, internal failure, external failure cost. The cost of quality has a significant impact on achievement of organizational goal because the cost of poor quality is alarming. It is usually near about 10 to 15 % of total operational cost (Francis et al., 2003; McNulty and Ferlie, 2002; Tari et al., 2010). So, the knowledge of quality cost analysis will create an opportunities to identify quality problems and saving the resources involved in poor quality activities ( Mosadeghrad, 2006; Valenstein et al., 2004). The objective of TQM is “Do the right things, right the first time, every time”. Thus, a good quality management system will make TQM practice effective and subsequently reduce the risk of cost of poor quality. As per literature, the knowledge about the quality cost plays a significant role on TQM implementation. Our hypothesis is:

**H5: Knowledge on quality cost has a positive role on TQM implementation.**

### 4. Research methodology

#### 4.1 Survey questionnaire

A set of questionnaire are placed to the quality managers of some selected RMG firms in Bangladesh through e-mail and fax. During the formulation of questionnaire, we have gone through the papers of several authors (Jayaram et. al., 2010; Mosadeghrad,2013; Tari et. al., 2007; Valmohammadi, 2011;Zhang et. al., 2000). The questionnaire consist of two sections.

**First section:** This section consists of 15 questions regarding the top management on quality, customer focus, and continuous quality improvement. Five point Likert scale is used to measure the opinion of respondents (where, strongly disagree = 1 and strongly agree = 5).

**Second section:** This section consists of 10 questions regarding the quality management system and knowledge about the cost of quality. Five point Likert scale is used to measure the opinion of respondents (where, strongly disagree = 1 and strongly agree = 5).

#### 4.2 Contend validity of questionnaire

Twenty-five questionnaires are used to determine the TQM barriers. Five items are measured for each construct. Five senior experts have reviewed our final questionnaires. We have used multi-item measurement system to increase reliability. Therefore, extensive literature review and expert’s opinion have ensured the content validity issue of the study (Hair et. al., 2006). A comprehensive list of six constructs (i.e. five constructs for TQM obstacles and one constructs for TQM implementation) with their measuring instrument is shown in Table 2 with supportive literature.

<table>
<thead>
<tr>
<th>Scales</th>
<th>Items</th>
<th>Factor loadings</th>
<th>VIF</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Top management commitment</strong></td>
<td>Shortage of time</td>
<td>0.793</td>
<td>1.171</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Chronbatch’s alpha 0.636, SCR 0.758, AVE 0.413, VIF 1.135</td>
<td>Lack of long-term planning</td>
<td>0.795</td>
<td>1.586</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Poor communication</td>
<td>0.715</td>
<td>2.092</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Lack of information system</td>
<td>0.807</td>
<td>1.313</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Employee’s resistance to change culture</td>
<td>0.938</td>
<td>1.215</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
4.3 Sample
The database of Bangladesh Garment Manufacturers and Exporters Association, BGMEA, 2015-2016 has been used for this study. According to the information provided by BGMEA, there are 4300 RMG firms in Bangladesh. A sample size of 355 firms are selected by Yamme’s formula (1967) with a confidence level of 95%. Hair et al., 2006 supports that 150 sample size is satisfactory for confirmatory factor analysis (CFA) (Braunscheidel and Suresh, 2009; Schoenherr and Mabert, 2011). Table 3 shows the respondent profile.

<table>
<thead>
<tr>
<th>Scales</th>
<th>Items</th>
<th>Factor loadings</th>
<th>VIF</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer focus</td>
<td>Lack of customer satisfaction</td>
<td>0.678</td>
<td>1.217</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Lack of customer feedback system</td>
<td>0.855</td>
<td>1.277</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Poor customer relationship</td>
<td>0.843</td>
<td>1.357</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Poor controlling of customer feedback system</td>
<td>0.774</td>
<td>2.656</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Lack of training on customer feedback system</td>
<td>0.637</td>
<td>1.636</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Continuous quality improvement practice</td>
<td>Lack of Continuous improvement culture</td>
<td>0.850</td>
<td>2.225</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Lack of processes improvement monitoring</td>
<td>0.703</td>
<td>1.418</td>
<td>0.007</td>
</tr>
<tr>
<td></td>
<td>Lack of cross-functional teams</td>
<td>0.809</td>
<td>2.835</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Resistance to change culture</td>
<td>0.803</td>
<td>2.309</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Lack of empowerment of employees</td>
<td>0.985</td>
<td>1.175</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Quality management practice</td>
<td>Lack of financial support</td>
<td>0.853</td>
<td>1.530</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Lack of sufficient physical resources</td>
<td>0.567</td>
<td>1.196</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Excessive paper work</td>
<td>0.722</td>
<td>1.853</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Lack of employee training</td>
<td>0.889</td>
<td>1.351</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Using quality management certificate for business purpose</td>
<td>0.873</td>
<td>1.310</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Knowledge on cost of quality</td>
<td>Lack of knowledge about quality cost</td>
<td>0.703</td>
<td>2.375</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>No benchmarking of current process</td>
<td>0.669</td>
<td>1.944</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Lack of identification of quality problems</td>
<td>0.784</td>
<td>2.331</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Inappropriate use of resources</td>
<td>0.861</td>
<td>1.659</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Management turnover</td>
<td>0.791</td>
<td>1.795</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>TQM implementation</td>
<td>Customer satisfaction</td>
<td>0.841</td>
<td>1.484</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Employee job satisfaction</td>
<td>0.898</td>
<td>2.953</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Continuous quality improvement</td>
<td>0.922</td>
<td>2.574</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Participation in team work</td>
<td>0.929</td>
<td>2.011</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Communication improvement</td>
<td>0.931</td>
<td>1.437</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

4.4 Survey method and data collection
Split survey methodology has been used for this study (Podsakoff et. al., 2003; Dillman, 2007). We have randomly chosen 150 RMG firms from the comprehensive list of BGMEA in 2016. 100 out of 150 firms has participated in this questionnaire survey. Finally, the overall response rate is found 100/150=66% which is adequate for the study purpose because non-response bias test says that there is no response bias in this survey.
4.5 Non-response bias test
The impact of the non-response bias has been checked (Chen and Paulraj, 2004). For this purpose, 35% of early replay is compared with its analogous late replay in sample group by chi-square test. It is found that; chi-square test gives a satisfactory result which indicates that this study has passed out the non-response bias issue.

5. Data Analysis and discussion

5.1 Descriptive statistic
Calculation of variance, normality, and outliers have been performed on the data set to evaluate the variability in measuring instruments. Maximum absolute value of skewnes and kurtosis are calculated 1.3 and 4.215 correspondently. It is well within limit found in the previous studies (Curran et al., 1996; Stevens, 1984; Cohen et al., 2003). Further p-value for Mardia’s (1970) coefficient is calculated more than 0.05, which indicates the presence of multivariate normality (DeCarlo, 1997).

5.2 Factor analysis
In factor analysis, variables are grouped into factors on the basis of their common correlations. For our study we proposed principle component analysis method with varimax rotation to extract six latent factors (Eigen value greater than 1). Adequacy of sample size for factor analysis is ensured by Kaiser-Mayer-Oklin (KMO) value which is found 0.68. It indicates that 68% of total variance is explained by the six latent factors. As 25% of total variance is explained by the first factor, there is no common bias issue in this study. Table 2 represents the factor loading, Chronbatch’s alpha, Average Variances Extracted (AVE), Composite Reliability (SCR), Variance Inflation Factors (VIF) for each construct. To test the reliability of questionnaire with measuring scale, reliability co-efficient such as Chronbatch’s alpha is commonly used (Nunnaly, 1978). The value of Chronbatch’s alpha in all cases is found well above the critical limit (i.e. 0.6). Therefore, the latent constructs confirms the convergent validity test (Fornell and Larcker, 1981). Table 4 represents the discriminant validity matrix. From Table 4 it is found that, values in column under each diagonal element are not greater than the diagonal value (square root of AVE for each latent construct). Therefore, this model confirms the discriminant validity test (Fornell and Larcker, 1981). Finally, the current model fulfill the criteria of good model fit.

Table 4. Discriminant validity matrix.

<table>
<thead>
<tr>
<th>constructs</th>
<th>Top management commitment</th>
<th>Customer focus</th>
<th>Continuous quality improvement practice</th>
<th>Quality management practice</th>
<th>Knowledge on cost of quality</th>
<th>TQM implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top management commitment</td>
<td>0.645</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer focus</td>
<td>0.071</td>
<td>0.823</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuous quality</td>
<td>0.063</td>
<td>0.631</td>
<td>0.741</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>improvement practice</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality management practice</td>
<td>0.128</td>
<td>0.401</td>
<td>0.610</td>
<td>0.682</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge on cost of quality</td>
<td>0.254</td>
<td>0.010</td>
<td>0.236</td>
<td>0.321</td>
<td>0.621</td>
<td></td>
</tr>
<tr>
<td>TQM implementation</td>
<td>0.241</td>
<td>0.062</td>
<td>0.028</td>
<td>0.091</td>
<td>0.228</td>
<td>0.751</td>
</tr>
</tbody>
</table>

5.3 Hypothesis testing
Structural Equation modeling (SEM) technique is used to test the hypothesis (Gupta and Misra, 2016). Some indices are used to determine the good model fit of structural model which are summarized in Table 5. All hypothesizes are found statistically significant which are shown in Table 6.

Table 5. Model fit indices

<table>
<thead>
<tr>
<th>Index</th>
<th>Value</th>
<th>Acceptable range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average path coefficient (APC)</td>
<td>0.157 at p=0.002</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Average R-squared (ARS)</td>
<td>0.218 at p=0.001</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Average block VIF (AVIF)</td>
<td>1.163</td>
<td>acceptable if ≤ 5, ideally ≤ 3.3</td>
</tr>
</tbody>
</table>

Table 6. Structural equation modeling analysis and support of hypothesis.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>β</th>
<th>VIF</th>
<th>p-value</th>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: Top management commitment → TQM implementation</td>
<td>0.215</td>
<td>1.135</td>
<td>p&lt;0.001</td>
<td>yes</td>
</tr>
<tr>
<td>H2: Customer focus → TQM implementation</td>
<td>0.135</td>
<td>1.734</td>
<td>p=0.012</td>
<td>yes</td>
</tr>
</tbody>
</table>
The first hypothesis is statistically significant at \( p < 0.001 \). The \( \beta \) value is 0.215. This hypothesis suggests that, the managers of Bangladeshi RMG firms are spending less time on quality improvement activities. As a result, long term strategy for quality improvement is always neglected in this sector. Further, the quality improvement policy is not well communicated through the organization. This finding is also supported by some previous studies (Balding, 2005; Harrington and Williams, 2004; Jacobsen, 2008; Mosadeghrad, 2006; Matherly and Lasater, 1992; Wakefield et al., 2001).

The second hypothesis is statistically significant at \( p = 0.012 \). The \( \beta \) value is 0.135. This hypothesis suggests that, the majority of the RMG firms claim to give customer service, but in reality, they are focusing much on operations rather than customer. These type of firms spend less time for building relationship with customer. For an example 60% of them have not adequate customer feedback system. This finding is further supported by several past literatures (Boselie and Wiele, 2002).

The third hypothesis is statistically significant at \( p = 0.010 \). The \( \beta \) value is 0.226. This hypothesis suggests that, most of the firms possess different quality management certificates, but actually they are not practicing accordingly. Unfortunately, they are using this opportunity for marketing purpose rather than continuous quality improvement. Besides this, the management people are gradually losing their interest on quality improvement practice because of excessive paper work. Several researchers also have supported this finding (Mosadeghrad, 2005; Raja et al., 2007; Seetharaman et al., 2006; Valmohammadi, 2011).

The fourth hypothesis is statistically significant at \( p < 0.001 \). The \( \beta \) value is 0.326. This hypothesis suggests that, lack of co-operation among the several departments of a firm hampers to build up continuous quality improvement culture in an organization. Another important reason for the failure of quality culture is the poor mind-setup of the management people to give importance on process improvement. This finding is further supported by several past literatures (Balding, 2005; Francois et al., 2003; Hamidi and Zamanparvar, 2008; Jacobsen, 2008; Kozak et al., 2007).

The fifth hypothesis is statistically significant at \( p < 0.001 \). The \( \beta \) value is 0.145. This hypothesis suggests that, the majority of the RMG firms fail to identify the quality related problems at the early stage of production process. As a result, resources are being used to produce poor quality product and incur loss due to cost of poor quality. This finding further supports the argument of previous studies (Francois et al., 2003; Mosadeghrad, 2006; McNulty and Ferlie, 2002; Valenstein et al., 2004).

6. Conclusion
A survey is conducted in some selected RMG firms in Bangladesh. This survey results are described in this study. A test on reliability and validity are performed on survey instruments and are found satisfactory. The results reviles that all five obstacles mentioned in the previous discuss have positive influence on TQM implementation in RMG sector in Bangladesh. They are lack of top management commitment, customer focus, continuous quality improvement practice, quality management practice, and knowledge about the cost of quality.

6.1 Contribution of the study
This study can contribute a lot to those firms that are planning for TQM implementation by shearing the unavailable experience learnt during the survey on RMG sector in Bangladesh. On other word, the manager of a firm gives much attention on these five obstacles; it will help to improve the success rate of TQM implementation.

6.2 Limitations and future research
There are some limitations of our study. First, the response rate, it is not poor but need to be improved. Second, accuracy of data, the interviewees are asked to response on their perceive thinking. But in reality, a small portion of interviewees (top management only) has not given perceive data. Actually it is very difficult to overcome such situation. Third, survey result, it is based on the context of Bangladeshi RMG sector. Therefore, these findings can
not be conveyed directly to other sectors, because these obstacles occur to varying degree with frequency in the context of different types of firms. It is necessary to perform the replication of this study in other sectors in order to examine whether these obstacles are present in that sector. There is another scope of integrating different organizational theories with this model so that the organization can obtain more knowledge from the investigation of new TQM obstacles.

References


Hamidi, Y. and Zamamparvar, A. (2008), “Quality management in health systems of developed and developing countries: which approaches and models are appropriate?”, Journal of Research in Health Sciences, 8(2), 40-50.


Biographies

Subrata Talapatra, serving as an Assistant Professor in the department of Industrial Engineering and Management of Khulna University of Engineering & Technology. He obtained his B.Sc. in Mechanical Engineering from Rajshahi University of Engineering & Technology and M.Sc. in Industrial Engineering and Management from Khulna University of Engineering & Technology. His areas of research are Statistical Quality Control, Ergonomics, Operation Research, and 3d-Drawing. He is also a member of Institution of Engineers (Bangladesh) and IEOM.

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