THE EFFECTIVENESS OF TOTAL QUALITY MANAGEMENT (TQM) TRAINING SPECIAL REFERENCE WITH SELECTED MANUFACTURING COMPANIES IN AMPARADISTRICT, SRI LANKA

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ABSTRACT
The main purpose of the study is to emphasize measuring the effectiveness of total quality management in manufacturing organizations. The data were collected through a structured questionnaire and interview from the sample of the study consisted of 350 employees from selected manufacturing organizations in Ampara district, Sri Lanka. The study found that there exists a positive and significant correlation between TQM training and selected elements of TQM such as the commitment of employees, improving quality leadership, skills development, continuous improvement, and customer satisfaction. However, organizations must provide employees to facilitate to improve interpersonal communication and enhance their communication competencies throughout the TQM training. The findings of the study contribute to the TQM literature and help the management and policymakers to achieve the goals of the organization through continuous improvement. Further, it suggests that training is the key factor to enhance numerous TQM tools at a great level to achieve a competitive advantage in the global market.

Keywords: Total Quality Management (TQM), training, manufacturing company, commitment of employees, quality leadership, skills development

1. INTRODUCTION
In the present context of liberalization and globalization of the economy, companies face a lot of challenges. Before the ‘era of liberalization, it was not quite common to emphasize the quality of products, systems, and procedures, and customer focus, etc. But, after the liberalization process, these aspects have become imperative for the very survival of many organizations. The business units are ever-increasingly forced to achieve world-class manufacturing capabilities in order to compete and, in many cases, to survive in the market, one of the means to achieve the world-class manufacturing capability is through the practices of Total Quality Management (TQM). Global competition has increased during the past few decades. According to Nkechi Eugenia (2010), since the quality of goods is determined by customers thus customers are the only factor than can create competition among organizations. Further, this makes factories focus more on quality. Nowadays, gaining competition has become a matter of knowing customers’ needs and wants. In fact, customers have become the starting point rather than the endpoint in any successful business. Nkechi Eugenia (2010) mentions that organizations in order to survive need to create new management based on quality management. Since the 1980s, total quality management (TQM) has become among the most commonly used management acronym. As a change management tool, TQM has been well-accepted by managers as it is seen as providing a “unified set of principles which can guide them through numerous choices or might even choosing unnecessary.” In the present competitive environment, survival of the organizations depends on their ability to continuously improve as per the expectations of the customers. Quality is critical in achieving competitiveness in domestic and global markets, as quality is a prerequisite to have satisfied customers (Sun, 2000). Customer expectations for quality products and services have prompted organizations to adopt the principles of total quality management (TQM). Proponents of total quality management claim that TQM can be implemented in any organization and it can result in improved products and services, reduced costs, more satisfied customers and employees, and improved financial performance. Implementing Total Quality Management (TQM) is more than simply...
installing systems and procedures; it is also about cultural change. Unless a total quality culture develops throughout an organization, then TQM will appear to be another passing management fad. Kanji (1991) has urged that training in TQM should be used to change the culture of the people, and Brown (1992) suggested that without a supportive culture, which emphasizes teamwork, employee empowerment & participation, continuous improvement, a customer focus, and the appropriate leadership, there cannot be sustainable TQM. Lai (2003), stated education and training as one of the TQM dimensions can be efficient in changing and developing quality culture during TQM implementation.

Organizations deploying Total Quality Management often train a large number of employees in problem-solving techniques. Indeed, after the formation of problem-solving teams, the second most popular practice is to train nearly all managers and majority of non-management employees in problem-solving and employee involvement skills (Hackman & Wageman, 1995).

These organizations believe as quality theorists imply that training employees in problem-solving and statistical process control will promote continuous quality improvement. The organization that invests in training their employees in TQM problem-solving methods assumes that this formal training will be applied in problem-solving teams but also, ideally towards continuously improving the quality of their daily work. Tesluk et al, (1995) found that employees in a state agency who participated in multiple quality circles used the skills and knowledge acquired in quality circle training in their daily work outside the quality circle. Rad (2006), pointed out that education & training is a very significant tool for enhancing and improving skills related to an organization’s beliefs and values. This helps organizations to turn their cultures based on quality issues. There is a little question that training for quality is an expensive and time-consuming business. Since TQM is an organization-wide concept it requires substantial investment in both time and money. Oakland (1993) stated that investing in training was a critical factor in the success of a total quality program. With the trend towards TQM, companies are now seeing training as not just an add-on overhead but an essential strategy for the company in developing and encouraging a customer-oriented organization. This is likely to help in the allocation of more funds for TQM training in a proactive way so that strategic organizational goals can be achieved. The effectiveness of training can be defined in terms of producing the training outcome that is intended. Training should help to achieve the organization’s goals and objectives. Training would be effective when the objectives of the training and goals of an organization align together. Hence intended result could achieve. It is important to evaluate the training in order to assess its effectiveness in producing the learning outcomes. The evaluation of the training process also includes measures of the impact of training processes on plant-specific department productivity or job performance. Effectiveness of the training focus in terms of management commitments and Training facilities, equipment, and materials, the performance of the employees, nature of training, and methods. Effective Total quality management training well communicates the TQM concept tools and techniques. TQM training is effective when it helps to solve quality-related problem and educate employees about Statistical Process Control (SPC). TQM training builds commitment towards quality among the employees and ensures the involvement of everyone in all processes. Effective TQM training is cultural change. It changes in product and process. It creates new quality culture.

Total Quality Management (TQM) is a model of organizational change and improvement. It has been used in various forms for decades. However, its success rate has not been very impressive. The reasons for its failures could be improper understanding of the core concept of Total Quality Management, lack of TQM-based training to the employees to implement and maintain the total quality of an organization, assumption of it is a perspective and not a participative. The success of the TQM depends upon adequate training and some TQM contextual factors such as leadership, teamwork, commitments, and customer satisfaction. Training plays a pivotal role in the successful implementation of Total Quality Management to achieve competitive advantage. Effective training leads to maintain and improve the total quality management of an organization. Looking from this perspective there seems to be an effective training program is essential to maintain the total quality.
of an organization. The present study attempts to know the effectiveness of TQM training and find out the relationship between the TQM training and certain important elements of TQM in selected manufacturing organizations. Thus, this study attempts to understand & measure the effectiveness of TQM training in the study area. Training effectiveness is an impact of the training given to workgroup staff on work conducted in the plant. Training effectiveness is achieved if people being trained are able to perform their duties errorless. Effectiveness of training can be defined as the extent of achievement of defined training objectives within the planned training schedule and available budget. The training objectives are related to knowledge, skills, and attitudes which are connected to better plant and human performance. The quality improvement becomes a major aspect of manufacturing organizations in Sri Lanka at present. They have come forward with various implementations throughout training and development. Various manufacturing organizations in Ampara district faced challenges to attain competitive advantages to survive in the market though they have implemented certain quality improvement programs. Therefore, there is a question raised whether implemented quality improvement program has been successfully implemented and the employees are trained in an effective manner. In order to measure the training effectiveness, it is necessary to find out the significant role of training to achieve quality products needed to be addressed at this juncture.

**Research Questions**

In terms of problems identified above, the research questions were formulated as follows:

1. What are the key elements determining the effectiveness of TQM training in the manufacturing organization?
2. To what extent does the effectiveness of TQM training maintain and improve the quality of products of an organization?

**Objectives of the Research**

Training in TQM should be used to change the culture of the workforce (i.e. the way they think, act and feel). It is also necessary for everyone in the organization to be trained together, reflecting an integrated approach to the training program. TQM is a modern quality language that talks about meeting customer requirements and customer-supplier relationships. It is therefore essential for everyone to adopt this new quality approach in order to change work attitudes and business practices. Under these circumstances, the present study is conducted to examine the effectiveness of Total Quality Management (TQM) Training in selected manufacturing organizations and analyze the relationship between the total quality management and training to maintain and improve the quality of products of an organization. Based on the research question and problem identification, the following objectives are formulated as follows:

1. To identify the key factors, determine the effectiveness of TQM training in the selected manufacturing organizations.
2. To analyze the relationship between the total quality management and training to maintain and improve the quality of products of organizations.

**2. Literature Review and Hypothesis development**

Total Quality Management is an integrated approach to achieving and sustaining high-quality output, focusing on the maintenance and continuous improvement of processes and defect prevention at all levels, and in all functions of the organization, in order to meet or exceed customer expectations. Total Quality Management (TQM) approach of the organization, centered on quality based on the participation of all its members and aiming at long term success through customer satisfaction and benefits to the members of the organization and to the society. TQM is a never-ending process. There has to be a culture of continuous improvement and everyone in the organization must strive towards it.

Deming &Juran, (1986 & 1989), suggested that TQM components have been quick to point out that work-related competencies can best be maintained over time by continuous training and development activities not only in technical aspects of the job, but also with regard to quality-
related knowledge and skills. Oliver, (1988), Empirical study of employee involvement, reported that there was a positive relationship between participation and employee commitment to quality management. Gao, (1991), United State government accounting office studied 20 companies that scored well on 1988/1989 Malcolm Baldrige National Quality Award (MBNQA) criteria found that quality management practices of customer focus, leadership, employee training, empowerment and systematic decision-making process of the companies influenced in terms of customer satisfaction, increased market share, and productivity. Wolley and Kowalski, (1992), conducted a survey on a representative sample of Hewlett Packard employees in the UK to assess employees’ reasons for participating in total quality initiatives and provided the implications for the design of total quality training relevant to individual work situations, and using training to communicate more information about the competitive environment within which the organization exists. Tollinson, (1992), indicated that introducing TQM calls for training strategy which integrates training, basic skills improvement and job skills, since they are interdependent. For example, it follows that the effective use of TQM tools will be dependent not only on an individual’s knowledge of these tools but also on their fundamental knowledge and understanding of their own job.

Rainbird & Maguire, (1993), report the results of a survey conducted in the UK on training related to quality initiatives. The study indicates that employee who starts out with a better education continues to have the greatest access to continuing education and training. The results also indicate a certain disjuncture between corporate structure and organization of training although a number of organizations are successfully integrating training and business strategies. Brown, (1993), an empirical study found that the training process plays an important role in creating a supportive culture of TQM. Training should view as a strategy and not as an event. It should support the organizational quality improvement strategy and should be targeted to the differing needs of participants.

Pescod, (1994), Organizations are constantly reminded of the importance of quality training. Yet it is suggested that companies fail to realize that quality management requires a commitment to learning. It is suggested that, as a result of the absence of learning, organizations will repeat old practices. Equally crucial, the lack of commitment or ability to learn is regarded as a reason for the failure of quality management in many organizations. Whalen & Rahim, (1994), Quality training is an important component in successful planned change efforts in organizations. Quality training and education are important in preparing an organization for a change, in accomplishing the change itself, and in institutionalizing it as a permanent part of the organization. Ideally, quality training leads to the successful implementation of quality improvement programs by informing employees about the goals of such programs, and by providing workers with the skills and knowledge needed to achieve those goals. The outcomes of quality training however are not only knowledge and understanding as measured through objective learning outcomes.

Quality training can also provide an opportunity to empower and motivate employees, reducing employee resistance and increasing the chances of success of quality improvement programs. Anfuso, (1994), studied in Granite Rock company (a construction materials supplier and manufacturer), which won the Baldrige Award in 1992 found that training efforts have been directly linked to an increase in customer satisfaction. Oakland & Water worth, (1995), focused on the role of training as a key issue in the successful implementation of TQM. They argued that implementing TQM is more than simply installing systems and procedures; it is also about cultural change. Without a supportive culture that emphasizes teamwork, employee empowerment and participation, continuous improvement, customer focus and the appropriate leadership there cannot be sustainable TQM. Masters, (1996), Identified eight barriers to the successful implementation of quality management in companies, the most important being the lack of continuous training and education. Often, organizations accept even though with initial hesitation. The need for training but is seemingly unaware of the extent and depth of training required. Bell, et al. (1997), specified and described the training and education needs of the various levels of an organization. The inadequacy of training is possibly a contributory factor for the failure of quality management in many
organizations.

Ichniowski, et al. (1997), studied 41 steel production lines in Japan and the USA which stated that training has a positive effect on production line uptime and overall customer satisfaction. Marler & Jenet, (1998), Study found that TQM training work design and flexible technology are significantly and positively associated with continuous improvement. Flexible work and technology appear to be important in evaluating TQM training effects. Lawler, et al. (1998), stated that TQM training has a positive effect on productivity, customer satisfaction, quality & speed, profitability, and competitiveness. Singh, et al. (2000), conducted a study in 50 Indian organizations to analyze the employees’ viewpoints on different dimensions of TQM. Their analysis indicates that quality training of employees plays a key role in the effective implementation of the TQM program in an organization. Therefore, Indian industries should work out specific measures to make quality training systems more effective and application-oriented so as to achieve higher quality levels at work. Ohja, (2000), conducted a study in the health care system. He found that training is very necessary for the successful implementation of TQM. Therefore, training activities should not be seen as a waste of time. The actual training programs need to be phased out so that people can bring their real experiences to the training situations and relate the concepts to the actual problems.

Zimmerman, (2001), Study indicates that in the software industry, in particular, one of the two primary courses for most software development project is lack of employee training especially, in quality assurance. Fey & Bjorkman, (2001) suggested that technical and non-technical training has positive effects on overall performance (non-managerial & managerial) for successful TQM. Hong & Meng, (2002) found that the importance of training is an important factor for successful TQM implementation. Reed, Lemak & Mero, (2002), concluded that training is considered as a vehicle for implementing and reinforcing quality practices. Chan, et al. (2002), in the specific context of a railway unit, Mass Transit Railway Corporation, Hong Kong, concluded that the importance of team has been highlighted for successful implementation for TQM. Zairi, (2002), the faltering success of TQM has a relationship between leadership and teamwork. Argon-Sanchez, et al. (2003), Study indicate that training has positive effects on quality. Smith, et al. (2003), tried to empirically establish a linkage between the interaction of new management practices such as TQM, team-working, lean production, re-engineering, and organization of training, from his empirical analysis; he propounded a significant relationship between the two. However, he argued that the way training is organized for TQM largely depends upon the extent to which training and human resource policy are integrated with business strategy. Yeh, (2003), Identifies and examines the critical factors embedded in the organization’s team-building focus that may enhance or hinder effective training for Total Quality Management. Ahmad & Schroeder, (2003), the study indicates training has positive effects on employee’s commitment and perceived operational performance.

Ely, (2004), Study revealed that training has positive effects on new sales revenue, productivity, customer satisfaction, quality, and speed. Guerrero & Barraud Didier, (2004), Training has positive effects on productivity objective profitability, and product & services quality. Tzafrir (2005), there is a positive association of training and development with the perceived market and firm performance.

Zheng, Morrison & O’Neill, (2006), Training has positive effects on competency, turn over and employee commitment. Shenawy et al. (2007), used the random-effect meta-analysis for studying the effects of TQM that incorporated five major components: top management commitment and leadership teamwork, culture, training and education, and process efficiency. According to their results, each of these components led to a competitive advantage. A review of all the studies mentioned and discussed that TQM implementation requires significant training efforts. Training is needed to educate people about the nature and principles of TQM, to develop new attitudes that will lead to the cultural change TQM requires to succeed, to equip people with the skills and techniques they need for problem solving and teamwork, to foster their career development, and to enhance customer satisfaction.
Thus, we proposed the hypotheses based on the relationship between the TQM training and some elements of TQM such as the commitment of employees, improving quality leadership, skill development, communication, continuous improvement, and customer satisfaction.

Quality management requires a commitment towards the learning and involvement of every employee in the TQM process. The absence of employees’ commitment leads to the failure of quality management practices. Hence it is assumed that:

**Hypothesis 1:** There will be a significant relationship between TQM training and employees’ commitments to quality policy and total quality management.

TQM cannot be sustainable without the quality leadership and innovation. Role of training as a key issue in bringing up the leadership quality and it paves the way for the innovative products and services in the organization. Thus, it is proposed that:

**Hypothesis 2:** There will be a significant and positive relationship between TQM training and improving quality leadership and innovation.

Fundamental aims of providing in TQM training is to enhance and enrich the knowledge, skills, ability of the employees to upsurge the productivity. TQM training is not only to change people’s behavior but also provide them with the necessary skills and confidence to operating new work and business practices. Effective training also increases the performance of the firm. Therefore, it is assumed that:

**Hypothesis 3:** TQM training enhances and develops the skills of the employees.

Communication plays a pivotal role in bringing the quality culture. It is the cultural change. It believes that training can be used to communicate the quality strategy. TQM training provides to improve the intrapersonal skills and communicative competencies among the employees. The organization’s quality policy and procedure must be shared openly without any ambiguity. Thus, it is assumed that:

**Hypothesis 4:** There will be a significant relationship between TQM training and communication.

Kotter & Heskett, (1992), stated that ideally, quality training educates and motivates employees, providing the skills and inspiring the commitments to continuous improvement necessary if organizations are to realize the competitive advantages of quality improvement programs. There has to be a culture of continuous improvement and everyone in the organization must strive towards it. Therefore, it is proposed that:

**Hypothesis 5:** There will be a positive relationship between TQM training and continuous improvement.

Quality always means in terms of an excellent product or service that fulfills or exceeds the customer’s expectation. To beat the competition, organizations often must exceed customer expectations. TQM training always insists to satisfy the internal and external customers. TQM training educates in understanding the customer requirements. The training is considered an essential strategy for the company in developing and encouraging a customer-oriented organization. Thus, it is assumed that:

**Hypothesis 6:** There will be a significant relationship between TQM training and customer satisfaction.

3. **Research Methodology**

The sample of the study consisted of 350 employees from selected manufacturing organizations in Ampara district, Sri Lanka. The data were collected through structured questionnaires and interview tools by using a simple random sampling technique. The present study is descriptive that enables the researcher to describe the phenomena under investigation. The study concerns with describing the relationship between the total quality management training and elements of TQM to
understand the role of training for the successful implementation of total quality management. Thus, the data have been collected from both primary and secondary sources. The primary data have been collected by an opinion survey questionnaire and structured interview. The questionnaire consists of six-point rating scales related to TQM training with selected elements of TQM. The secondary data were collected from previous related research articles and annual reports of the respective organizations.

**Variables of the Study**
The following dependent and independent variables are selected in this study. TQM training in the organizations is selected as the independent variable whereas some important elements of TQM such as the commitment of employees, leadership and innovation, skills development, communication, continuous improvement, and customer satisfaction are identified as dependent variables for the present study.

**4. Data Analysis and Discussion**
The collected data have been analyzed by using of SPSS for the statistical analysis of the calculation of sample means and standard deviations, and Pearson’s Coefficient Correlation (PCC) with their significance levels.

**Table 1- Descriptive statistics and Correlation between TQM training and selected elements.**

<table>
<thead>
<tr>
<th>Si. No</th>
<th>Elements of TQM</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>PCC</th>
<th>Significance Level (2 tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Commitment of Employees</td>
<td>4.65</td>
<td>0.94</td>
<td>0.347**</td>
<td>0.009</td>
</tr>
<tr>
<td>2</td>
<td>Leadership and Innovation</td>
<td>4.54</td>
<td>0.90</td>
<td>0.265*</td>
<td>0.036</td>
</tr>
<tr>
<td>3</td>
<td>Skills Development</td>
<td>4.45</td>
<td>0.86</td>
<td>0.370**</td>
<td>0.004</td>
</tr>
<tr>
<td>4</td>
<td>Communication</td>
<td>4.50</td>
<td>0.88</td>
<td>-0.090</td>
<td>0.458</td>
</tr>
<tr>
<td>5</td>
<td>Continuous Improvement</td>
<td>4.58</td>
<td>0.95</td>
<td>0.321*</td>
<td>0.078</td>
</tr>
<tr>
<td>6</td>
<td>Customer Satisfaction</td>
<td>4.62</td>
<td>0.93</td>
<td>0.140*</td>
<td>0.275</td>
</tr>
</tbody>
</table>

**4.1. Discussion of the results**

1. Training and Commitment of Employees:
   From the table-1 reveals that the relation between the TQM training and employee’s commitment towards the quality policy is significant at 0.01 level, (0.347). It indicates that TQM training has a positive influence on building employees’ commitment towards the organization’s quality policy and strategy. Therefore, it is proved that there is the effectiveness of TQM training as there is a significant relationship in the elements of employees’ commitment towards total quality management.

2. Training and Leadership and Innovation:
   The result indicates that there is a significant relationship between the TQM training and leadership and innovation at 0.05 level. TQM training developed leadership and innovation to create customer focus and ensures continually demonstrate their commitment to improving quality and quality leadership. Thus, TQM training paves the way for the business to be more creative and innovative in product and service aspects. Therefore, it is proved that there is the effectiveness of TQM training as there is a significant relationship in improving leadership and innovation.

3. Training and Skills Development:
   It is found that TQM training enhances and develops the skills of employees (0.370) at 0.01 level. This indicates that TQM training is an ongoing process conducted every week to enhance skill development. Hence, it is proved that there is the effectiveness of TQM training as there is a positive relationship with TQM training and enhancing, developing the skills of employees.
4. Training and communication: 
Training has an insignificant ($p > 0.05$) and negative (-0.090) relationship with communication. It is found that that there is no significant relationship between TQM training. It shows that training does not have any impact on organizational communication. Sufficient training is not provided to employees to facilitate interpersonal communication and enhance their communication competencies.

5. Training and Continuous Improvement: 
It is shown from the table-1 that, there is a significant relationship between the TQM training and continuous improvement of the organization at 0.01 level (0.321). In the TQM training, the internal audit to the employees conducted every month enabled continuous improvement of the organization. Therefore, it is proved that there is the effectiveness of TQM training as there is a significant relationship in continuous improvement of the organization.

6. Training and Customer Satisfaction: 
The result reveals that the relationship between TQM training and customer satisfaction is found to be significant (0.140) at 0.01 level. This exposes that training has made the role to play in ensuring customer satisfaction. The TQM training created a stronger sense of responsibility to ensure defect-free product or service and enabled the employees to gain knowledge and enthusiasm to satisfy the customers. Thus, it is proved that there is the effectiveness of TQM training as there is a significant relationship in the elements of customer satisfaction.

5. Conclusion. 
The present study reveals that TQM has positive relationship with the selected factors of TQM such as the commitment of employees, improving quality leadership, skills development, continuous improvement, and customer satisfaction. Further, it has helped to achieve the goals of the organization and continuous improvement. Therefore, the TQM training is inevitable for the successful implementation of Total Quality Management and to sustain the TQM in the organization. However, organizations should improve further to facilitate and provide more training on interpersonal communication and enhance their communication competencies. Thus, the TQM training program must be effective and significantly influence to achieve TQM goals. The fundamental theme of the study is to measure the effectiveness of TQM training and its correlation with a few selected elements. However, the study is focused on selected manufacturing organizations, and limited within a particular region. Thus, the results cannot be generalized and applied to other geographical parts of the country. Future research can focus on some more elements of TQM such as Quality culture and product design. This study revealed that TQM training does not correlate with communication. Therefore, future studies should be conducted to verify the previous literature review.

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