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TOPIC:

BALANCING THE GAP BETWEEN THE HIDDEN CONTRADICTIONS IN TQM IMPLEMENTATION

BY:

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JULY, 2016

DECLARATION

I do hereby declare that this thesis is the result of my own research produced under supervision and has not been presented by anyone for any academic award in this or any other university. All references used in the work have been fully acknowledged.

I bear sole responsibility for any shortcomings of this study.

…… …… ……

ALEXANDER NTIRI-AMPOMAH (10507014) DATE

CERTIFICATION

I hereby certify that this thesis was supervised in accordance with procedures laid down by the University of Ghana.

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DR. KWAKU OHENE-ASARE DATE

(CO-SUPERVISOR).

DEDICATION

I dedicate this work to the Ntiri-Ampomah family of Abetifi-Kwahu in the Eastern Region of Ghana for their support throughout my educational career.

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LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
AVE	Average Variance Extracted
CB-SEM	Covariance Based Structural Equation Model
CEPA	Centre for Policy Analysis
CFA	Confirmatory Factors Analysis
DF	Degree of Freedom
ECOWAS	Economic Community of West African States
EPA	European Partnership Agreement
EU	European Union
Fig	Figure
GSA	Ghana Standard Authority
ISO	International Standard Organization
PLS	Partial Least Square
SGS	Société General de Surveillance
Sig	Significance
S-PLS	Smart Partial Least Square
SPSS	Statistical Package for the Social Sciences
TQM	Total Quality Management
VIF	Variance Inflation Factor

ABSTRACT

The signing of the European partnership agreement (EPA) between the ECOWAS economies and the European Union in April 2014 has facilitated trade agreement between the two economies. This coupled with increasing globalization and technology has contributed to the adoption and implementation of total quality management (TQM) by most organizations in West Africa to provide products which are consistent with the needs and expectations of all stakeholders and to enhance competitive advantage. However, TQM is seen to have inherent contradictions in its principles and if management of organizations do not prioritize and balance these contradictions, organizations will not benefit from TQM. Therefore, the purpose of the study was to confirm the existence of the contradictory principles and to provide a framework for balancing these contradictions in TQM implementation. This was done by collecting primary data from managers and employees of firms adopting TQM principles in Ghana using a set of questionnaires. Data was collected on six principles which are standardization, collectivism, empowerment, individualism, manipulation and innovation and other TQM achievement factors.The data was analyzed using the PLS-SEM technique and the Kruskal Wallis technique.

The results showed that, the implementation of total quality management comes with inherent contradictions which may hinder the success of TQM if not checked. Three pairs of contradictions were established in this study which are “standardization versus innovation”, “Manipulation versus empowerment” and “collectivism versus individualism”. The study also found out that, these contradictions exist in equal proportions and they significantly affect the achievement of TQM which was represented by product quality, flexibility, responsiveness, employee satisfaction and cost reduction strategy. A framework is proposed in the study to balance these contradictions in other to ensure TQM success in organizations.

CHAPTER ONE

INTRODUCTION

1.0 Background of the Study

Many organizations in their pursuit to increase competitiveness, efficiency, market share and profit, have worked with crucial organizational change towards customer focus strategies, process organization and quality management (Harnesk & Abrahamson, 2007). Even though it is not a new phenomenon for organizations, total quality management (TQM) has been the main focus for many companies in their quest to succeed and to be customer focus. Mellat, Stephanie, Erick and Adams (2011) explained that, TQM has emerged as a management paradigm. This management paradigm is essential for improving organizational efficiency, effectiveness and productivity. The application of TQM in many organizations has become one of the key practices by management. It appears that, leadership of organizations are embracing lean production and TQM (Sharma, Stewart, & Lowe, 2010). The adoption and implementation of total quality management strategies and principles have also enticed the attention of many researchers (Sharma, Stewart, & Lowe, 2010).

Juran (1988) defined quality as "fitness for purpose" which identifies a quality product as a product that is fit for the purpose it is designed for. This definition is however vague and has been narrowed down by different authors. Dale and Cooper (1992) explained that, quality is defined by the customer. The authors further explained that, the customer always needs products that will meet their needs and expectations at a cost that represents value (McAdam, Leitch, & Harrison, 1998). A change towards quality management will therefore move an organization towards being efficient and more productive. Also, the concept of quality management is more customer focused. It examines customers' needs and exceeds these needs by providing products that are beyond the satisfactory levels of customers. For this reason, many organizations in today's contemporary

world have geared towards quality management. Mellat-Parast (2012) explained that, TQM is focused on the customer and meeting the changing needs of the customer should always be the number one priority of the organization. TQM is therefore seen as a continuous effort by organizations to consistently meet and exceed customers' expectations (Rejeb, Boly, & Morel-Guimaraes, 2011). Total quality management has been explained as a policy or strategy for the production and delivery of products which consistently meet and exceed the customer's expectation (Lekhal, Pasin, & Liman, 2006). This can be achieved through better, cheaper, faster and easier means which aid competitive advantage and is implemented by management of organizations (Prajogo & Sohal, 2006).

Zairi (2011) explained that, TQM should be implemented by top management of organizations who are the leaders. Also, the author asserts that, issues related to leadership are the core of many difficulties and not just those related to the implementation of TQM. Therefore, organizations should be guided by comprehensive policies for the sustainability of greater competitive advantage and long term success. The success or failure of organizational strategies such as TQM therefore depends on leadership. The many issues that are also related to the implementation of TQM depend on the focus of leadership within the organization (Svensson, 2012). TQM implementation requires special types of leadership to ensure its success. Osseo-Asare, Longbottom and Chourides (2007) argued that, behind total quality management is the principle that, effective leadership together with efficient managerial approaches on quality lead to improved performance. However, leadership in organizations have other demands aside the demands of TQM and the continuous focus on TQM by organizations give contradicting demand and expectations on leadership (Harnesk & Abrahamson, 2007). It is clear that TQM is a leadership role.

The focus of many organizations to adapt to TQM has given rise to contradicting demands and expectations on management of firms (Harnesk & Abrahamsson, 2007). These problems arise

from modern management models used by organizations to improve performance. TQM in itself has hidden contradictions in the form of unclear strategies and management of organizations must prioritize, balance and direct TQM affairs to keep organizations running (Harnesk & Abrahamsson, 2007). The traditional approach to implementing TQM has incorporated involvement of people, collectivism and team based approach (Harnesk & Abrahamsson, 2007; Komarraju, Dollinger, & Lovell 2008). Team work has been a fundamental principle for the success of TQM implementation in organizations. The concept of collectivism reflects much importance placed on relationships among workers at the work place. Therefore, maintaining these relationships among workers, yielding to norms and rules imposed by the various teams and providing support for others is very essential (Komarraju, Dollinger, & Lovell 2008). Collectivism takes a greater attention in other people and encourages the sharing of resources and authority at the work place. Collectivism is seen as how things are concerned about others (Hui & Triandis, 1986). Despite the traditional TQM approach to collectivism, some leadership principles advocate for an individualistic freedom to allow individual workers to explore their potentials, use their competences and creative methods to adjust to the changing business environment (Riddarstrale & Nordstrom 2002). It is somewhat difficult for management to complement the traditional team-based approach of TQM to the individualistic approach. However, each carry with it a degree of importance and dropping one will appear not to be a good managerial decision.

TQM also emphasizes the need for delegating authority and empowerment to allow for employee participation at the work place. Ishikawa (1985) who was an earlier TQM advocate stated that, management should delegate as much as possible to create respect for employees and this should be part of the managerial philosophy. Most leaders and management in organizations have identified the relevance of empowering employees at the frontline level where immediate action is needed to deliver products that are of high quality to the customer (Ottenbacher & Gnoth, 2005;

Namasivayam, Guchait, & Lei 2014; Sergeant & Frenkel, 2000; Kim, Lee, Murrmann & George, 2012; Hartline & Ferrell, 1996; Heskett, Sasser, & Schlesinger, 1997). In an effort to move towards empowerment, management of most organizations allow for freewill participation in decision making and for the implementation of brainstorming. In TQM, management are also faced with another technique of giving close supervision to what employees do within the organization. This is to ensure continuous improvement and to follow the standards in meeting customers' expectations. Thus, management seek to make sure employees are working in line with the standard norm of the organization without deviating from it. A leadership principle of manipulation also seeks for management to supervise and influence the decision of workers in order for them to conform to specifications or standards. This also deviates from the earlier principles of empowerment. Leadership is manipulative, according to Bryman (1996), and there is a risk of manipulation in organizations emphasizing strategies such as total quality management (Harnesk & Abrahamsson, 2007). Management should therefore blend these two contradictions.

Lastly, another contradiction exists between standardization and innovation. TQM managers in their quest to implement TQM, embrace the principle of standardization. TQM embraces standards and as a result, organizations have gone in for International Standard Organizations certifications (ISO 9000) and other related standards. TQM focuses on effectiveness, formalization and standardization of work procedure and routines to enhance the reduction of variability (Imai, 1997; Eklund, 1997). Standardization is widely accepted all over the world by most organizations and these organizations are reaping benefits (Ahuja & Khamba, 2008; Psomas, Fotopoulos, Kafetzopoulos, 2010; Sivaram, Devadasan, Murugesh, Karthi & Sreenivasa, 2014). TQM is achieved by consistently going according to standards. Routine rules, procedures and formalities are ways to ensure TQM success. However, leadership principles of innovativeness also seek for continuous improvement and innovation in organizations as they produce goods and services.

Thus, always seeking for new ways of doing things, exploiting new mechanisms, adding unique parts to products and introducing variety. This contradicts standardization since innovation implies there is no one way of doing things. Innovativeness is a complex approach and a complicated notion and there is difficulty in forecasting the form that innovation takes making it uncertain (Rejeb, Boly, & Morel-Guimaraes, 2011).

TQM implementation introduces standardization, collectivism and empowerment. Leadership principles also introduce innovation, individualism and manipulation at the same time. There seem to be a contradiction between the TQM principles and the leadership principles. Managers in most organizations implement TQM without knowing that these contradictions exist and if these contradictions are not well balanced, TQM may not achieve its full potential. Depending on the type of leadership principle being practiced, management may want to choose one approach over the other. However, choosing just an approach and neglecting the other may not lead to better returns for the organization. It becomes more problematic if management does not recognize these contradictions and try to implement both. This can affect benefiting from the outcomes of TQM such as cost reduction, flexibility, responsiveness, product quality and employee satisfaction.

1.1 Problem Statement

The principles of leadership and total quality management are not new in research and a large number of studies has been conducted over the years on these principles. Luoh, Tang and Ya-Yun (2014) researched on "Empowering employees: job standardization and innovative behavior" and their study aimed at exploring the relationship that exist between job satisfaction and employee behavior and employee empowerment. The authors identified that there is a conflicting concept of job standardization and employee innovative behavior in organizations. The study however, did not focus on how a balance can be created between job standardization and innovativeness. The balance is important to ensure that one principle is not implemented to jeopardize the other

principle since all are principles may be equally important. This is a huge gap that was left by their study. There is therefore the need to create a framework on how to create a balance between standardization and innovation in the implementation of TQM.

Also, Sharma, Stewart, and Lowe (2010) focused on institutional contradiction and management control innovation in their study. This study clearly highlighted that, there is a contradiction between standardization and innovation and in implementing these principles, organizations may not meet their goals if these contradictions are not balanced. However, the study did not provide a clear framework on how these contradictions can be managed and balanced to help harness the full benefits of TQM. Also, the study focused on one leg of several other contradictions that may exist. There is the need to establish if other contradictions exist in TQM implementation which this study will address.

Komarraju, Dollinger, and Lovell (2008) researched on individualism-collectivism as forecasters of conflict management styles. Their study was aimed at examining the role individualism-collectivism play in explaining conflict management style. Their study brought out clearly how the conflict between individualism and collectivism can be managed. However, the study did not measure the effect that this contradiction had on performance. Yu (2014) also conducted a study after the study of Komarraju, Dollinger, and Lovell (2008) to examine the effects of individualism and collectivism on knowledge sharing intention. The authors however measured the effect of the contradiction on knowledge sharing intention which the authors used to represent performance. However, both studies took just one institutional contradiction thus individualism and collectivism without focusing on standardization and innovation as well as empowerment and manipulation. This study will fill these gaps.

Lastly, Harnesk and Abrahamsson (2007), conducted a study on TQM and the purpose was to add to the discussion on organizational leadership by revealing entrenched contradictions in total

quality management. Even though the study identified all three embedded contradictions in TQM as "manipulation and empowerment", "collectivism and individualism", and "standardization and innovation", little was done to examine how these contradictions can be balanced. This study therefore focuses on this gap. Identifying the contradiction without suggesting to management how they can minimize the gap between these contradictions to reduce their conflicts leaves a lot of work to be done. TQM may fail if management refuses to recognize that these contradictions exist. This may lead to organizational failure and loss of direction by the organizations. This may also jeopardize the success of TQM and organizational goals on a whole. There is therefore the need to examine if these contradictions exist and identify how the existence of the contradictions affects TQM success. The study will therefore establish the existence of these contradictions in firms adopting TQM principles, and to examine ways in which a model could be developed to balance these contradictions to help management enjoy the full benefits of TQM.

1.2 Research Objectives

The main objective of the study is to create a balance between the contradictions in TQM principles and leadership principles to ensure the success of TQM is realized in organizations. This is necessary to ensure a wider gap does not exist between the contradictions and to ensure TQM success. By doing so, the following objectives will be looked at;

1. To establish that, there are contradictions between TQM and leadership principles in firms adopting TQM in Ghana.
2. To examine which contradiction is prevalent and to find the effects of the TQM principles and leadership principles on TQM success.
3. To propose a framework that will be used to create a balance in the contradictions between TQM and leadership principles.

1.3 Research Questions

The following research questions will be answered in this study to ensure the objectives are met.

The research questions are;

1. Do contradictions exist between TQM and leadership principles in firms adopting TQM in Ghana?
2. Which of the pair of contradictions is prevailing and what are the effects of the TQM and leadership principles on TQM success?
3. How can each pair of contradiction be balanced to ensure TQM success?

1.4 Significance of the Study

The study will be significant in many spheres. The study will be one of the first to provide a framework for balancing these contradictions. This framework will serve as a working document for organizations implementing TQM principles to create a balance between the TQM and leadership principles which are contradictory but important. This will help the TQM firms to implement TQM effectively and efficiently and to enjoy the full benefits of TQM. The study will therefore serve as a policy document for TQM firms making it very significant.

Secondly, there is a body of literature which has established the existence of contradictions between principles of leadership and TQM. Most of these studies just focused on the existence of such contradictions in TQM principles. However, this study is focused on determining the effects of these contradictions on TQM implementation and how a balance can be created between these contradictions. The study will be unique in literature and will be the only study in literature that will prescribe ways to create the balance within the contradictions. It will therefore be a source of literature for other authors in TQM and management which makes the study very significant.

Also, the study will provide an insight to management on identifying which pair of contradiction is prominent in firms adopting TQM principles. In addressing leadership issues and implementing

TQM principles, management will remain aware of these contradictions that are prominent in their firms and will help them in decision making that will not jeopardize the implementation of TQM. The study will therefore be significant in aiding management decision that will help in TQM implementation.

Lastly, the uniqueness of the study makes a great contribution to TQM implementation within organizations. This helps organizations implementing TQM principles to realize that there could be some inherent contradictions that could hinder benefits of TQM. The study will contribute to unearthing these contradictions. In the quest for firms to balance these contradictions, they need to know how leadership and TQM principles affect TQM success. The study will significantly help address these factors and incorporate them in the framework that will be used as a compass to direct management.

1.5 Proposed Literature Review

This part of the study provides a brief literature on the concept of quality and total quality management, the principles of leadership, management and total quality management as well as other relevant studies being conducted that are relevant to this study. The leadership, management and TQM principles will include standardization, innovation, collectivism, individualism, manipulation and empowerment. Job standardization refers to the extent to which employees follow laid down procedures, rules and workable plan strictly adhering to them in the exercise of their duties (Luoh, Tang, & Ya-Yun, 2014). Hsieh and Hsieh (2001), also defined Job standardization as "to what extent employees should follow standard operating procedure to execute a task, including the degree of synergy between parts of a product". The concept of innovation in TQM echoes continually improving upon your products by finding better ways of doing things every time (Pierce & Delbecq, 1977; Luoh, Tang, & Ya-Yun, 2014). However, laid down procedures and standardization which TQM also upholds focus on one best way of doing

things which has the tendency of suppressing employees' innovative behavior. Charles (2010) proposed a uni-dimensional strategy where individualism and collectivism should be at opposing ends of the same range also cited by (Gouveia, Clemente, & Espinosa, 2003).

Duan, Wei and Wang (2008) stated that individualism and collectivism are categorized as a single bipolar concept and recommending one, would involve rejecting the other. However, in the implementation of TQM, these two are both a necessity for the success of TQM implementation. Collectivism always emphasize understanding the individual as an extension of one's in-group and selecting in-groups' objectives over personal objectives (Yu, 2014). Emphasizing on group knowledge, brainstorming and team approach rather than individual efforts in the quest for the implementation of TQM by management have been recognized. However, individualism echoes allowing individuals in their comfort zone to apply expertise in the implementation of TQM in organizations (Yu, 2014; Fauziah & Kamarnzaman, 2010).

1.6 Proposed Methodology

1.6.1 Research Design

The research will adopt the positivist paradigm which will also have a quantitative approach in its methodology. To establish if the contradictions exist in the Ghanaian context, the study will adopt a survey approach which is cross-sectional in nature using a set of questionnaires to gather the data.

1.6.2 Population

This study will consider all firms that are ISO 9000 certified as TQM firms in Ghana. ISO 9000 certification is an aspect of total quality management and firms that have these certifications implement TQM principles. The study will be focused in the Greater Accra Region of Ghana and there are 40 ISO 9000 certified firms (ISO, 2015). The population for this study therefore comprises the managers and employees of these 40 firms.

1.6.3 Sampling Procedure

Stratified sampling and convenience sampling will be used to sample 300 employees from the 40 firms adopting TQM principles. The managers will not be sampled as all 40 TQM managers and 40 general managers will be involved. Therefore, 80 managers are involved in the survey representing 40 firms.

1.6.4 Sources of Data

The data sources for this study will be from primary sources which will be ascertained by the use of a questionnaire. Three sets of questionnaires will be involved. A first set will be for TQM managers while the second set will be for general management. The third set will then be items for the employees.

1.6.5 Data Analysis

Since the study will employ a quantitative approach, three analytical techniques will be used namely descriptive statistics, Kruskal Wallis test, and the structural equation modeling.

1.7 Thesis Structure

The thesis will be in eight chapters. The first chapter will give background of the research and also identify gaps in literature which will be presented in the problem statement. This chapter will also contain the research objectives and research questions as well as the significance of the study and proposed methodology. Chapter two will be the context of the study while Chapter three will review relevant theoretical and empirical literature on leadership principles and TQM principles. Chapter four will discuss the general methodology into details. It will look at the research design, population of the study, data collection, sampling technique, data analysis, assumptions and validity test and ethical consideration. Chapter five will present the analysis of the study while Chapter six will discuss the results. The framework for balancing each pair of contradiction will be in Chapter seven. The last chapter will present the summary, conclusions and recommendations.

CHAPTER TWO

CONTEXT OF THE STUDY

2.0 Introduction

This chapter of the thesis presents the context of the study. The first section of this chapter provides a brief overview of total quality management and then narrows it to the quality situation in Ghana over a period. The second part of the chapter will also look as critical factors that are seen as driving forces that makes organizations in Ghana adopt and implement TQM. These factors include Globalization, technology, environmental issues, strategic alliances and European partnership agreement with Ghana.

2.1 Total Quality Management

Many authors have given several definitions to total quality management (TQM) because of its broad nature and a precise definition narrows the concept. However, Kumar, Kim and Kumar (2012) defined TQM as a managerial approach which focuses on people and seek to continuously improve on the customer's needs. The authors also assert that, TQM lowers real cost and involves all employees, departments and suppliers. This definition of TQM has an integrated approach and is exhaustive enough. TQM mainly focuses on a continuous innovative approach that satisfies the ever changing needs of the customer. Also, Christiansen (2011) explained that, TQM involves managerial approaches which are focused on providing products that meet and exceed customer's expectation by involving the entire organization. This dimension also looks at TQM as a managerial approach and also goes into employee involvement and how it requires an integrated approach by the entire organization. The two definitions view TQM as a holistic approach. This implies that, TQM processes take time to materialize over a period to make it whole.

Having generally looked at what TQM entails, it is prudent to state that, most organizations which are customer focused and want to improve upon performances embrace TQM. Complementing

TQM with performance by organizations will help management harness potentials and resources to fully benefit from the approach or strategy (Prajogo & Sohal, 2006; Kaynak, 2003; Mensah, Copuroglu, & Fening, 2012). Total quality management has therefore been increasingly accepted and implemented by management of organizations as a managerial strategy to deliver quality products and ensure efficiency (Mensah, Copuroglu, & Fening, 2012). TQM over the years has evolved in Ghana and most firms have now embraced its concepts and principles. Both customers and organizations in Ghana as a result of TQM, are now cautious of what they produce, buy and use. These customers and firms have their various view points on what they view as TQM. Mensah, Copuroglu and Fening (2012) also explained that, customers in Ghana perceive TQM as organizations taking their needs and channeling those needs into the design of a product such that, the product meets their needs. The authors also explained that, firms in Ghana define TQM as the creation of an efficient production system to produce the right products at the first time with a minimum number of defects (Mensah, *et.al*, 2012). From the customers view and from the perspective of the firm, it is no news that the Ghanaian industrial sector has had a paradigm shift towards the TQM approach.

The quality situation in Ghana now is very important to look at. Over the period, TQM in Ghana has evolved with organizations skewing their resources towards TQM in recent years. The quality management situation will be discussed in two folds as revealed by Mensah *et. al.*, (2012). The study will look at Ghanaian indigenous firms and their counter parts expatriate firms and how they deal with total quality management in such firms. It must be noted that, multinational organizations operating in Ghana are far advanced in the implementation of TQM (Mensah, *et. al*, 2012). This may be as a result of many factors. This is in comparison to their Ghanaian counterparts. This involves the firms having separate departments within their organizations that handle Quality issues for the firm. Such firms also delegated a degree of freedom and autonomy to such

departments to implement quality strategies in the entire organization (Mensah, *et. al,* 2012). Multinational firms operating in Ghana also have a high level of quality awareness among management according to Mensah, *et.al,* (2012). Top management in multinational firms operating in Ghana have a relatively higher commitments to TQM implementation. It is therefore evident that, in other to meet the international competitive markets, these multinational firms operating in Ghana are working very hard to improve their performance through the implementation of TQM principles.

However, it is to be noted that, the indigenous firms in Ghana have faced fierce competition from their counterpart multinational firms operating in Ghana. This has contributed to the establishment of quality assurance departments in Ghanaian firms to be able to meet the competition. However, these departments established by Ghanaian-owned firms need to be given the needed resources that will help them to meet international standards which they lack. Most of these departments which are established solely for the purposes of TQM adoption and implementation in the Ghanaian-owned firms are faced with rivalry from other departments in the same firm. This rivalry is in the form of budget, resource allocation and autonomy of authority (Mensah, *et. al,* 2012). Top management in such firms are gradually giving support to Quality assurance departments and closely monitoring their activities through evaluation processes (Mensah, *et. al,* 2012). This approach is now being adopted by most indigenous firms who have embraced the principles of Total quality management in its holistic form. This indicates that, in Ghana, the TQM process is still on going. It is therefore important to analyze some factors or drivers that have necessitated this process of TQM implementation.

2.2 Drivers of TQM

There are a lot of drivers or factors that influence and help organizations to gear their strategies towards the implementation of TQM in Ghana. These among other factors have increased the

consciousness among many firms in Ghana to incorporate the principles and theories in TQM in their organizational set up. These factors include globalization, technology, environmental issues, strategic alliances and economic partnership agreement.

2.2.1 Globalization

Globalization is a market force which compels organizations to improve their communications and set up market opportunities globally. This results in the establishment of what is known as "virtual" organizations. Globalized organizations have core competences which allow them to effectively exploit new markets and invest in them. Total quality management plays a vital role in these advances. The TQM strategy should therefore be adopted and implemented to enhance globalization. A very important aspect of TQM is the satisfaction of the customer and this is achieved when TQM is correctly implemented. Globalization in relation to production of goods and services has now been an accepted practice in the area of operations and productions (Cheng, Johansen & Hu, 2015). Yet manufacturing of goods is still centralized to certain geographical boundaries even as markets continue to be globalized (Cheng, Johansen & Hu, 2015). Therefore, organizations today have the tendency of being located in one jurisdiction and operating in another jurisdiction among borders. The global dispensation of organizations and their activities have been the order of today's business environment in Ghana. This has made organizations in Ghana increase their markets to international levels to find new market niches.

Expanding to international markets help organizations to meet new targets, increase competitiveness and increase market shares. This growing phenomenon that is gradually impacting organizations in Ghana, has forced many firms to adopt, implement and incorporate the principles of total quality management into organizational strategies. The purpose is for these firms to be able to meet certain international levels or standards and keep their products on the international

markets. This as a result, has made TQM a necessity rather than discretionary. Globalization compels organizations to produce products that will exceed the ever growing needs of customers. International regulation, competition among other factors also increase firm's awareness to adopt TQM strategies. Bad products will not survive on the globalized market. Also, organizations in Ghana which are used to meeting the needs of just the Ghanaian market now have to increase their awareness because of globalization. In as much as there is an increase in globalization, there is also a growing international tendency towards protectionism where economies regulate products that comes in to protect their citizens (Norén, 2010).

Ivanov and Webster, (2013) asserts that, destination competitiveness as a result of globalization has been a major vocal point for improved products by firms. Also, Rodrik (2011) explained that the process of globalization and the resulting levels of globalization could be considered as a driver of competiveness and product quality. Globalization is no longer a new phenomenon since most organizations have adopted that strategy. The growing trend has therefore made TQM important to be studied. This is so because, firms must explore and enjoy the full benefits of TQM implementation. However, increasing cost in implementing TQM strategies without reaping the benefits will still prevent the firms from going global. These institutional and leadership contradictions therefore have the tendency to prevent firms reaping the benefits of TQM implementation.

2.2.2 Technology

The regularly changing demand in technology is also considered in this study to be a driver of TQM. The aspect of technology that tend to influence Ghanaian firms to implement TQM strategies has to do with information system database and universal e-commerce systems. The developing nature of systems database have shaped the impact of TQM on business processes in the management of data (McAdam & Henderson, 2004). The test now is to decide on how existing

operations procedure can be modified or completely changed to augment the adequacy of a new technology. McAdam and Henderson (2004) saw technology as one of a few empowering agents to realize change in procedures. TQM therefore is propelled by technology within Ghanaian firms. This helps firms to skew their activities towards TQM strategies. Research additionally affirms that whilst technology assumes a noteworthy part in the implementation of total quality management, future advancements at the organizational, managerial and human levels of the organizations are also key for the successful implementation in TQM (Lee & Dale, 1998). This changing process in organizations that has been influenced by management information system change, e-business, and technology has increased the tendency of Ghanaian firms to tilt their activities towards the adoption and implementation of TQM.

2.2.3 Environmental Issues

There is an expanding pattern towards enhanced environmental performance and social responsibility business practices (Cheng, Johansen & Hu, 2015). TQM is now inherently connected with the International Standard for Environmental Management Systems (ISO 14000). The ISO 14000 standard, despite the fact that was extrapolated from ISO 9000 (Cheng, Johansen & Hu, 2015), has numerous components which demonstrate the acceptance of change such as commitment to improvement and employee involvement. Such environmental consciousness of many organizations in Ghana has now moved towards providing goods and services that are environmentally friendly. It goes just beyond production of goods and services. It also has to do with the production, processes and activities that have positive impacts on the environment. It has therefore become important for these Ghanaian firms to embrace TQM principles and strategies and benefit fully from it.

2.2.4 Strategic alliances

Gammoh and Voss (2013) explained strategic alliance as an agreement between two firms that establishes a relationship between the firms. The firms pool resources and skills together in their cause to achieve some goals for both partners. That is to say, two firms putting together their resources and channeling them towards a common cause that will benefit both partners. Even though alliances are not new to the business world, firms still believe in this strategy. Most organizations in their quest to penetrate markets and especially cross borders go into such strategies which can be in the form of mergers, acquisition, joint venture, partnerships among others. Das and Kumar (2011) explained that strategic alliance is now an important aspect of modern business environment. Organizations therefore depend on this strategy to expedite market entries, initiate new products development and share risk. This trend in strategic alliance has become necessary to trigger the implementation of TQM principles among firms. It has contributed to firms adopting TQM principles, an approach that will help these firms to integrate people and process to provide quality products that will enhance any form of strategic alliance.

Sompong, Igel and Lawton-Smith, (2014) asserts that, global competition has made alliances for business attractive and the adoption of TQM on the high. Firms operating in Ghana have now showed zealous efforts to break international borders to enhance competition. Such firms have done that through going into strategic alliances with firms that have international brand characteristics and are multinational firms. Associating with such multinational firms will require a conscious effort to gear resources to a certain level of known quality. This can only be done by integrating TQM with organizational strategies. This approach has been adopted by most firms operating in Ghana such as Unilever, Nestle among others have adopted. It is therefore important to critically study TQM since its success can enhance such alliances.

2.2.5 European Partnership Agreement

In April 2014, there was an announcement by the government of Ghana and the European Union (EU) about an agreement that has been reached between the European Union and the Economic Community of West African States (ECOWAS). This agreement (European Partnership Agreement-EPA) allows free trading activities between Economic Community of West African States and the European Union (EPA, 2014). The current nature of business environment has to do with trade liberalization and globalization. Developing economies such as Ghana therefore want to profit from exchange in trades by integrating with the global markets (EPA, 2014). Trade however requires an improvement in production systems and product quality. Countries in the Economic Community of West African States therefore have the advantage to export processed products rather than the raw ones (ActionAid Ghana, 2013) and this creates a new challenge of meeting the quality needs on the international market.

For some ECOWAS economies including Ghana, the motivator to opt for the EPA was generally determined by the apprehension of losing EU business sector access for selected products rather than prospects it provides for overall socioeconomic development (EPA, 2014). This push instead of pull components spurred Ghana to yield to pressure from its non-traditional export producers as well as the EU to initiate the EPA (CEPA, 2012). This agreement has alerted many firms operating in Ghana to improve their processes, personnel and products to be able to have their products on the European market. Even though the agreement allows firms to penetrate the European market, not any product will be allowed on the market. This therefore requires firms to produce products with high quality. This will allow organizations to meet specific market demands. This is helping firms to tilt their activities and strategies towards TQM adoption and implementation so that they can reap the entire benefit.

CHAPTER THREE

LITERATURE REVIEW

3.0 INTRODUCTION

This chapter reviews the relevant literature on the principles and theories in TQM implementation. It focuses on major principles underpinning the implementation of TQM and leadership which include standardization, innovation, collectivism and individualism as well as empowerment and manipulation. These principles are relevant in the area of TQM and operations management and in the implementation of TQM, these principles are seen as contradicting each other. The chapter is in three parts. The first part reviews literature on the history of TQM and then harmonizes leadership to TQM implementation. The second part then reviews literature on indicators of TQM success. The study then reviews empirical evidence on the principles of standardization, collectivism and empowerment as TQM principles and the principles of innovation, individualism and manipulation as leadership principles that are implemented in organizations. The chapter ends with a conceptual framework linking the variables and explaining how the model can help in TQM success by balancing the contradictions. The conceptual framework provides an overview on how the gap between the contradictions will be bridged.

3.1 Theoretical Literature

3.1.1 Nature and Evolution of TQM

The concept of TQM has been an interminable journey that seeks to please customers and exceed their ever-changing needs (Boulter, Bendell, Dahlgaard, & Boulter, 2013; Chavez, Gimenez, Fynes, Wiengarten, & Yu, 2013). In recent years, quality has evolved from just performance, price and “fitness for purpose” to a program oriented and integrated approach. This has led to a more structured management approach called total quality management. TQM now encompasses a range of strategies spanning from customer satisfaction, fast delivery of products, and the idea of usability to support services, the concept of efficiency in services and many more (Lekhal, Pasin,

& Liman, 2006; Godfrey, Dale, Marchington, & Wilkinson, 1997; Kingsley, Yarhands, Arthur, & Peprah, 2014). TQM has now become a more integrated approach and has also moved from a mere strategy, to a leadership and managerial methodology.

Edward Deming, one of the early proponents of TQM had so many proposals in relation to TQM implementation. The guru had a revolutionary method by believing that nothing ever stays the same and things will frequently change with time because the customer is dynamic (Deming, 1986; Valmohammadi, 2011). This philosophy asserts that, changes can be in relationship with customers. Changes can also be in relationship with suppliers as well as in relationship with employees. Deming stressed fourteen key points in his quest to deal with change. However, his fourteen points emphasized two key characteristics of quality namely; "*constancy of purpose"* and "*continual improvement"*. Deming (1986) explained that, an organization should have a reason to be in business and the organization's activities should meet the purpose for which it exists. This explains Deming's *constancy of purpose*. Deming further explained that, organizations should understand what business they are in, and know how to stay ahead of their customers. This can be done by providing products that exceeds the customers' expectations.

Deming's (1986) point also highlights the concept of *continual improvement* which asserts that, nothing is ever good enough and the work that is supposed to be done will never be over (Deming, 1986; Laohavichien, Fredendall, & Cantrell, 2011). Organizations should therefore improve their operations, processes and programs continuously. When an organization decides that it cannot be better, a competitor will do it the best way. Deming (1986) outlined two ways of process improvement which are, changing the common causes of the problem and removing the special causes of action. The common cause variations are the variations which are naturally generated in the system usually inherent to the system and these variations are usually systematic. The special

causes are also variations which are unique and outside of the system. The key tool for continuous improvement as suggested by Deming (1986) is statistical process control. Deming associated his fourteen principles to managerial decision making stating that, management should be responsible for the implementation of these principles at the work place. To achieve quality, these principles should be integrated together with other managerial strategies to ensure customers benefit fully from quality products and organizations benefit from quality improvements.

Another guru whose philosophy is reviewed is Juran (1988) who has had a lot of impact on Japanese quality. Juran (1988), defines quality as "fitness for use". However, this definition has been criticized by many authors since it is not exhaustive enough and is narrowly focused. This means it is not broad enough to cover the various aspects of quality. Juran (1988) however, defined a customer as anyone who is affected by the product directly or indirectly. The customer can be an internal customer or an external customer. An internal customer is any individual or group within the organization who are seen as customer which include employees and shareholders (Juran, 1988). The external customer is a customer located outside of the organization. The definition of Juran (1988) gave five major dimensions to quality which are availability, safety, field usage of the product, quality of design and quality of conformance (Boulter, Bendell, & Dahlgaard, 2013). Juran (1988) stressed that, to be able to achieve fitness for use, there should be a comprehensive approach to quality that covers a product's entire life (Juran, 1988; Boulter et al., 2013; Sharabi, 2013). That is, to achieve fitness for use, organizations should incorporate quality principles from the design of the product, to the development stage through to the stage where the product gets to the final customer and after sales services (Kenyon & Kabir, 2012). All these stages should be monitored and harnessed with quality principles and strategy before fitness for use can be achieved.

A wider range of statistical techniques was used by the author to enhance his analysis. The guru also recognized the need to get the attention of top management since in achieving the fitness for purpose, management cannot be left out. He also advocated for an investment in quality since cost was a language for management (Bäckström, Ingelsson, & Wiklund, 2011). He therefore advocated for cost of quality accounting systems which should be integrated into managerial acumen (Bäckström, Ingelsson, & Wiklund, 2011). Juran (1988) then defined cost of quality as the cost associated with a defective product. This was later expanded to the cost associated with achieving quality other than just the cost associated with defective products (Juran, 1988; Bäckström, Ingelsson, & Wiklund, 2011). Broadly speaking, there are two major costs which are the cost of achieving good quality and the cost of poor quality.

The costs of achieving good quality are the costs that organizations incur to ensure that, quality products are produced always (Juran, 1988). There are two types of cost of achieving good quality. They are the appraisal cost and prevention cost. Appraisal costs are the costs associated with activities designed to ensure quality (Juran, 1988). Examples include cost of testing and laboratory cost. Prevention costs are also the costs incurred by organizations in preventing defects from occurring and they include, training costs and planning costs. Costs of poor quality are the costs an organization incurs as a result of defective parts or failures (Juran, 1988). There are two types of costs of poor quality which are the internal failure costs and the external failure costs (Juran, 1988). The internal failure costs are costs discovered during the process of production as a result of failures and include faulty equipment and carelessness (Juran, 1988). The external failure costs are costs associated with failures which are discovered after the delivery of the product to the customer. Examples are replacement cost and warranty work. Juran (1988) therefore analyzed the cost of quality and associated it to managerial decision making. This is important because, quality implementation is a responsibility of management and should be triggered by management.

Crosby (1979) was the first in the history of the United States of America to hold the title of a corporate vice president in quality and he also suggested another view of quality. From the perspective of top management, Crosby (1979), advocated that, top management of organizations view quality as intangible. Crosby (1979) also advocated that, quality does not necessarily mean goodness, luxury or sparkling but quality simply means conformance to requirements. The guru also asserts that, once a product consistently meets its design specification, it has high quality. He explained that, continual measurements of the product determine conformance requirements (Crosby, 1979). Nonconformance was however explained as the absence of quality. Therefore, the quality problems are the problems that are related to the non-conformance to requirements. Crosby (1979) believed that, quality is definite and associated with cost. This implied that, the cost of quality can be a measure of quality. He asserts that, cost of quality was simply as a result of non-conformance or the cost of doing the wrong things.

Crosby (1979) also propounded the quality cost theory by saying that, when quality of a product is improved, cost of quality will fall inevitably and this will allow organizations to increase profitability (Crosby, 1979; Zakaria, Fadzilah, Yusoff, Hisham, Madun, & Nasional, 2012). This is so because as quality improves, fewer defectives is achieved and the cost of quality decreases. The costs result from management not doing things the right way the first time. Crosby (1979) emphasized that, prevention was better than detection (something that Deming and Juran also advocated) and that, management should focus on transforming corporate culture rather than investing in statistical tools (Crosby, 1979). This is because, the transformation of corporate culture into the culture of TQM will prevent defectives and reduce quality cost. Embracing the statistical tools will only allow defects to be detected which will be a cost to the organization. Management of organizations should therefore align their own defect prevention program or strategy and the objective should always be “Zero Defects”. This concept he later described as an

absolute quality management and was the beginning of quality management. His ideology was the cornerstone for TQM since Deming and Juran stated categorically that, zero defects are impossible. They stated that, variations are inevitable because of the existence of common causes in the process for example, vibrations in machines, room temperature changes etc. Crosby (1979) was adamant about zero tolerance since he explained that, out of the 38 million new born babies in a year, a 1% error will lead to 38,000 new born babies dying and there would also be 15,000 plane crashes out of 1.5 million plane flights giving a 1% error. Crosby (1979) concluded by saying that, quality if free because it will pay for itself.

3.1.2 Leadership in Total Quality Management

The fundamentals of all principles, theories and strategies propounded by the quality gurus such as Deming, Juran and Crosby were on organizational leadership. The importance of leadership in total quality management is an integral part of TQM implementation (Kingsley, Yarhands, Arthur, & Peprah, 2014; Albrecht & Andreetta, 2011; Namasivayam, Guchait, & Lei, 2014). Leadership in organizations, which include management commitment to TQM is contained in virtually every philosophy of TQM. This indicates that, every organization that wants to take steps or wants to embrace the principles of TQM must look into its organizational leadership capabilities and culture (Zairi, 2011; Ossae-Asare, Longbottom & Chourides, 2007; González & Guillén, 2002). Leadership is therefore inseparably connected with TQM strategies. Feigenbaum (2007, p.38) stated that, “Quality today has become the foundation for constant management innovation and leadership”. Also, the TQM guru Deming (1986, p. 248) stated in his book that, “most of the principles in TQM is involved with leadership”. Juran (1988, p.128) also stated that “attaining quality leadership in TQM requires that, upper managers personally take charge of the quality initiative”.

Even though quality and leadership are closely related, it is important to review what defines quality leadership within organizations. Leadership is defined by the traits, qualities as well as behavior of a person (Ossae-Asare, Longbottom & Chourides, 2007). Leadership theories and TQM principles both have an objective of enhancing performance of organizations and help achieve organizational goals (Puffer & McCarthy, 1996). The key distinction between TQM organizations and traditional organizations in leadership is described by Puffer & McCarthy (1996) as follows;

- Strategic leadership is more important in TQM organizations because TQM is more likely to emphasize that internal systems be aligned with external environments.
- Visionary leadership because the success of TQM depends on employees sharing a common vision or goal.
- Designing reward systems for all stakeholders to foster creativity and innovation.
- Empowerment and teamwork, timely responses to customer concerns by having all employees take a leadership role as well as share information and expertise." (Puffer and McCarthy, 1996, p.125).

The leadership style that mostly relates to quality management is transformational leadership which tends to explore new avenues to help motivate workers or employees by fully engaging the employees in the work process (Horner, 1997; Mlkva, Paulova & Ruskova, 2011; Kingsley et al., 2014). This has a direct relation with quality since transformational leaders communicate and reinforce core values and principles by expressing a vision which focuses on quality. Such leaders encourage quality improvements through the building of trust and the creation of awareness for change (Kingsley et al., 2014). Also, it can be done through developing a TQM culture to support change and initiate new strategies for problem solving (Luria, 2008). Quality leadership becomes

more eminent when there is a basis for managerial empowerment and support coupled with a constant quest for excellence (Feigenbaum, 2007). The quality leader ultimately has a responsibility of creating an environment of trust, openness and honesty especially in communication, to encourage the development of individuals who can serve as quality entrepreneurs within the organization (Kingsley et al., 2014; Namasivayam, Guchait, & Lei, 2014; Ossae-Asare, Longbottom & Chourides, 2007). The quality leader is also responsible for improving the system on a continuous basis, for everyone to be involved in doing a better job for greater satisfaction and achieving quality.

It is also important to note however that, the principles of total quality management tend to contradict the principles of leadership (Harnesk & Abrahamsson, 2007). Even though there is a contradiction in the principles of TQM and leadership, all these principles are important to help ensure TQM success. It is therefore important to look at how these principles contradict each other and how the contradictions can be balanced to ensure the total benefits of TQM. By balancing the contradictions implies providing a means to execute one contradiction without creating problems for the other.

3.2 Empirical Literature

3.2.1 TQM Success

There are some factors that ensure the success of TQM implementation. When these factors or variables are effectively implemented, then it echoes the fact that TQM has been successfully implemented in that organization. These factors are product quality, flexibility, employee satisfaction, responsiveness to customer demands and cost reduction strategies. This section of the chapter reviews the relevant literature on these factors. These variables are used as proxy variables for TQM success and will be the dependent variables in the structural equation model.

1. **Product Quality**

There are various dimensions when measuring the success of TQM implementation and the aspects of product quality have to do with the level of customer's appreciation of the product. Management and leaders of organizations are concerned with the level of quality in products that are produced (Satish, Hoffman, & Sirias, 2001; Kannan & Tan, 2005). Dow, Samson and Ford (1999) explained that, one key aspect of customer satisfaction is a vision to produce items that are consistent with customer's needs and expectations. This explains product quality. Nabil, Mosad and Hefny (2011) also asserts that, quality in products displays management commitment to TQM implementation. Product quality ensures that, the good or service that has been produced is free from all forms of defectives being it manufacturing or functional (Singh, 2011). Singh (2011) further explained that, product quality is characterized by less rework, less customer complaints and less number of defective parts. These measures are used in this study as measures of product quality. This can be measured by management commitment in making the production system simple, efficient and adhered to (Kumar, Garg & Garg, 2011; Svensson, 2012; Prajogo & Sohal, 2006). Achieving product quality therefore begins from top management to front line employees. Kumar, Garg and Garg (2011) suggested that, management commitment is a critical success factor for business excellence and for achieving quality. It is important since leadership is the core of TQM implementation in an organization and the dedication of resources from management to the implementation of TQM is crucial (Kumar, Garg & Garg, 2011; Ulle & Kumar, 2014; Franceschini, Galetto & Turina, 2013; Alharbi & Yusoff, 2012).

2. **Flexibility**

McAdam and Henderson, (2004) explained that, flexibility is the ability of an organization to respond to changing customer needs as well as demand patterns. The authors allude that, TQM implementation in an organization must be reinforced by the ability of the firm to be flexible. Chavez et. al., (2013), found a positive relation between flexibility and operational performance.

The authors also found out that, lean practices and operational performance are achieved if flexibility is high. Flexibility in this study was measured using changing volumes, changing customer demands, customization as well as free flow of information.

3. Responsiveness and Cost

Responsiveness is the ability of an organization to respond to customer demands in a timely manner (Holweg, 2005). It has to do with the reduction of lead time and quick exchange of information within the organization and between the organization and other stakeholders. Reichhart and Holweg (2007) explained that, the measures of responsiveness are in relation to accurate demand anticipation and this is influenced by accurate information sharing. The authors also explained that, flexibility in the production system can influence how responsive an organization is to the customer. Kenyon and Kabir (2012) found out that, responsiveness was a key determinant in service quality and it has a higher positive correlation with customer satisfaction. The key indicators of responsiveness include low lead times, timeliness, attending to unusual customer complaints among others (Baird, Jia, Robert, Hu, Centre, & Reeve, 2011).The authors found out that, for a successful implementation of TQM to be achieved, organizations should be able to be responsive to customer demands. Cost reduction strategies ensures customer satisfaction and hence achievement of TQM in organizations (Oakland, 2011). Martin-Consuegra, Molina and Esteban (2007) asserts that, fairness in pricing mechanisms is important to ensure customers have value for money. This can be achieved by organizations developing strategies to reduce wastages and cost. The customer should be willing to pay the right amount for a product or a service and to have value for money (Calabuig, Núñez-Pomar, Prado-Gascó, & Añó, 2014). The dimensions or determinants of cost reduction strategies include inventory management practices, stabilizing production processes, reduction of waste and mass customization (Calabuig et al., 2014).

4. Employee Satisfaction

Employee satisfaction has to do with motivating employees, training them and getting them involved in decision making. The strategy of TQM implementation requires the dedicated efforts of all employees in the organization working as a team (Kumar, Garg & Garg, 2011). The TQM strategy begins with a committed management and staff who work hand in hand to ensure smooth implementation of TQM (Zairi, 2011; Jones & Seraphim, 2008; Kumar, Garg & Garg, 2011). Kumar, Garg and Garg, (2011) suggested that, the process involves the communications of quality goals to employees, working in the organization as a team, helping to achieve organizational goals and making the employees satisfied. Training is a very important component of TQM. Russell and Taylor (2011) suggested that, education and training should be the key components of TQM implementation and that is what people want. The successful implementation of TQM should involve training and educating employees on the new changes in the process and the system and this was highlighted in Deming's 14 points in TQM implementation. Kumar, Garg & Garg (2011) suggested in their study that, top management of organizations implementing TQM must be educated themselves on TQM and this should then be transcended to the lower staff. To enhance the skills and talents of the staff and to build a sense of accuracy and defects reduction, a purposeful training and education program should routinely be in place (Rusell & Taylor, 2011). Having systems in place without the regular training program in place to enhance the TQM system is likely to cause failure.

Recognition is the acknowledgement of unique performances of specific activities. Kumar, Garg & Garg (2011) suggested that, management should have an incentive and motivational package in place for TQM and that should be communicated to the employees. Motivating individuals is important for the success of TQM as it gives a sense of recognition (Kumar, Garg & Garg, 2011). It is therefore important for the TQM strategy of organizations to be integrated with a reward

system. An organization implementing TQM strategies should have a reward system in place for employees and this will enhance the TQM strategy. Reward and recognition is therefore seen as a critical success factor in TQM implementation (Russell & Taylor 2011; Kumar, Garg & Garg 2011). The recognition activities in the organization should inspire the performances of the employees and the commitment to TQM achievement. This study will adopt the reward and recognition success factor and measure how the contradictions can affect it.

3.2.2 Standardization and innovation in TQM leadership

Standardization in TQM has been defined as the uniformity in the products, process and services rendered by an organization (Santos, Formoso & Tookey, 2002; Azis & Osada, 2010). Innovation has also been defined as the existence of new features in a product to continually bring a level of variety that will meet and exceed the customers' expectations (Lanzotti & Tarantino, 2008; Sharma, Stewart & Lowe, 2010). Many studies have been conducted within the context of TQM on innovation and standardization at the work place (Wright, Sturdy & Wylie, 2012; Prajogo & Sohal, 2006; Santos, Formoso & Tookey, 2002; Kondo, 2009). All these studies were done outside of Ghana and Africa and the literature is not exhaustive enough on the studies that have been conducted in Ghana and Africa. This gap will be filled by this study which will be one of the few studies in Ghana and Africa that will analyze the nature of the contradiction between standardization and innovation in TQM implementation. There is a contradiction between the principle of standardization and innovation. In filing this gap, studies that have been conducted on the TQM principles and theories as well as the leadership theories will be looked at.

Luoh, Tang and Ya-Yun, (2014), conducted a study on empowering employees through job standardization and innovative behavior. The authors' study aimed at exploring the relationship between job standardization and also, employee innovative behavior which are respectively TQM principles and leadership principles. The study was one of the few that have been conducted on

the conflicting effects on job standardization and employee innovation. In their quest to explore the conflicts between the two principles, Luoh, Tang and Ya-Yun, (2014) defined job standardization as the extent to which employees of an organization should follow standard operating procedure in executing task. This definition was adopted also from Hsish and Hsieh (2001). It is also important to note that, standardization is relevant as it has been seen to have a positive effect on quality and customer satisfaction especially in the service industry (Karatepe, Avei, & Arasli, 2004). Luoh, Tang and Ya-Yun, (2014), also explained that, the introduction of a new concept to a process, service and product that adds more value and exceeds customer's expectations is classified as innovativeness and this was also observed by early authors (Gersick & Hackman, 1990; Hannan & Freeman, 1984; Ashforth & Fried, 1988).

Luoh, Tang and Ya-Yun, (2014), also observed that, standardization comes with employees working in similar processes which are characterized by highly routine working environment. This leads to the lack of flexibility as the work processes is the same every time. This was also argued by Dalton, Todor, Spendolini, Fielding, and Porter (1980) who observed that, the standardization of work is rigid and the routine process usually does not bring about variety. This lack of variety however, is not a good symptom of innovativeness. Luoh, Tang and Ya-Yun, (2014), further observed that standardization as a principle of TQM introduces rigidity to the work processes which lacks variety, and this allows room for little or no innovation. The authors' study was mainly focused on the service industry rather than the manufacturing industry where frontline service employees in the tourism sector in Taiwan were sampled. Out of the 109 hotels in Taiwan at the time, the authors sampled 76 hotels and the main survey instrument used for gathering the data was the questionnaire. 580 respondents were sampled from the 76 hotels and questionnaire was administered to these frontline workers out of which 378 valid responses were received. The questionnaire included questions on standardization, psychological empowerment and innovative

behavior. The innovative behavior scale and the standardization scale which were used were adopted from Scott and Bruce (1994) and Hsieh and Hsieh (2001) respectively. These scales will also be used in this study to identify the contradiction in standardization and innovation. Luoh, Tang and Ya-Yun (2014), used descriptive statistics and confirmatory factor analysis as their main analytical tools. Luoh, Tang and Ya-Yun (2014) suggested that, employees in hotel industry even though follow standardized process, should introduce innovativeness by themselves. Their study revealed that, there is a higher contradiction between standardization and innovativeness. These findings were in line with similar studies which also found out that, where standardization was high, innovativeness was low (Pierce & Delbecg, 1977). The authors further suggested that, standardization and innovation should be balanced. The study however did not indicate clearly how standardization could be balanced with innovation since both are equally important. This study will address that.

The construct, variables and scales used by Luoh, Tang and Ya-Yun (2014), for job standardization and innovation will be adopted and modified in this study and applied in both manufacturing and service sector to give a better view. Also, the methodology will be adopted. It is important to also note that, Zeng, Go, and de Vries (2012), suggested that, standardization enables organizations to achieve growth over geographical distances and go global through market penetration and also reduce lead time. De Jong and Den Hartog (2007), also suggested that, innovation provides vision and direction in organizations and helps organizations create market niches through their unique products and satisfies customers. Therefore, combining both standardization and innovation will be a powerful tool for organizations.

In an earlier study by Kondo (2009), the author studied innovation versus standardization in TQM implementation. Kondo (2009) explained that, innovation is indispensable not only for the

development of a new product or introduction of a new service and technology, but for the entire management of a business organization. The future development of a business relies on innovativeness which can be good for profitability and market growth (Kondo, 2009). He further stated that, work standardization enhances efficiency and also ensure higher product quality with the absence of variability. Kume (1993) suggested that, it was very difficult trying to achieve standardization since variations are inevitable. However, Kondo (2009) suggested for organizations to reduce those variations to a minimum. In surveying and reviewing the literature, Kondo (2009), argued that, the principle of standardization and innovation were mutually exclusive principles and that, standardization prevents the display of creativity which leads to innovative activities.

The author further argued that, in achieving organizational goals of making profit, workers should be given absolute freedom in their means and their methods. However, naturally in organizations, there are some level of restrictions which can be legal or ethical that impedes on the absolute freedom the workers need. The author, after a thorough review itemized work processes in a typical manufacturing firm into three. The first item was for work process to correspond to quality standards. The second item was that, restrictions must be in place and should be observed during the performance of work. The third item was to ensure that the means and methods of the work process are effective. Kondo (2009, p.8), stated that, among the three items, "item one must always be achieved and item two must be rigorously observed by whoever is responsible for doing the work". Kondo (2009), after his itemization stated that, even though there should be a system to ensure standardization, it is essential for creating a sense of responsibility and individuals should be responsible for their actions. The author however, did not show how employees should be made responsible. Giving employees a clear responsibility is very essential and in providing the framework for balancing the contradictions, this study will not ignore that. Kondo (2009),

concluded that, innovation is important for human motivation. However, it should be closely related to a sense of responsibility of doing things. He also further stated that, the means and methods are to ensure standardization.

Sharma, Lawrence and Lowe, (2010) also conducted a study on institutional contradiction and management control innovation with the purpose of examining the changes that surround the introduction of innovation as a management control tool for TQM implementation. Sharma, Lawrence and Lowe, (2010) argued that, the introduction of TQM practices has attracted a lot of innovativeness and this view was agreed by earlier proponents and authors (Westphal, Gulati, & Shortell, 1997; Zbaracki, 1998; Hoque & Alam, 1999; Sharma & Hoque, 2002). The study was conducted using a case study over a six year period from 2002 to 2007. The data that was used were gathered mainly from four sources which were public available information, annual reports, government reports and internal documentation. In all, 44 semi structured interview guides were administered during the survey. Sharma, Lawrence and Lowe, (2010), used a data triangulation approach which was earlier used for a similar study by Hoque and Hopper, (1997). The study found out that, the enactment of TQM practices by organizations also institute TQM routinization. This therefore leads to the introduction of standardization as there are institutional framework which describe the process or TQM routine procedures. The conclusion suggests that, the mere introduction of TQM principles institutionalize standardization. This is important for my study since it augments the argument that, TQM has the principle of standardization embedded in it which represents the absence of variability. Sharma, Lawrence and Lowe, (2010) also found out that, TQM is also introduced to do things differently. That is to bring change and a new process. This finding further suggests that, the introduction of something new by TQM contradicts the standardization that is embedded in TQM implementation. Part of the questions used by the authors will be modified and adopted in this study.

Prajogo and Sohal (2001), also conducted a literature review and research framework on TQM and innovation. The authors studied the relationship between the implementation of total quality management principles and innovation performance. This discussion by Prajogo and Sohal (2001), arose because, there was a controversy concerning the relation between TQM implementation and innovation since TQM is seen as a principle that upholds standardization. Prajogo and Sohal (2001), stated that, "the study was conducted to clarify conflicting accounts in literature concerning the relationship between TQM and innovation". Prajogo and Sohal (2001) suggested that, there was an existing contradiction in literature concerning the relationship between TQM and innovation. The study also concluded that TQM practices within organizations support innovation and TQM should not be seen as different from innovation. Innovation is an element of TQM implementation. The study also revealed that, TQM is a multidimensional approach. This assertion was also made by some other authors who conducted similar studies (Dean & Bowen, 1994; Sitkin et al., 1994; Watson & Korukonda, 1995). The study is relevant since it gives an indication on how innovation is embedded in organizations practicing TQM. The study will therefore be relevant in identifying how innovation is inseparably connected to TQM implementation.

3.2.3 Individualism and collectivism in TQM implementation

Studies have been conducted in conceptualizing a link between individualism and collectivism. Some of these studies have focused on analyzing the link between the contradiction in individualism and collectivism. However, despite the numerous studies that have been conducted on the principle of collectivism and individualism, none of such studies have been conducted within the African context and this study will try to fill this gap by syncing this principle with other principles in TQM and leadership. TQM comes with the principles of collectivism and leadership comes with the principles of individualism. Harnesk and Abrahamsson (2007) suggested that, TQM by tradition has been a collective approach by the use of quality circles and team based

approaches. However, some TQM advocates and leaders have pushed for a more individualistic approach (Riddarstrale & Nordstrom, 2002; Harnesk & Abrahamsson, 2007). Riddarstrale and Nordstrom, (2002) who were also advocates of TQM, argued that, TQM should unleash a more individualistic freedom to help release the competence and creativity within individuals in an organization.

This approach of individualism that is being proposed seemed incompatible with the traditional team-based approach of TQM (Harrington, 1998; McKenna & Beech, 2002). Harnesk and Abrahamsson (2007), conducted a study to examine the relationship between individualism and collectivism as institutional contradictions. Harnesk and Abrahamsson (2007), explained that, individualism is synonymous to egotism. They further explained that, in an individualistic organization, the individual worker is given freedom and independence and this makes the worker self-determined in discharge of duties to ensure quality is achieved. Kim (1994) explained that, individualism brings about personal control, hedonism, competition among workers, as well as uniqueness. This was later argued out by Harnesk & Abrahamsson (2007) that, individuals in their quest to help achieve organizational goals create competition at the work place and ensure quality. Harnesk and Abrahamsson (2007) also suggested that, conformity to group opinions and the subordination of personal interest for the collective interest of the group makes up collectivism. TQM is seen as a team-base effort that works through groups (Harnesk & Abrahamsson, 2007). The author's also argued that, in groups, clear cut boundaries are set within which a worker can operate.

Equally, collectivism as a principle lay emphasis on team-based approaches. The members of the group are expected to remain loyal to the group throughout one's lifetime without display of any selfishness (Maiyaki, 2013). It is important to consider and maintain group harmony to avoid direct confrontation. Hence, Kueh and Voon (2007) observe that, some customers benefit from

collectivism in organizations. These customers are called collectivist customers. Collectivist customers to an organization are more tolerant of mistakes and usually, they have lower expectations of quality and reliability. They eventually will have a greater need and require that, the service provider displays empathy, assurance and responsiveness in the long term (Maiyaki, 2013). The customers will also have a greater need in the long run, to be assured of the quality of goods and services by using tangibles as substitute evidence.

3.2.4 Empowerment and Manipulation in TQM

The implementation of TQM within organizations has moved into a zone of manipulation and empowerment (Harnesk & Abrahamsson, 2007). TQM principles are principles allowed to operate in their own space and time when they are given a certain level of authority. TQM proposes employee participation through the empowerment of employees by the decentralization of authority and power. Ishikawa (1985) a guru and an advocator in TQM, asserts that, more delegation should be made to help employees for them to feel important and this should also be a management philosophy. Also, Mellat-Parast, (2012) another TQM guru suggested that, TQM creates the movement of the focus of control from one person to another and the idea was to delegate authority and control to employees. Individuals should also be held responsible for their actions and accountable to top management in TQM implementation. The motivation of employees is very essential for the success of an organization since delegation creates a sense of responsibility, trust and a source of motivation (Erkutlu & Chafra, 2015; Mellat-Parast, 2012; Albrecht & Andreetta, 2011).

Empowerment has the aim of motivating people to help employees make voluntarily commitments and to act as independent agents and at the same time act in the interest of the organization (Namasivayam, Guchait & Lei, 2014). The authors further explained that, when employees are given power and authority, their behaviors are influenced negatively or positively. This is because,

employees can explore their own potential and at the same time try to cohere to or integrate the individual actions to the organizational objectives (Harnesk & Abrahamsson, 2007; Luoh, Tang, & Ya-Yun, 2014). Argyris (1998) also argued that, the empowerment of employees is only based on internal commitment. One of the forces that reinforces empowerment is the commitment of the employee which is usually based on the employee's definition of the task to be performed, and the effort the person exerts in the performance of the task (Shahidul, Mahsud, Yukl, & Prussia, 2013; Yang & Choi, 2009; Harnesk & Abrahamsson, 2007).

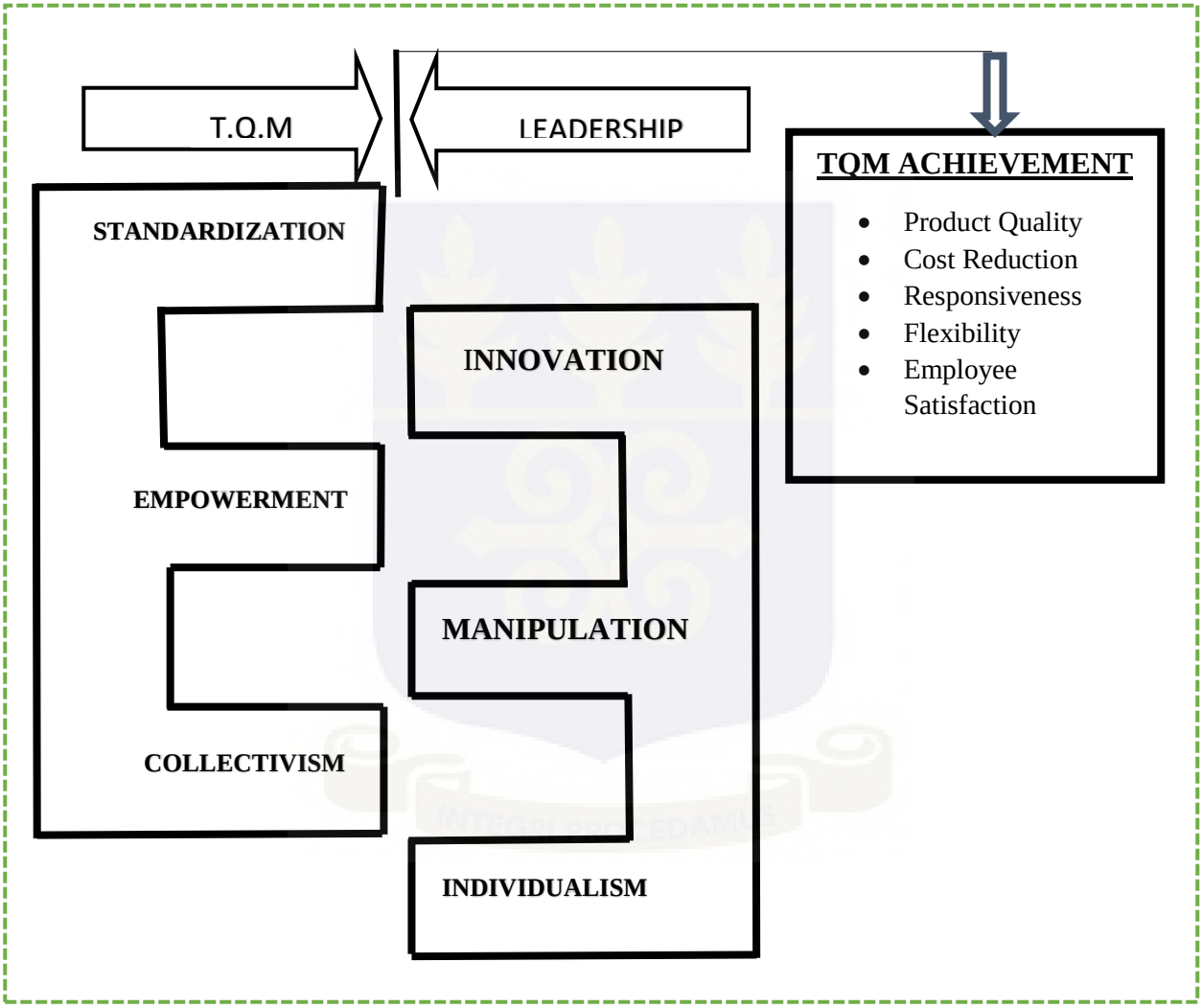
Argyris (1998) asserts that, there are inner contradictions between management control and employees pushing for autonomy. The author argued that, regardless of the push for employee autonomy, there are some external contractual agreements and compliance that is based on management control and this will undermine employee empowerment (Harnesk & Abrahamsson, 2007). Empowerment is also not associated with all areas but with specific areas and management control is essential for the entire organization. It is therefore important to state that, regardless of the level of control given to employees, management will still have the overall control which within the organization normally creates a contradiction between the two principles.

TQM also proposes that, there should be a deliberate influence on the employees of the organization in order to cohere them in working to achieve the aim of the organization. When employees are given too much authority to work on their own, they are likely to deviate from the routine business and strategy set out by management in helping to achieve organizational goals (Harnesk & Abrahamsson, 2007; Dygert, 2000; Shahidul, Mahsud, Yukl, & Prussia, 2013). Leaders who are the implementers of TQM principles, are always manipulative (Bryman, 1996). There is therefore a fundamental conflict and tension between the principle of empowerment and manipulation (Dale & Cooper, 1992; Shahidul, Mahsud, Yukl, & Prussia, 2013; Harnesk & Abrahamsson, 2007; Svensson, 2012). These studies provide adequate information for my study

to explore how this contradiction can affect TQM implementation and also aid in the provision of the framework for balancing these contradictions.

3.3 Conceptual Framework

Fig 3.1 Conceptual Model



Source: Authors Construct, (2016).

The model above represents the conceptual framework that would be used to balance the hidden contradictions in TQM implementation. The model is a zip model which shows how each pair of contradictions in TQM principles can be balanced to help firms have full benefit of TQM

implementation. The model suggests that, all the principles are important for the implementation of TQM and for the success of TQM. By balancing the contradictions means implementing each principle in a way that does not create a gap or a discrepancy in TQM. The views should be interlocked perfectly to harness the full potential of TQM. The model proposed therefore shows how the contradictions can be balanced and will affect TQM implementation. The wider the gap in the zip, the higher the contradiction and that can affect TQM implementation.

CHAPTER FOUR

METHODOLOGY

4.0 Introduction

This chapter of the study presents the methodological framework explaining into details how the research was generally conducted. The chapter is outlined in six sections. The first section of the chapter looks at the research design that was used for the study. The second part then looks at the target population of the study while the third part addressed the sample size and sampling procedure that was used for the study. A detailed description of the data collection techniques and approaches is done in the fourth part while the fifth section addresses the process for the data analysis. This part describes the general mode that the data analysis took. This part also looks at the motivation for the structural equation modelling and how it works and the various assumptions and reliability test. The chapter then ends with the ethical considerations that was employed in the study.

4.1 Research Design

Punch (2000) explained that, the research design is the plan of the study and it should encompass the overall strategy for the study. A design is chosen based on the objectives of a particular study. A cross-sectional study involves the collection of data on two or more cases out of a population of interest and it should be carried out at a particular time. These cases should be enough to represent the population. This study adopted a cross-sectional survey because the responses was received from both management and staff at a particular point in time. Also, the study provided a numeric explanation of the opinions of the population using the sample. The design of the study precedes the overall approach to the study. The general approaches for a research are the qualitative approach, the quantitative approach and the mixed methods approach (a combination of the qualitative and quantitative approach).

Nueman (2007) asserts that, the qualitative approach in research addresses issues from the viewpoint of the population and the data is ascertained in the form of impressions, symbols and text and images formed by the population under the study. This approach explores a phenomenon. Methods such as interviews and focused groups are used for such approaches. Quantitative approach on the other hand is used when a researcher wants to test or verify an existing theory and this approach is also used to describe a population based on the sample. Questionnaire and secondary data are mainly used for the quantitative approach as it uses inferential test to confirm or debunk a hypothesis (Creswell, 2013). The positivist research paradigm was adopted for this study. The positivist paradigm assumes that, reality consists of objectivity that researchers can measure precisely and also, use statistical techniques to test causal theories (Neuman, 2007). The author also asserts that, positivists use quantitative research techniques and this makes conclusions certain. Creswell (2013) asserts that, positivists use a set of logically related steps that promote arduous data collection and analysis. This study applied the quantitative approach in its methodologies. The quantitative approach was adopted because, mathematical and statistical techniques were used to answer most of the research questions. Also, the data were quantified and the results were generalized from the sample to the population of interest.

4.2 Population of the Study

This study considered all firms that are ISO 9000 certified as TQM firms in Ghana. ISO 9000 certification is total quality management and firms that have these certifications implement TQM principles. As at 2014, there were 59 firms in Ghana with ISO 9000 certification (ISO, 2014). The study was conducted in the Greater Accra region which has a majority (40) of the firms that are ISO 9000 certified. These TQM firms include local and multinational firms which cut across all industries such as manufacturing, services, mining, agricultural, educational, financial, pharmaceutical and regulatory bodies. The population for this study therefore comprises the

managers and employees of these 40 firms. The first set of the respondents were made up of all TQM managers and other managers which include operations managers, Strategic managers, business development managers etc. depending on the structure of the organization. The second category of the respondents were made up of some employees of these firms. The number of employees for these firms are estimated to be 1500 and this number does not include managers. This number was ascertained from the Ghana Standards Authority and Societe Generale de Surveillance Ghana (SGS-Ghana) who are the main certification bodies in Ghana (ISO, 2015). This number was cross checked from the Ghana revenue authority with the names of the firms. This was done because, the firms pay income tax for their employees at the Ghana Revenue Authority and the cross check aided in knowing the accurate number of employees that each firm has.

4.3 Sample Size and Sampling Procedure

There are generally two sampling techniques which are the probability sampling and a non-probability sampling techniques. From the first category of the respondents, all the 40 TQM managers representing the 40 TQM firms were involved in this study. All 40 managers were needed because, their views gave a broader picture of the variables under the study. However, with the other managers in the various departments, the purposive sampling technique was used to sample any 40 managers. Thus, one general manager from each organization. The purposive sampling is used when the researcher selects respondents looking at specific characteristics based on the researcher's judgement (Neuman, 2007). This give a total of 80 managers for the study. Neuman (2007) asserts that, when the population is between 1000 and 10000, a sampling ratio of 20% is most appropriate. Since the population is 1500, a sampling ratio of 20% was applied. The sample size was therefore calculated as

Sample size = $\frac{20}{100} * 1500 = \mathbf{300.}$

The sample size for the employees was 300 respondents based on the calculations above. The number of respondents for each TQM organization depends on the number of employees the firm has. The stratified sampling technique was applied in sampling the employees. Stratified sampling involves the division of the population into separate groups called the strata (Neuman, 2007). The organizations will be categorized into four strata. Thus, organizations with 50 employees or less formed the first stratum. The second stratum is made up of organizations with employee size of 51 to 100. Firms in stratum three were the firms with an employee size of 101 to 200 while the last group will be firms with employee size of above 200. From the 40 TQM firms in Accra, 10 firms had employee size of fifty and below while fourteen firms had employee size of 51 to 100. Twelve firms had employee size of 101 to 200 while four firms have an employee size above two hundred. Table 4.1 shows the number of employees to be sampled from each stratum. The calculation was done by dividing the number of firms in a stratum by the total number of firms and multiplying by the sample size. Seventy-five employees were sampled from the first stratum and 105 employees were sampled from the second stratum. Strata 3 and 4 had 90 and 30 employees sampled from there respectively. After the stratified sampling, the employees were selected using the convenience sampling approach.

Table 4.1: Sampling Procedure for Employees

Strata	No of firms	Ratio ($\frac{Number\ of\ firms\ in\ the\ strata}{Total\ num.of\ firms} * 300$)	Sample Size
I	10	$\frac{10}{40} * 300$	75
II	14	$\frac{14}{40} * 300$	105
III	12	$\frac{12}{40} * 300$	90
IV	4	$\frac{4}{40} * 300$	30
Total	**40**		**300**

Source: Author's Construct (2016).

4.4 Data Sources and Collection

The data collected for this study were from primary sources because similar studies conducted also relied on primary data. Data from the primary sources were collected using a set of structured questionnaires on the TQM and the leadership principles which were close ended questions. Primary data were used because the study relied on firsthand knowledge from the employees and managers. Three sets of questionnaires were designed to collect the data from the primary respondents. The first set of questionnaires was for the general managers while the second set of questionnaires was for TQM managers. The third set was for the employees. The first set of questionnaires was in four parts. The first part sought information on the background of the organizations and the general managers while the second part required information on standardization in the organization. The third part were items on the implementation of the principles of collectivism in the organization and the last part sought information on employees' empowerment in the organization. The second set of questionnaires, which was for TQM managers, was also in four parts. The first part asked for information on the background characteristics of the managers. The second part contained items that sought to find out information on the implementation of innovation principles while the third part gathered information on the

implementation of the principle of individualism. The last part also contained items that sought information on the principle of employee manipulation.

The third set of questionnaires which were administered to the employees were in two parts. The first part gathered information on the background of the employees and their level of knowledge on TQM and leadership principles. The second part contained items that required information on employee satisfaction, product quality, flexibility, responsiveness and cost reduction strategies. These were the measures of TQM achievement. Product quality was measured from the perspective of the employee using warranty claims, number of rework, litigations with customers, defective materials from vendors etc. Some of the statements were self-developed based on the researcher's understanding of the contradictions while others were adopted from literature and modified to suit the study. The self-developed statements were based on the literature review and a complete understanding gotten from the variables. These items were mainly on employee manipulation and empowerment. Questions on the individualism-collectivism variables were adopted from similar studies (Komarraju, Dollinger, & Lovell 2008; Yu, 2014) but were modified to suit this study. The questions on standardization-innovation variables were adopted and modified from Sharma, Stewart, and Lowe (2010). The responses in the sets of questionnaire were in the form of a 7-point rating scale for the respondents to tick. The questionnaires were collected from the respondents in a period of five days once delivered to them. It took a maximum of 20 minutes for each employee to fill a questionnaire and 15 minutes for each manager to fill out a questionnaire.

The set of questionnaires for the managers and the employees were delivered face-to-face based on appointment. However, a manager who was not able to take an appointment was contacted on the mobile phone and asked the questions in the questionnaire. In situations where employees were

not available to fill out the questionnaire, a replacement from the same organization was looked for using convenience sampling. When the option of replacing the employee was not possible, then the set of questionnaires was then emailed to the employee to fill it out. The sets of questionnaires were pre-tested at the Ghana Standard Authority to assess the validity of the items. Fifteen copies of the questionnaire were distributed to employees for pre-testing and two copies for of the managers.

4.5 Data Analysis Procedure

Since the study employed the quantitative approach, three analytical techniques were used in presenting and analyzing the data namely descriptive statistics, Kruskal Wallis test, and the structural equation modeling. Descriptive statistics are brief descriptive co-efficients that summarize a given data set. This was used to present the data on the level of the contradictions and the factors that affect the balancing of the contradictions. The Kruskal Wallis test is a non-parametric rank-based test that is used to determine if there is statistical difference between two or more groups. It will therefore be used to compare the level of contradiction between standardization and innovation, manipulation and empowerment, individualism and collectivism to see if there is any significant difference between the means. This helped to clearly identify which of the hidden contradictions highly exist in TQM firms in Ghana. The Kruskal Wallis test is preferred over the ANOVA because, the study did not assume that the data was normally distributed. Also, the problem of heteroscedasticity was prevented when the Kruskal Wallis test was used. The data in this study also had a ordinal scale of measurement and was ranked which made the Kruskal Wallis test more appropriate for multiple comparison. Three different software were used for the analysis which are the Statistical Package for Social Sciences (SPSS), Microsoft excel 2014 and the Smart Partial Least Squared (S-PLS). The SPSS software was chosen here because it is user friendly. Also, when dealing with descriptive statistics, the SPSS provides a

better graphical interface than other software. Outputs in SPSS are also straight forward to interpret and analyze. The SPSS was used to provide the descriptive statistics and the Kruskal Wallis multiple comparison test. The S-PLS was used together with Microsoft excel for the structural equation modelling. The software also relaxes on the assumption on normality which makes it straight forward to use. The structural equation modelling (SEM) was used to find the effects that the pair of contradictions have on the success of TQM implementation. There are two types of SEM which are the covariance-based (CB-SEM) and the partial least square SEM. The partial least square SEM (PLS-SEM) was used for this study because the PLS-SEM is used to develop theories and frameworks which is the focus of this study.

4.5.1 Justification for Structural Equation Modelling

The partial least square structural equation modeling was the main form of data analysis technique for this study as stated earlier. This approach was chosen because, the data is assumed to be non-parametric and PLS-SEM is appropriate for non-parametric measure for causality. Also, the set of questionnaires designed were in the form of a Likert scale and this is not suitable for a multiple regression approach since the variables will not be easily measured quantitatively. Structural equation modelling is the best technique used to measure causality looking at the nature of the measurement scale.

4.5.2 Justification for PLS-SEM over CB-SEM

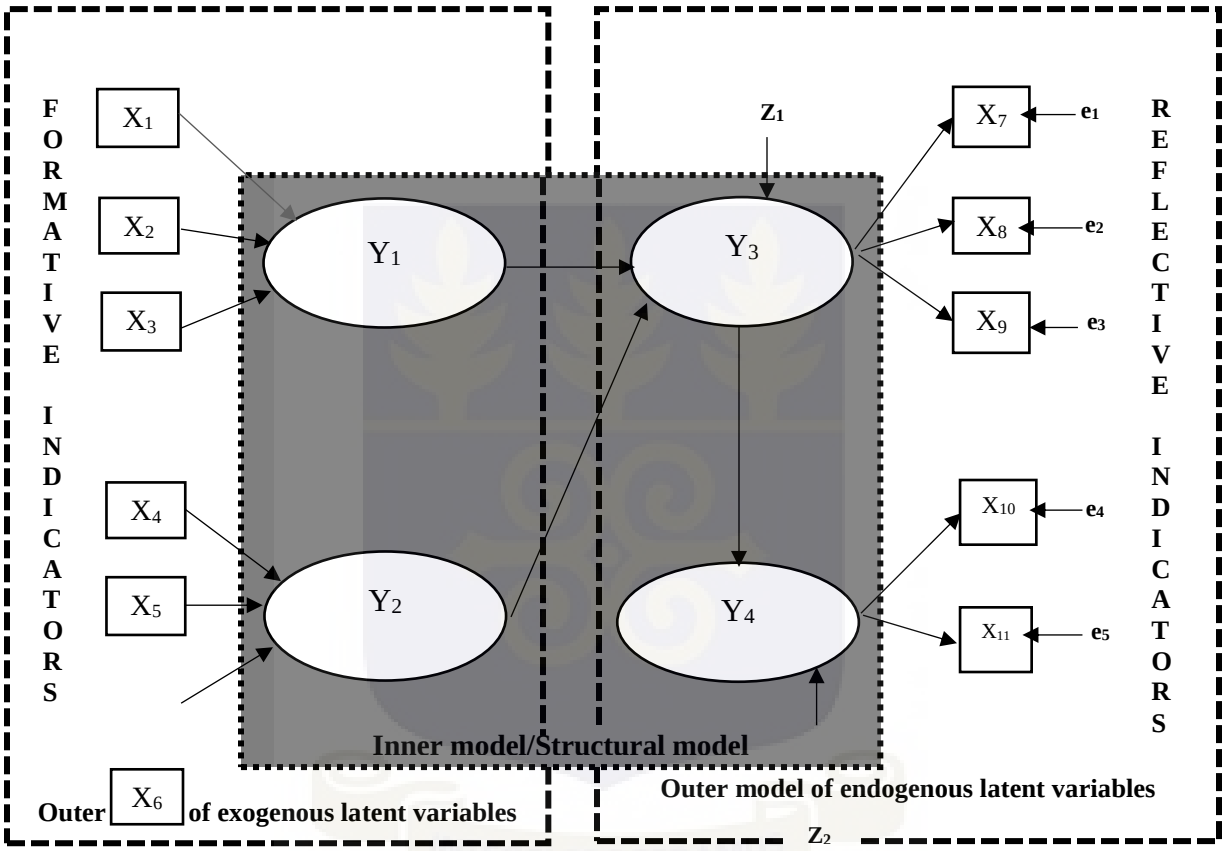
The PLS-SEM is most appropriate when the problem of sample size issues arise. In this study, the sample size for the managers is small and to overcome the related problems that will come with it, the PLS was chosen. When the sample size is smaller, CB-SEM provides more errors in its estimations while the PLS-SEM reduces the errors to a minimum level (Hair, Ringle, & Sarstedt, 2011). PLS-SEM provides higher levels of statistical power making it most appropriate. Also, the PLS-SEM is distribution free making it flexible unlike CB-SEM which is used when the data is

only normally distributed. The PLS-SEM is also very robust if missing values are below a reasonable level unlike the CB-SEM (Hair, Ringle, & Sarstedt, 2011). The PLS-SEM can also work with a metric data, binary data and ordinal scaled data (quasi-metric) unlike the CB-SEM. The PLS-SEM is also adopted for this study because, it reduces the amount of unexplained variance and it can easily handle complex models with many structural model's relationships among them (Hair, Ringle, & Sarstedt, 2011). More importantly, the PLS-SEM easily integrates reflective and formative measurement. Path models show reflectively and formatively measured indicators (Hair, Ringle, & Sarstedt, 2011). Where a path relationship moves from an indicator to a construct, those indicators are called formatively measured indicators (Hair, Ringle, & Sarstedt, 2011). An example in Figure 4.1 is X_1 to X_3 which move to Y_1. Thus, X_1 to X_3 indicators are formatively measured indicators. These indicators do not contain error terms. On the other hand, a reflectively measured indicator is an indicator whose relationship moves from the constructs to the indicators. In Figure 4.1 below, Y_3 moves to X_7, X_8, X_9. These indicators are the ones that contain the error terms.

The structural equation modeling is a second-generation multivariate data analysis technique which is a powerful analytical tool and has been used by many researchers (Henseler, Ringle, & Sinkovics, 2009; Hair, Ringle, & Sarstedt, 2011; Hair, Sarstedt, Pieper, & Ringle, 2012; Chin, 2010). The PLS-SEM establishes path models which are diagrams that are used to visually display the relationship between variables as indicated in Figure 4.1 above (Hair, Ringle, & Sarstedt, 2011). In PLS-SEM, constructs are the variables that are not measured directly. In Figure 4.1 above, the constructs (also known as latent variables) are represented by ovals which are labelled from Y_1 to Y_4. In relation to this study, the constructs are standardization, innovation, manipulation, empowerment, individualism, collectivism and customer satisfaction. Indicators (also called manifest variables) are the proxy that contain the raw data and serve as measurement variables for

the constructs. These are indicated by rectangles in Figure 4.1 above labelled from X_1 to X_{11}. The indicators in this study were the questions that were in the set of questionnaire under each construct.

Figure 4.1: A Simple Path Model



Source: Adopted from Hair, Hult, Ringle, and Sarstedt, (2014).

The relationships between constructs and also, between a construct and its indicators are shown by arrows. The path model consists of two elements which are the structural model and the measurement model. The structural model is an inner model that explains the relationship between constructs. In Figure 4.1 above, the relationship between Y_1 and Y_3 and Y_3 and Y_4 are explained by the inner model. In this study, the inner model will explain the relationship between the

components of customer satisfaction and each pair of standardization/innovation, collectivism/individualism, and manipulation/empowerment. The measurement models which are also called the outer models, explain the relationship between the constructs and their indicators. The outer models in Figure 4.1explain the relationship between X_1,X_2,X_3 (indicators) and Y_1 (construct). In this study, the outer models will explain the relationship between the statements in the set of questionnaires and the variables they represent. There are two types of the measurement model. The first type is for the exogenous latent variables and the second type is for the endogenous latent variables. The exogenous latent variables are the constructs that explain other constructs. That is, in Figure 4.1 above, Y_1 and Y_2 explain Y_3 which makes Y_1 and Y_2 exogenous latent variables. The endogenous latent variables are the constructs that are being explained in the model as shown. In Figure 4.1, Y_3 and Y_4 are endogenous since they are both explained in the model.

The error terms are represented by e_1 to e_5 in Figure 4.1 above. The error terms are also connected to the constructs through the indicators and they represent unexplained variance when a path model is established. Z_1 and Z_2 in Figure 4.1 above are also error terms that are associated with the endogenous latent variables. These error terms are labeled differently in path analysis. The path model in this study will be only formative and not reflective. The error terms are minimized by showing the contributions of manifest variables to the unobserved constructs. This is referred to as the construct reliability (Anand & Ward, 2004; Creswell, 2013). Confirmatory factor analysis (CFA) are used to assess the construct reliability. In this study, the manifest variables will be tested to verify if there is a commonality of variance among the indicators. CFA calculates individual reliability scores and composite reliability scores. This will measure internal consistency of the factors. Also, variance inflation factor will be used to assess collinearity which will describe how much the variability of a specified independent variable is not explained by the other independent variables within the model. If the VIF values are above 10 or the tolerance values are less than

0.10, then there is multi-collinearity (Pallant, 2001). The individual reliability score is calculated as follows;

$$\boldsymbol{\rho_i} = \frac{\boldsymbol{\lambda_i^2}}{\boldsymbol{\lambda_i^2 + \theta_i}}$$

Where ρ_i = the individual reliability score for the i^{th} term (i represent an individual item measuring a construct)

λ_i = factor loadings of the items that connect the i^{th} term to the factors ($0 \leq \lambda_i \leq 1$)

Θ_i = variance of the error term corresponding to the i^{th} indicator ($\Theta_i \geq 0$).

A detailed representation of how the structural equation modelling works is indicated in Hair et al., (2014).

4.5.3 Assumptions, Validity and Reliability Test

The assumptions that were tested are collinearity (using the variance inflation factor values -VIF), composite reliability, convergent validity, discriminant validity and scale reliability (using Cronbach alpha). The assessment of the measurement model is a validation of the indicator variables that are used to measure each construct (endogenous and exogenous variables) in the questionnaire. This is done by calculating the convergent validities using the average variance extracted (AVE), discriminant validity, composite reliability and the internal consistency test using the Cronbach's alpha. The PLS bootstrapping procedure was used to assess the measurement model for each construct. Hair et al. (2014) recommended guiding principles for determining the relative importance and significance of the factor loadings of each indicator on the constructs. Thus, indicators with 0.5 or more loadings on the constructs are significant. Only these indicators should be included in the model. Hulland (1999) however recommended that, acceptable scale for a construct's composite reliability should be 0.7 and above. Also, Hair et al., (2014) recommended that, the AVE of the constructs should be higher than or equal to 0.5. This indicates that, at least 50% of the measurement variance is captured by the latent variable.

The convergent validity is the degree to which multiple latent variables that measure the same construct are in agreement. The loadings of each indicator variable on their respective construct should be 0.5 or more (Hair et al., 2014). Indicators which loads less than 0.5 on the constructs are dropped in order to achieve the convergent validity. The average variance extracted therefore measures the variance which is captured by the indicator variables in relation to the measurement error. Hair et al., (2014) recommended that, the composite reliabilities of the construct should be 0.7 and above. The Cronbach alpha has the same interpretation as the composite reliability test. Thus, the Cronbach alpha for a construct should be 0.7 or more to indicate how reliable the indicators are (Hair et al., 2014). The variance inflation factor VIF helps to test for collinearity in the model and to reduce the measurement error. The VIF is only for the inner model as it only relates to the exogenous variables. VIF also expresses how much the variance in the regression coefficients have been inflated. Collinearity can cause an error since it can increase or inflate the regression coefficient (Hair et al., 2010: Chin & Newsted, 1999).

4.6 Ethical Consideration

This study is in conformance with the principles aimed at protecting the privacy and dignity of individuals and organizations included in a study. This was in regard to all those directly and indirectly providing information that is relevant for the study. The individuals who were involved in this study were notified of the general approach and the method for this study beforehand. They were also informed of the benefits as well as the potential problems the study can pose (if any). The study reduced to the barest minimum, all potential problems that arose. The issues in relationship to confidentiality shall was adhered to strictly while no respondent was forced to respond to a questionnaire. Respondents' consent was required before the set of questionnaires was distributed. The study also avoided any form of falsification or distortion of data. The data was presented as it was given by the respondents. The author did not plagiarize people's work and

provided the necessary references and bibliography where necessary. Respondents were also be assured that, information given will be used purely for academic purposes.

CHAPTER FIVE

DATA PRESENTATION AND ANALYSIS

5.0 Introduction

This chapter presents the data (that were collected using the questionnaire) together with their analysis. The three sets of questionnaire were designed to collect information on background profile of employees and management. Information on the level of TQM principles (standardization, collectivism and empowerment) in this study was also gathered from general managers. Also, information on leadership principles (innovation, individualism and manipulation) were gathered from the managers responsible for implementing total quality management. The set of questionnaire that was administered to the employees sought information on product quality, flexibility, employee satisfaction, responsiveness and cost reduction strategies. All 40 TQM managers and 40 general managers who were part of the survey, responded to all the questions accordingly giving a response rate of 100%. Seventy-eight managers responded to the questionnaires through the face-to-face approach while two managers were contacted on a mobile phone. Statements that were not clear to respondents were clearly explained. There were no missing values in the responses of the managers. This implies that, all questions were answered by all the managers. Two hundred and eighty employees were available while twenty employees received the questionnaire through email. However, some employees did not answer some items on the questionnaires. This gave missing values in the responses of the employees even though all 300 employees responded.

The data was inspected for outliers in the responses of the mangers and the employees. Winsor (1951) explained that, winsorizing involves the transformation of statistical data by restraining extreme values. A 90% winsorization was applied in this case. The problem of outliers was found in the questionnaire for the employees only. This was done to ensure that, the data was accurate

and reliable enough to minimize the errors in the results. Where there was a missing value, the average of all the response to that particular item was used. After the data was cleaned to ensure errors are reduced to the barest minimum, it was run in the software. Three software were used (see Chapter 4) to run the data. Multicollinearity, composite reliability, convergent validity, discriminant validity and scale reliability (Cronbach alpha) were tested to ensure the data did not violate any assumption.

5.1 Firms and Respondents Characteristics

The study sought to investigate contradictions in TQM implementation in Ghana and was conducted in firms adopting TQM principles in Ghana. Table 5.1 shows the nature of businesses that were undertaken by these firms.

Table 5.1: Principal Nature of Business

Nature of Business	Frequency	Percentage (%)
Services	2	5.0
Extraction and Construction	6	15.0
Agriculture	7	17.5
Manufacturing	23	57.5
Regulatory	2	5.0
Totals	**40**	**100.0**

Source: Field of survey, (2015).

The above presentation indicates that, there were different organizations with different nature of businesses. Thus, the responses are likely to be fairly represented in terms of business sectors. However, majority of the firms are in the manufacturing sector.

5.1.1 Demographic Characteristics of employees

Table 5.2 represents the demographic characteristics of the employees who were sampled. The information provided are gender and years of experience.

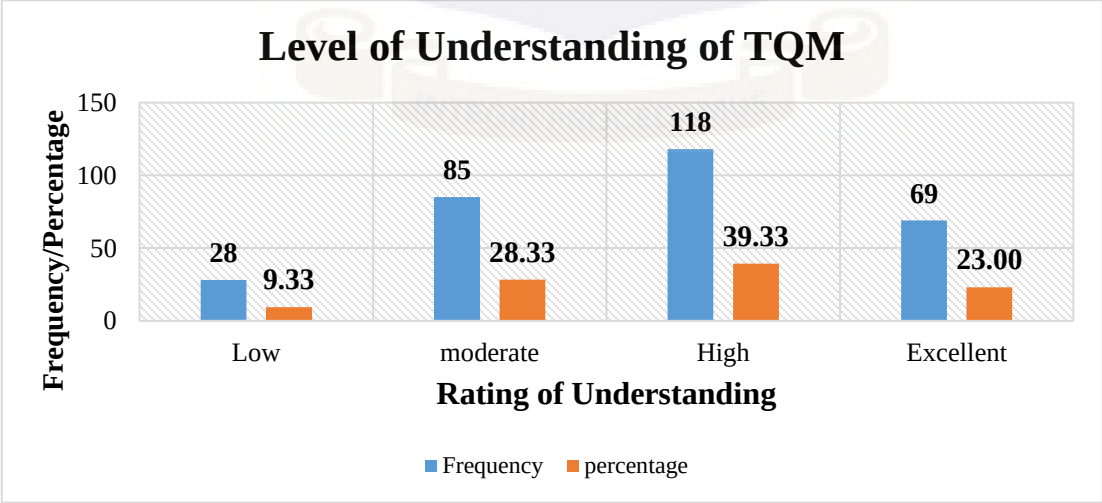
Table 5.2: Demographic Profile of Employees

	Items	Frequency	Percentage (%)
Gender			
	Male	191	63.7
	Female	109	36.3
Totals		**300**	**100**
No. of years working for the organization			
	1-3 years	56	18.7
	4-6 years	111	37.0
	7-10 years	81	27.0
	Above 10 years	52	17.3
Totals		**300**	**100**

Source: Field of Survey, (2016).

Table 5.2 shows the gender distribution of employees and the number of years the employees have worked for their respective organizations. Majority of the respondents were males and they numbered 191.The table also indicates that, majority of the respondents had worked 4 years and over. It therefore indicates that, the responses have a higher tendency of being accurate since the respondents have served long enough to understand TQM implementation in their organizations.

Figure 5.1: Employees understanding of TQM Principles



Source: Field of Survey, (2016).

Employees level of understanding of TQM principles were also rated categorically. The bar graph shows that, majority of the respondents had a good knowledge on what total quality management is about.

5.1.2 Demographic Characteristics of Managers

Table 5.3 below also represents the demographics of the TQM managers and general managers. The information includes the gender of the managers and the number of years as a manager. It also includes TQM managers' level of understanding of leadership principles and general managers' level of understanding of TQM principles.

Table: 5.3 Background Profile of Managers

	TQM Managers		General Managers	
Items	**Number of respondents**	**Percentage (%)**	**Number of respondents**	**percentage (%)**
Gender				
Male	30	75	30	75
Female	10	25	10	25
Number of years As a manager				
Under 3 years	3	7.5	9	22.5
3-6 years	11	27.5	6	15
6-9 years	15	37.5	18	45
Above 9 years	11	27.5	7	17.5

Source: Field Survey, (2016).

From Table 5.3 above, there were more male respondents than females. The number of years a respondent had been a manager was important as it will tell how much experience the managers brought on board in relation to the responses. From the table, it is also evident that, 37 out of the 40 TQM managers had been managers for more than 3 years. This implies that, on the average, majority of the TQM managers had been managers long enough to give reliable information

needed. In relation to the general managers, out of 40 managers involved in the survey, 31 of them had been managers for more than 3 years. This is an indication that, majority of the managers had experience long enough to give reliable information. Therefore, the responses from the general managers will be helpful in answering the research questions.

5.2 Assessment of the Reliability and Validity of the Data

The measurement model assessment was made to test the reliability and validity of the indicator variables using convergent validity. Constructs should obtain an average variance extracted (AVE) value of greater than 50%. Composite reliabilities of the constructs should also be greater than or equal to 0.7. Multicollinearity was also tested by using the variance inflation factors of the exogenous variables.

5.2.1 Validity and Reliability test

The assessment of the measurement model is a validation of the indicator variables that were used to measure each construct in the questionnaire. The constructs are the independent and the dependent variables. This was done by calculating the convergent reliabilities using the average variance extracted (AVE), discriminant reliability, composite reliability and the internal consistency test. The PLS-SEM procedure was used to assess the measurement model for each construct. Hair et al. (2014) recommended guiding principles for determining the relative importance and significance of the factor loadings of each indicator on the constructs. Thus, indicators with 0.5 or more loadings on the constructs are significant. Only these indicators were included in this model. Hulland (1999) however recommended that, acceptable scale for a construct's composite reliability should be 0.7 and above. This indicates that, at least 50% of the measurement variance is captured by the latent variable. Table 5.4 below shows the reliability test that was conducted and the summary thereof.

Table 5.4: Evaluation of the Measurement Model

Constructs	AVE	Composite Reliability	Cronbach Alpha	VIF
Exogenous constructs				
Standardization	0.6449	0.8786	0.824	1.739
Innovation	0.5645	0.7311	0.723	1.180
Collectivism	0.5467	0.7816	0.7798	1.684
Individualism	0.5396	0.8529	0.7993	1.344
Empowerment	0.7056	0.9227	0.8952	1.985
Manipulation	0.5196	0.8431	0.7754	1.736
Endogenous constructs				
Product quality	0.6873	0.868	0.7814	
Flexibility	0.6477	0.8465	0.7301	
Responsiveness	0.5412	0.8221	0.7367	
Cost	0.5761	0.9042	0.8768	
Employee satisfaction	0.668	0.9089	0.8738	

Source: Field of Survey, (2016).

The AVE column on Table 5.4 measures the convergent validity of the constructs. From Table 5.4 above, the AVE values of all the constructs achieved convergent validity. Since all the values are greater than 0.5 with the highest AVE being 0.7056 (AVE for empowerment) and the lowest being 0.5196 (AVE for Manipulation). Therefore, convergent validities were achieved.

Hair et al., (2010) recommended that, the composite reliabilities of the construct should be 0.7 and above. The composite reliability values as seen in Table 5.4 above for all the constructs is between 0.7311 and 0.9227. Composite reliabilities for all the constructs were therefore achieved. The Cronbach's alpha is the internal consistency test indicating the reliability of each indicator variable that is used. The Cronbach alpha has the same interpretation as the composite reliability test. Thus, the Cronbach alpha for a construct should be 0.7 or more to indicate how reliable the indicators are (Hair et al., 2010). From Table 5.4 above, the Cronbach alpha for all the variables are above the threshold of 0.7. The minimum Cronbach alpha from the table is 0.723 and the highest is 0.8768. This indicates that, all the indicators that were used to measure the constructs were reliable.

From Table 5.4, the communality of standardization is 0.6449. This implies that, about 64.49% of the variation in standardization is explained by its indicator variables. Also, the communality of innovation is 0.5645 which means that about 56.45% of the variation in innovation is explained by its indicator variables. The communality of collectivism of 0.5467 implies that, on the average, about 54.67% of the variation in collectivism is explained by its indicator variables. All the other variables have a communality value greater than 0.5 which meets the threshold of 0.5. This indicates that, for the entire model, the indicator variables explain the variation in the constructs very well. Enough validity is therefore achieved in the measurement model as all the necessary statistical tests have been undertaken successfully.

The variance inflation factor VIF helps to test for multicollinearity in the model and to reduce the measurement error. The VIF values above are only for the inner model as they only relate to the independent variables. VIF also expresses how much the variance in the regression coefficients have been inflated (Hair et al., 2010: Chin, & Newsted, 1999). Constructs with the VIF values of 10 or more are highly correlated and such constructs are likely to cause multicollinearity issues (Hair et al., 2014) and should be dropped from the model. Some multicollinearity effects include inflation of the path coefficients and changing of the sign of the path coefficients (Neuman, 2007). Therefore if such constructs are not dropped, the coefficients of the regression are likely to be inflated. The VIF values of the independent variables in Table 5.4 above show that, there are no multicollinearity problems. All VIF values are between 1.1 and 2.

5.2.2 Discriminant Validity

The discriminant validity test for each construct was also carried out. This was done by finding the square roots of the AVE for each construct and comparing them to the correlation between the constructs. This refers to the degree to which indicators of constructs differ from measures of other constructs or to which items measure distinct constructs (Hulland 1999). Table 5.5 shows the results of the discriminant test for each variable and the correlations among constructs. The square root of the AVE for the constructs are in the diagonal cells and correlations among constructs are in the off-diagonal cells. For the discriminant validity to be achieved, the diagonal values which have been bolded should be greater than the off-diagonal values in the corresponding columns and rows.

Table 5.5 shows the discriminant validity of all the constructs. It measures the degree to which constructs measure distinct concepts. It can be seen that, discriminant validity has been achieved as the diagonal values of all the constructs are greater than the horizontal and vertical off-diagonal values. This means that none of the constructs were overlapping and the items loaded more strongly on their own constructs in the model that was generated. Generally, the measurement model demonstrated adequate discriminant validity, convergent validity, internal consistency validity, composite validity and no collinearity. This makes the model fit for the path analysis.

Table 5.5: Discriminant Validity for Overall Measurement Model

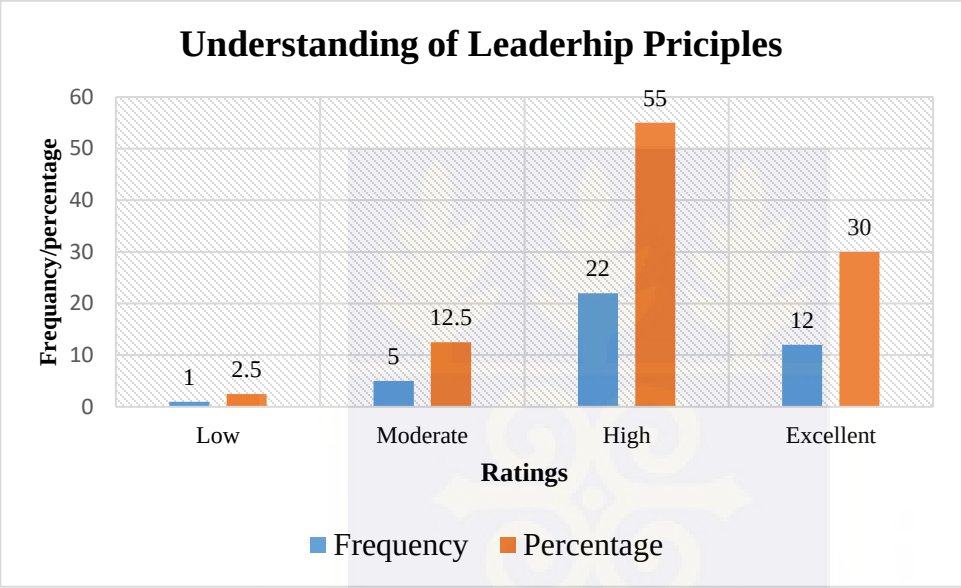
	1	2	3	4	5	6	7	8	9	10	11
Collectivism	***0.739***										
Cost	0.44	***0.759***									
Emplo Satis	0.422	0.736	***0.817***								
Empowerment	0.489	0.553	0.511	***0.84***							
Flexibility	0.339	0.689	0.640	0.511	***0.805***						
Individualism	0.120	0.289	0.390	0.237	0.311	***0.735***					
Innovation	-0.254	-0.430	-0.526	-0.259	-0.424	-0.414	***0.682***				
Manipulation	0.479	0.689	0.538	0.616	0.497	0.295	-0.189	***0.721***			
Prod. Quality	0.084	0.203	0.337	0.365	0.274	-0.097	-0.104	0.477	***0.829***		
Responsive	0.238	0.655	0.637	0.359	0.432	0.569	-0.446	0.353	-0.072	***0.736***	
Standards	0.078	0.439	0.489	0.489	0.404	0.462	-0.193	0.476	0.329	0.387	***0.803***

Source: Field of Survey, (2016). 1-Collectivism, 2-Cost, 3-employee satisfaction, 4-Empowerment, 5-Flexibility, 6-Individualism, 7-Innovation, 8- manipulation, 9-Product quality, 10-responsiveness, 11-Standardization

5.3 Contradictions in TQM and Leadership Principles

This part of the chapter compares the responses of the general managers to the responses of the TQM managers. This will help to establish if contradictions indeed exist between TQM principles and leadership principles.

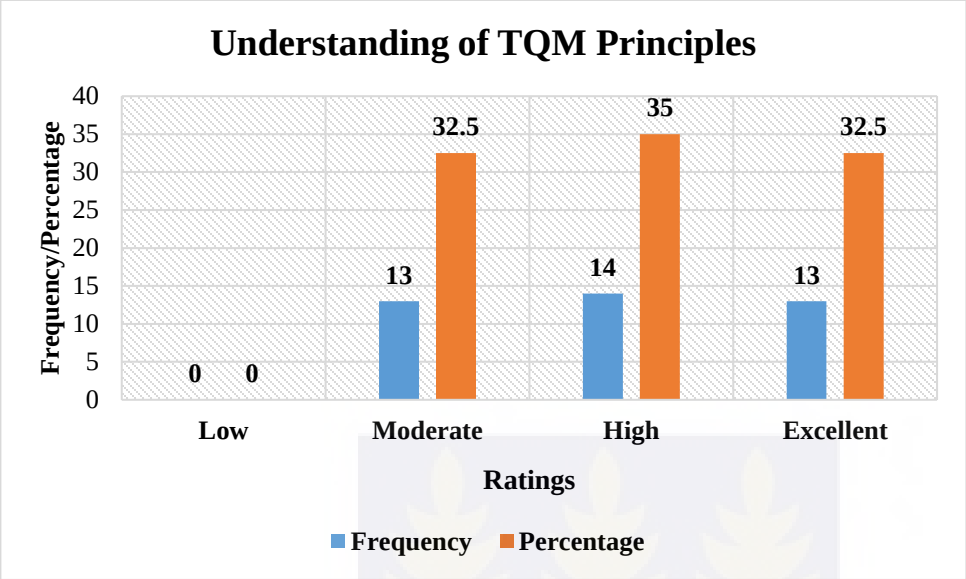
Figure 5.2: Understanding of Leadership Principles



Source: Field of Survey, (2016).

Figure 5.2 shows the level of understanding of leadership principles by the TQM managers. The graph shows that, only one manager had a low level of understanding in the leadership principles (innovation, individualism and employee manipulation). As seen above, majority of the TQM managers had a good understanding of the leadership principles that were examined in this study. The accuracy and reliability of the responses of TQM managers are very important in this study since that will help the researcher establish the level of contradictions that exist.

Figure 5.3: Understanding of TQM Principles



Source: Field of Survey, (2016).

The Figure 5.3 is a bar graph which indicates general manager's level of understanding of TQM principles in Ghana. The level of understanding of TQM principles was categorized into low, moderate, high and excellent. No general manager had low understanding in TQM principles. The general managers who were involved in the survey had a very good understanding of TQM principles. General managers' understanding of these principles is key to the accuracy, validity and the reliability of the information needed. Therefore, if the general managers have good understanding of TQM principles, it is very relevant. The first objective of the study was to establish that, there are contradictions between TQM principles and leadership principles during TQM implementation. This section of the study analyses the data on TQM principles (standardization, collectivism and empowerment) and leadership principles (innovation, individualism and manipulation). Managers responsible for TQM implementation responded to statements on leadership principles while general managers responded on TQM principles. Table

5.6 shows a summary of the responses by the managers. These principles are the independent variables in the PLS-SEM model.

Table 5.6: Descriptive Statistics of Leadership and TQM principles

Principles	N	Mean	Std. Deviation
TQM			
Standardization	40	4.4773	0.89399
Empowerment	40	4.2850	1.11276
Collectivism	40	4.5075	0.81221
LEADERSHIP			
Innovation	40	4.4550	0.65278
Individualism	40	4.4472	0.75003
Manipulation	40	4.4542	0.75508

Source: Field Survey, (2016).

N represents the number of respondents to each principle while the mean statistic indicates the average responses for the 40 respondents to a particular item. The items in the questionnaire were scaled from 1 to 7 on a Likert scale with a mean and median scale of 4. Any item scoring 4 and above is significantly high. The Std. Deviation is the standard deviation which measures the spread of scores in the dataset. A smaller standard deviation value shows how concentrated the responses are closer to the mean. From Table 5.6 all the principles were responded to by the 40 TQM managers and 40 general managers. The average score of standardization is 4.4773 and the average score of innovation is 4.4550. This indicates that, both standardization and innovation principles scored high values. This shows a contradiction between the two variables. There will be no contradiction if a TQM principle scores high and a leadership principle scores low and vice versa. There is therefore an established contradiction between standardization and innovation. The

standard deviation values for standardization and innovation are 0.89399 and 0.65278 respectively which are all relatively low. This indicates there is not much variability between responses.

Also the average score on individualism is 4.4472 and the average score on collectivism is 4.5075 which are both high. It is interesting to know that, both collectivism and individualism score high. If there were no contradictions, it will be expected that, as one principle score high, the other should score low. This also indicates that there is a contradiction between collectivism and individualism because of the high score on both principles. The standard deviation for individualism and collectivism are 0.75003 and 0.81221 respectively which are all relatively small. A lower standard deviation score is better for the internal consistency in the responses. Table 5.6 further shows the descriptive statistics on employee empowerment and employee manipulation. Employee empowerment and employee manipulation scored an average of 4.2850 and 4.4542 respectively. These principles also have a lower standard deviation score as indicated in the table above. This indicates a contradiction between employee empowerment and employee manipulation as these items both scored high.

5.4 Results of Kruskal Wallis Test

The second objective of the study was to know which of the contradictions are predominant. The test allowed for a comparison between the average scores of the TQM principles and the Leadership principles. For the three contradictions, the Kruskal Wallis test compared the three pairs of contradictions to see the pair that is prominent. Table 5.7 shows the results of the Kruskal Wallis test.

Table 5.7 Kruskal Wallis test for Variables

Principles	N	Subset for alpha = 0.05
		Mean
Standardization	40	4.4773
Innovation	40	4.4550
Collectivism	40	4.5075
Individualism	40	4.4472
Manipulation	40	4.4542
Empowerment	40	4.2850

Test Statistics[a,b]	
	Scores
Chi-Square	1.611
df	5
Sig	0.900

Source: Field of Survey, (2016).

The table shows the mean responses to standardization, innovation, collectivism, individualism, employee empowerment and employee manipulation. N represents sample size for each of the principles. Significant difference exists if the "sig value" is less than alpha (0.05). It can be observed from Table 5.8 above that, the sig value is 0.900 which is more than alpha (0.05) at 95% confidence level. This implies that, there is no significant difference in the mean score of the contradictions that exist between the TQM principles and the leadership principles. Thus, none of the contradictions is more prominent than the others since there is no significant difference in the mean. Post hoc test is therefore not required. All the contradictions therefore exist in equal measure and each pair of contradiction is equally eminent and should be balanced equally.

5.5 Results of Partial Least Squares (PLS) Analysis

The Third objective of this study was to assess the effects of the TQM and leadership principles on TQM success in firms implementing TQM principles. TQM success was measured using product quality, flexibility, employee satisfaction, responsiveness and cost reduction strategies. These were the endogenous variables in the structural model. The exogenous variables were standardization, innovation, collectivism, individualism, manipulation and empowerment. It is important to estimate the effect of TQM principles and leadership principles on TQM performance.

5.5.1 Assessment of the Structural Model

The structural model was assessed after the measurement model met all the validity and reliability tests. The structural model establishes the causal relationship between exogenous and endogenous variables. The assessment of the path coefficients, the standard error, t-statistic and the p-values of the path were used to establish the causality. This was done after the collinearity assessment was made to ensure no measurement errors were achieved. Figure 5.4 below shows the model that was used for the path analysis. The constructs on the left side of the model represent the independent variables which are standardization, innovation, collectivism, individualism, empowerment and manipulation. The constructs of the right side of the model are the dependent variables which are product quality, responsiveness, employee satisfaction, flexibility and cost reduction strategies. Each of these constructs are being measured by the indicators that loaded well on them and those are seen in the reflective measure on the diagram. Indicator variables are represented by the rectangles in Figure 5.4 below. For example, cost reduction strategies is measured by seven items in the questionnaire. Standardization, cost reduction strategies, innovation all had indicator variables loading 50% and above on them.

The path coefficients and the test statistic values are indicated on Table 5.9. The path model is reflective (arrows move from constructs to indicators) in nature because the constructs cause the measurement of the indicator variables. The model above indicates the relationship between the independent variables (labelled 1 to 6) and the dependent variables (labelled 7 to 11). The arrows move from the independent variables to the dependent variables because the independent variables predict the dependent variables. The rectangles represent the indicators which load more on the constructs.

The path coefficients between standardization and the dependent variables show the causal relationship. These causal relationships are shown in the arrows moving from standardization towards the dependent variables. Similarly, the relationship between collectivism and the dependent variables are shown in the paths. Paths 2 to 7 show the effect of collectivism on responsiveness. Table 5.9 shows the t-statistic value and p-value for each path. A t-statistic value which is above 1.96 means that the independent variable significantly affects the dependent variable (Hair et al., 2014: Chin et al., 1999). P-values below alpha (0.05) also indicate the level of significance.

Table 5.8: Results of PLS Model

Path	Coefficient	Standard Error	T-Statistic	P-value
Collectivism->cost	0.0827	0.1515	0.5461	0.586
Empowerment->cost	0.0775	0.1992	0.3893	0.697
Individualism->cost	-0.071	0.1783	0.3981	0.691
Innovation->cost	-0.2981	0.1491	1.9988	0.04

Manipulation->cost	-0.5042	0.1755	2.8734	0.0045
Standardization->cost	0.1308	0.1445	0.9054	0.366
Collectivism->product qty	0.2233	0.1245	1.7944	0.0469
Empowerment->product qty	0.1167	0.2438	0.4789	0.6325
Individualism->product qty	-0.4105	0.1074	3.8236	0.0002
Innovation->product qty	0.4105	0.2107	1.972	0.0491
Manipulation->product qty	0.5415	0.2622	2.0652	0.0402
Standardization->product qty	0.3666	0.1565	2.3428	0.0201
Collectivism-> flexibility	0.0431	0.2142	0.2013	0.8407
Empowerment->flexibility	0.2078	0.2415	0.8605	0.3905
Individualism->flexibility	0.0097	0.1144	0.0851	0.0002
Innovation->flexibility	0.2865	0.1408	2.0348	0.0431
Manipulation->flexibility	0.2293	0.1163	1.9718	5.2E-05
Standardization->flexibility	-0.2151	0.0998	2.1551	0.04391
Collectivism-> responsiveness	0.0411	0.2071	0.1983	0.84301
Empowerment->responsiveness	0.1072	0.2111	0.5081	0.61195
Individualism->responsiveness	0.3936	0.189	2.0824	0.03858
Innovation->responsiveness	-0.2163	0.1311	1.7498	9.5E-09
Manipulation->responsiveness	0.0757	0.2402	0.315	0.75309
Standardization->responsiveness	0.072	0.1802	0.3995	0.68995
Collectivism-> employ satis	0.2733	0.1048	2.5901	0.01030
Empowerment->employ satis	0.3678	0.1211	3.0372	0.00271
Individualism->employ satis	0.0173	0.1568	0.1103	0.91228
Innovation->employ satis	0.2076	0.2526	0.8219	0.41211
Manipulation->employ satis	0.2151	0.1708	1.2024	0.23063
Standardization->employ satis	0.2618	0.1931	1.3557	0.1767

Source: Field of survey, (2016).

Table 5.8 shows the path model, path coefficient, standard error for each path, the t- statistic values and the p-values at 5% significance level. Each of the dependent variables were regressed on the independent variables. The path coefficients express how the independent variables affect the dependent variables. These coefficients indicate if the effects are significantly positive or significantly negative. Paths with p-values less than 0.05 show a significant effect of the independent variable on the dependent variable. The results show that, innovation and standardization had significant effects on cost. Collectivism, individualism, innovation, manipulation and standardization all have significant effects on product quality. Manipulation and standardization all had significant effects on flexibility. Individualism and innovation all have

significant effects on responsiveness. The results further indicated that, collectivism and empowerment have significant effects on employee satisfaction.

CHAPTER SIX

DISCUSSION OF FINDINGS

6.0 Introduction

This chapter discusses the results of the analysis that were presented in the previous chapter. It explains into details the findings that were made and relates the findings to the relevant literature. It further explains the implications of the findings to practice and theory. The chapter also answers the research questions that were asked in Chapter One and addresses the research objectives thereof. Each discussion is made under a theme which addresses a research question.

6.1 Contradictions in TQM implementation

6.1.1 Standardization versus Innovation

The study revealed that, there is a contradiction between standardization and innovation in firms adopting total quality management. Harnesk and Abrahamsson, (2007) revealed similar findings in their study. Total quality management is an order of formalization and standardization of work methods. Thus, firms adopting total quality management have an effective, formal and standardized way of doing things. There are work routines and procedures to ensure that there is little variability within the production processes and to ensure uniformity. Harnesk and Abrahamsson, (2007) also suggested that TQM has a purpose of reducing variability through effective, formalized and standardized methods and procedures. Imai (1997) and Eklund (1997) all found similar assertion in the implementation of total quality management. Organizations implementing TQM have systems in place that ensure that, commonly available parts are used during the product design. This ensures that, there is little variability in the products and ensures uniformity (Imai, 1997). Total quality management also ensures that, the reduction in variability leads to lowering investment cost since commonly available parts are used. A standardized process ensures uniformity of products and fewer inspections leading to higher quality. Harnesk and Abrahamsson, (2007) asserts that, TQM ensures that parts are easily interchangeable because of

standardization and makes the product consistent to the intent of the designer and hence ensuring quality. Ellström (2001) found out that, attaining quality means establishing routines and opportunities and ensuring that standardization is achieved. Luoh, Tang, and Ya-Yin (2014), observed that standardization as a principle of TQM introduces rigidity to the work processes which lacks variety, and this allows room for little or no innovation.

Also, firms adopting total quality management in Ghana display a higher level of standardized process and method in the production of goods and services making the production system robust. Apparently, these same organizations are also seen to have higher level of innovativeness which is interesting. The study found out that, in the midst of higher levels of standardization, these organizations also want to introduce creativity (refer to Table 5.6 in Chapter 5), add new features and make unique parts or products. The firms are seen to also have process innovation to increase the levels of variety. This tends to create a contradiction in the earlier assertion of standardization practiced by these firms. Harnesk and Abrahamsson, (2007) argued that, the implementation of the principles of total quality management brings with it a contradiction between standardization and innovation. This assertion has been supported in this study. This finding is not in line with the findings of Pierce and Delbecg (1977). These authors found out that, where standardization is high, innovation is low. This is somewhat different from what was found out in this study. In as much as it is important to standardize, innovation has been seen to be relevant as well because customers want variety. Organizations want to standardize in the wake of innovativeness. How can this be done by organizations to ensure quality is achieved? The next chapter will address this important dilemma.

6.1.2 Individualism versus Collectivism

It was also revealed on Table 5.6 in Chapter five that, there is an existing contradiction between individualism and collectivism in firms implementing TQM principles in Ghana. Firms implementing total quality management principles in Ghana are faced with the challenge of using team based methodologies or individual brilliance. The study found out that, concurrent designs are seen by managers as the best approach to improve quality of designs. Harnesk and Abrahamsson, (2007) found similar results in their study as they assert that, TQM by tradition has a collective approach through the use of quality circle or team efforts. McKenna and Beech (2002), also found out that a great need to belong prevents isolation at the work place and enhances employee morale. The authors further found out that, team based methods in the implementation of total quality management result in high performance of tasks according to the requirement. The study further found out that, TQM encourages design teams which helps in the reduction of lead times and improving the product assembly line. Further to that, group appraisal and collective approaches are more effective in a production system. McKenna and Beech (2002), found similar results stating that, TQM introduces group efforts which make production systems very effective. Maiyaki, (2013) also found out that, collectivist organizations have higher interactions with customers and help solve their needs and complaints.

Contrary to collectivism, the study found out that, firms implementing total quality management also have an individualist culture. Thus, leaders in the organization are geared towards working through individuals rather than team work. The study revealed that, general managers tend to be more interested in sequential design during the product design stage to meet customer's needs. The study revealed that, most of these organizations focus on functional areas working independently rather than in groups and individual creativity is recognized mostly by general managers.

Riddarstråle and Nordström (2002) found out that, the concept of individualism in an organization increases the level of effectiveness in the production system and reduces cost. Harnesk and Abrahamsson, (2007) encouraged for individualism to increase in TQM firms to increase egotism. Maiyaki (2013) also found out that, organizations with more level of individualism meet customers' needs consistently. From the above discussions, it is clear that, there is a dichotomy between collectivism and individualism in firms implementing TQM principles in Ghana. This finding is in line with the findings of Singelis et al., (1995) and Amabile et al., (1996). These authors found out that there is a contradiction between collectivism and individualism. Harnesk and Abrahamsson, (2007) also found out that, the implementation of total quality management principles brings a contradiction between individualism and collectivism and this has been justified in this study. This contradiction needs to be balanced to enhance TQM success in these organizations.

It is essential to recognize that, the implementation of TQM principles was found to consider the entire organization as a core unit that can collectively be managed through team based methodologies. TQM managers of these organizations recognized that, TQM advocates for individuals to function through groups and assume responsibilities for the collective output. Therefore, TQM managers make decisions based on shared values and collective responsibilities. On the contrary, the general trend of leadership within these organizations has focused more on creating a co-worker culture and individualism. Leadership believes in management harnessing the potential of individual workers towards increasing productivity. This must be coupled with achieving quality, meeting organizational goals and exceeding the customer's needs. This was seen to further ensure that quality would be achieved and the success of each individual represents the success of everyone. However, this concept contradicts the concept of team work or collective

efforts which is alluded to TQM managers in the same organizations. Organizations need to operate through groups but as a matter of fact, the same organizations require brilliant individuals to stand up to certain task and contribute positively to the task being performed. How management can create a culture that allows individuals to operate in groups and at the same time, give individuals the room to exploit their potentials lies in the next chapter.

6.1.3 Manipulation versus Empowerment

The study sought to establish if there was a contradiction between employee manipulation and employee empowerment. Manipulation was found to exist in firms adopting TQM principles. There was enough evidence supporting the fact that, firms implementing total quality management principles have detailed surveillance in place to ensure employees improve the quality of processes. This exhibits the principle of employee manipulation. Accordingly, the TQM firms have strict supervisions to ensure that employees adhere to the status quo without any deviations. Less authority are given to employees in their day to day activities to ensure initiatives are not taken on their own. The study further revealed that, processes are strictly monitored by employees to prevent deviation and free will by workers. Workers are mostly controlled and manipulated to get things done. Management usually influences employees in TQM firms and this guarantees employee's compliance to standard operating procedures in the firms. Employee manipulation was therefore found to be in existence in the firms.

The organizations implementing TQM principles are faced with either giving employees enough authorities or restricting employees. Thus, the organizations as they implement TQM principles, address the empowerment of their employees to enhance their full participation towards achieving organizational goals. This is therefore concerned with shifting the focus of control and regulation from outside of the workforce to within the workforce. Empowerment makes everyone

accountable to their own performance, explore their potentials and knowledge in decision making. This helps organizations attain quality in the production of goods and services in a highly motivated fashion. Ishikawa (1985), proposes much delegation of authority to staff to create esteem for employees. The purpose is to encourage employees to willingly make deeper commitments and act independently. The actions of employees should however be based on the interests of the organization. The firms implementing TQM principles involve their workers in many happenings to motivate employees. Contrary to that, the organizations, as a result of implementing leadership principles, raise the issues of details reconnaissance by top management. This enables managers to monitor and control the conduct of employees through close supervision. This introduces manipulation which gives employees little or no opportunities to be empowered thereby creating a serious contradiction in the organization. It is somewhat interesting to see these two-contradicting phenomena existing in the same organizations. What will be relieving is to have these two contradictory but important principles balanced and implemented to enhance TQM success.

6.2 Effects of TQM and Leadership Principles on TQM Success

The TQM principles and the leadership principles will be relevant if they can significantly affect the success of TQM implementation. The success of TQM was measured using cost reduction strategies, product quality, and flexibility, responsiveness and employee satisfaction. The study revealed that, on the average, innovation has a negative significant effect on cost reduction strategies all other factors held constant. Thus, as the level of innovation increases, cost reduction reduces. Thus, as innovation increases, cost also increases. Craighead, Hult and Ketchen (2009) found out that, organizations usually improve on their processes and become more efficient if they are more innovative. This is a very effective cost reduction strategy. Abou-Moghli, Abdallah and Muala (2012) on the contrary found out that, innovation increases the cost strategies which

contradicts the findings in this study. The findings imply that, as organizations find innovative ways to improve the processes, products and programs, the cost involved in the production processes will be reduced. Innovation determines the efficiency of the process as it will ensure the reduction of wastages. This indicates the relevance of the principle of innovativeness in ensuring TQM success. Manipulation is also having a significant negative effect on cost reduction strategies. Thus, when strict measures are in place and procedures are adhered to at the workplace, the cost reduction increases. Thus, cost reduces. This is as a result of the reduction in waste and proper inventory management approaches as a result of management control. Employees adhere to strict measures that are in place and this helps in reducing the cost of the organizations.

Product quality represents the level at which products conform to customer's requirements and are not defective. All the independent variables were modeled on product quality. The study revealed that, collectivism has a significant positive effect on product quality. This implies that, team efforts and collective approach in organizations increase the quality of goods and services. This has occasioned organizations to function as a unit in achieving organizational goals through collective efforts. These collective efforts help in producing goods and services that meet customers' requirements. These requirements are easily communicated as organizations function in groups and these customer needs are easily communicated and worked towards. Individualism in an organization is seen to have a significant negative effect on product quality. The more individuals are made to explore their potentials in the organization, the lower the level of quality of products in the organization. This is because, sequential processes within an organization may create walls between functional areas and among individual talents. This restricts interaction and coordination in the organization as achieving quality is seen as a collective effort and not individual affairs.

Even though individual brilliance can perform effectively, their performance will be unique if they interact with others and achieve a common course. In the design of products for example, it is essential that decisions on product designs are done concurrently. The design of a product may affect assembly quality, sales and speed of repair. Concurrent designs break down the walls between sequential designs and involve all persons from different backgrounds to ensure quality is achieved. This joint and iterative process was seen in the study as collectivism impacts positively on product quality. Rusell and Taylor (2011, p.161) explained that, "concurrent design improves both the quality of the design and the time to market the product". This is similar to the findings of this study. However, individual talents is needed to create the act of novelty in the organization. In the next chapter, the author will prescribe how individualism can be balanced with collectivism to have individuals who are creative thinkers to fit in team efforts.

The study also found out that, innovation has a positive significant effect on product quality. Thus, as the levels of innovation increase in a firm, the level of product quality also increases in the firm. The level of innovativeness in the organization helps the organizations meet individual customers' demands. Some customers may have unique features they require to be added in the product. Innovation in organizations can help TQM firms customize products for individual customers to give them a level of uniqueness. Once the expectations of the customers are exceeded, quality is achieved. Abou-Moghli, Abdallah and Muala (2012) similarly found out that, innovation leads to service quality in the banking sector. Gunday, Ulusoy, Kilic, and Alpkan (2011), also found out that, innovation impacts positively on quality and this is supported in this study. The level of innovation in the organization creates uniqueness, enhance product quality and organizational performance. These findings were also evident in the study by Shahidul, Mahsud, Yukl, and Prussia, (2013).

The study found out that, the level of standardization has a significant positive effect on product quality. This implies that, increasing the level of standardization substantially and significantly ensures that quality is achieved. This is possible through the use of commonly available parts, reduction in variability and enhancement of uniformity. Interestingly, both standardization and innovation have positive effects on product quality even though they are seen as contradicting each other. This is the more reason why, each of these principles should be balanced which is done in the next chapter. Manipulation of employees is also found to have a positive impact on product quality. When employees are strictly supervised, and made to adhere to the processes laid down by management, quality is not compromised. As employees strictly monitor the processes in place to enhance quality, it encourages compliance and the levels of defectives are reduced. Also, monitoring the affairs and employees and influencing their actions is also found to ensure the efficiency of the system and enhanced quality is achieved.

Another measure of TQM success was flexibility. This is the ability of the organization to respond to the changing demand patterns and product varieties of their customers. The study revealed that, individualism has a significant positive effect on flexibility. Some customers may have pressing needs to be met which are unique. Organizations require individuals to be brilliant in dealing with such customer problems. Therefore, individualism is required in organizations to ensure that the level of flexibility in the organizations are increased. Innovation was also found to have a positive significant effect on flexibility. Thus as the level of innovation in an organization increases, the organization is able to meet the ever changing demands of the customers. The findings of Abou-Moghli, Abdallah and Muala (2012) supports these claims. Standardization also has a negative significant effect on flexibility. Standardization ensures that, commonly available parts are used and uniformity is ensured during design and production. This makes it difficult to meet changing

demands of the customers, hence the negative effect. Manipulation also has a positive effect on flexibility. The implication is that, as management increasingly manipulate employees, the more employee is able to meet the ever-changing needs of customers and also provide variety of products.

Responsiveness was a measure of TQM success and this indicates how organizations respond to customers' demands within an acceptable time frame. Individualism significantly affects responsiveness positively. Responding to customers' demands in a timely manner requires individual professionalism and skill. Individual workers must take their own initiatives in helping a customer or providing the customer's needs. If individuals do not take such initiatives themselves, customers' needs may be delayed. Therefore, the higher the level of individualism, the higher the level of responsiveness. Innovation also has negative effect on responsiveness. This implies that, as the level of innovation increases in an organization, the level of responsiveness is reduced. Employee satisfaction represented TQM success as a dependent variable in the model. The study revealed that, empowerment of employees' impacts positively on employee satisfaction. Giving employees enough authority increases their morale and makes employees happy. Also, motivating employees to voluntarily make deeper commitments has been seen as being very good for employee satisfaction. The human resource requires some level of independence to operate freely. Employees also need to handle issues themselves rather than always acting on the authority of their heads. When employees are given the relevant authority to operate within the space, it increases the level of satisfaction of workers. Elnaga and Imran (2014) found out that employee empowerment has a significant effect on job satisfaction and employee satisfaction. Meyerson and Dewettinck (2012) also found out that, empowerment impacts positively on employee satisfaction.

This supports the findings in this study. The study also revealed that collectivism has significant effect on employee satisfaction.

From the discussions above, it is evident that the leadership principles and the TQM principles are equally important. It has also been established that, the contradictions investigated exist. Each of these principles have been seen to have significant effects on at least, one of the variables that represent TQM achievement. The contradictions are labelled as "hidden" because it may be over looked by most managers. These contradictions if not managed properly, may hinder the achievement of the benefits of total quality management. The adoption of total quality management principles by organizations has given contradicting demands and expectations on the views of leadership in the organization (Harnesk & Abrahamsson, 2007). Organizations and leadership need to prioritize and balance these contradictions to help organizations excel in total quality management and provide competitive advantage. The next chapter provides a framework on how these contradictions can be balanced.

CHAPTER SEVEN

FRAMEWORK FOR BALANCING THE CONTRADICTIONS

7.1 Introduction

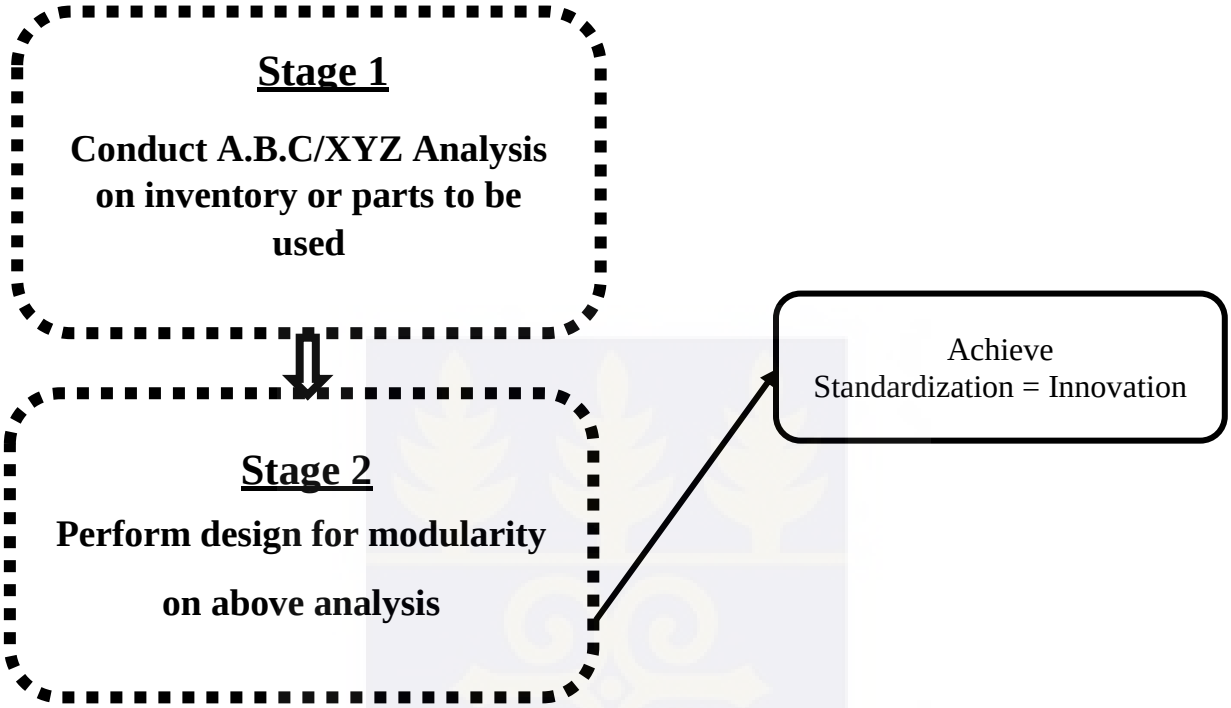
In the previous chapter, it was seen that three contradictions exist in the case of organizations adopting and implementing the principles of total quality management. These principles are also seen as significantly impacting on TQM success. This implies that, all these principles are relevant in the implementation of TQM. This further implies that, when these principles are not prioritized and balanced, firms will not fully realize the benefits of total quality management. There is therefore the need to have a framework that will guide organizations in implementing each pair of contradiction and achieving success in total quality management. The sections in this chapter provide two frameworks to aid in balancing the contradictions.

7.2 Framework for balancing "Standardization and Innovation"

This section provides a two stage "standardization-innovation" framework for creating a balance between standardization and innovation principles in the implementation of TQM. The materials, parts or processes used in a production system play a vital role in creating a balance between standardization and innovation. The focus of the framework will therefore be on the materials, parts and the processes of the production system. For standardization to be achieved, it depends on these things. Innovation also largely depends on these things as well.

7.2.1 Two Stage "Standardization-Innovation Framework"

Figure 7.1: Framework for Balancing Standardization and Innovation



Source: Author's Construct, (2016).

Stage 1

To balance the gap between innovation and standardization, the first stage will be to perform a combined analysis of ABC and XYZ approaches in the organization. The ABC approach alone will not be enough in implementing this framework and the XYZ approach will not be adequate either. A matrix is created to help organizations achieve these feet.

The ABC Approach

The ABC analysis is a method for categorization of inventory, processes or parts into three classes which are A, B, C (Ravinder & Misra, 2014; Dhoka & Choudary, 2013a). The materials, parts or processes in category A are the most valuable items and the items in the category C are the

materials, parts, inventory or even processes that are least valuable. The approach suggests the following to organizations in the ratings of their items:

1. Items in category A are those materials, parts, inventory and processes with the highest annual consumption values. Thus, those parts or inventory or processes that the organization spends 70 to 80% of expenditure on inventory on and yet, accounts for just 10 to 20% of the total inventory. That is, these parts, materials or inventory are less but consumes a lot of the organizations budget.
2. Items in category B on the other hand are those items described as interclass items. That is, even though these items usually account for 30% of the total inventory in the organization, these items usually take up to 15 to 25% of the annual budget on inventory in an organization.
3. There are these items used by the organization which account for close to 50 % of the total inventory. Yet these items only consume 5% of the organizations budget on inventory. These items are put under the category C in the ABC analysis.

Steps for Classifications

The following steps will help organizations to classify the materials, parts or processes that are used for production into the above categories.

1. General and TQM managers of organizations will first have to get the cost per unit of materials and the material usage over a year.
2. The cost per unit is then multiplied by the annual usage of the material and this will give the net value. This is done for all the materials, parts or processes that are used.
3. All the items are then listed in descending order.

4. The number of items are then added up and the values are also added up differently. The percentage of total inventory in value and in numbers are then calculated and classifications made.

The XYZ Approach

The XYZ approach is an inventory management technique which was developed as an extension of the ABC approach (Dhoka & Choudary, 2013b). The idea underlying this approach was to group various materials into categories X, Y and Z (Dhoka & Choudary, 2013b). The framework being developed in this study adopts the XYZ approach and integrates it into the ABC approach. However, the study will extend the XYZ approach beyond just materials. Classifications of materials, parts, inventory and processes for production are done as follows;

- Materials, parts, inventories and processes with a fixed demand within a period and also exhibits periodic fluctuations as well as high forecasting accuracy in its prediction are classified under category X.
- Materials, parts, inventories and processes with moderate demand fluctuations and an average forecasting accuracy are classified under category Y.
- Materials, parts, inventories and processes with irregular demand and low forecasting accuracy are classified in category Z.

This categorization can be implanted in organizations using the following three stages. Stage one involves the organizations estimating the demand of materials, parts, inventories and processes. This should be done for individual materials or parts as well as processes. The materials or parts should then be sorted out in the second stage and the last stage should graphically represent the results. Afterwards the categorization can then be done (Dhoka & Choudary, 2013b).

When this is done by the organizations, then the materials, parts, inventories and processes can be grouped into categorize A, B and C. This implies that, the organization will have three different set of materials, inventories, parts or processes which should be documented. The next thing the organization will have to do is to incorporate the X,Y, Z approach into the ABC approach to create a matrix as shown in Table 7.1 below. This matrix has been constructed to help managers easily classify their materials, inventory or parts.

Table 7.1: ABC/XYZ Matrix

	A	**B**	**C**
X	**AX** • Higher consumption values • Even demand goods • Reliable forecast	**BX** • Medium consumption values • Even demand • Reliable forecast	**CX** • Low consumption value • Even demand • Reliable forecast
Y	**AY** • High consumption value • Predictably variable demand • Less reliable forecast	**BY** • Medium consumption value • Predictably variable demand • Less reliable forecast	**CY** • Low consumption value • Predictably variable demand • Less reliable forecast
Z	**AZ** • High consumption value • Sporadic variable demand • Forecasting unreliable or impossible	**BZ** • Medium consumption value • Sporadic variable demand • Forecasting unreliable or impossible	**CZ** • Low consumption value • Sporadic variable demand • Forecasting unreliable or impossible

Source: Author's Construct, (2016).

The above matrix was developed by combining the ABC approach and the XYZ approach to help managers in an organization to be able to classify materials, inventory or processes used for production to achieve quality. Management should therefore be able to classify its inventory or processes using the above matrix. This ends the first stage of achieving a balance between standardization and innovation.

Stage 2

The stage two of the framework now incorporates the modularity concept into the above matrix. This stage clearly highlights which materials, inventories or processes should be customized or standardized based on the above matrix. Table 7.2 below shows which parts of the matrix should be standardized and which parts of the model should be customized in order to ensure that quality is achieved.

Table 7.2: Modularity for ABC/XYZ Concept

	A	B	C
X	**AX**	**BX**	**CX**
	Standardize goods, materials parts or processes in this category	Customize/ standardize	Customize goods, materials or processes in this category
Y	**AY**	**BY**	**CY**
	Standardize good, materials parts or processes in this category	Customize/ standardize	Customize goods, materials or processes in this category
Z	**AZ**	**BZ**	**CZ**
	Standardize good, materials parts or processes in this category	Customize/ standardize	Customize goods, materials or processes in this category

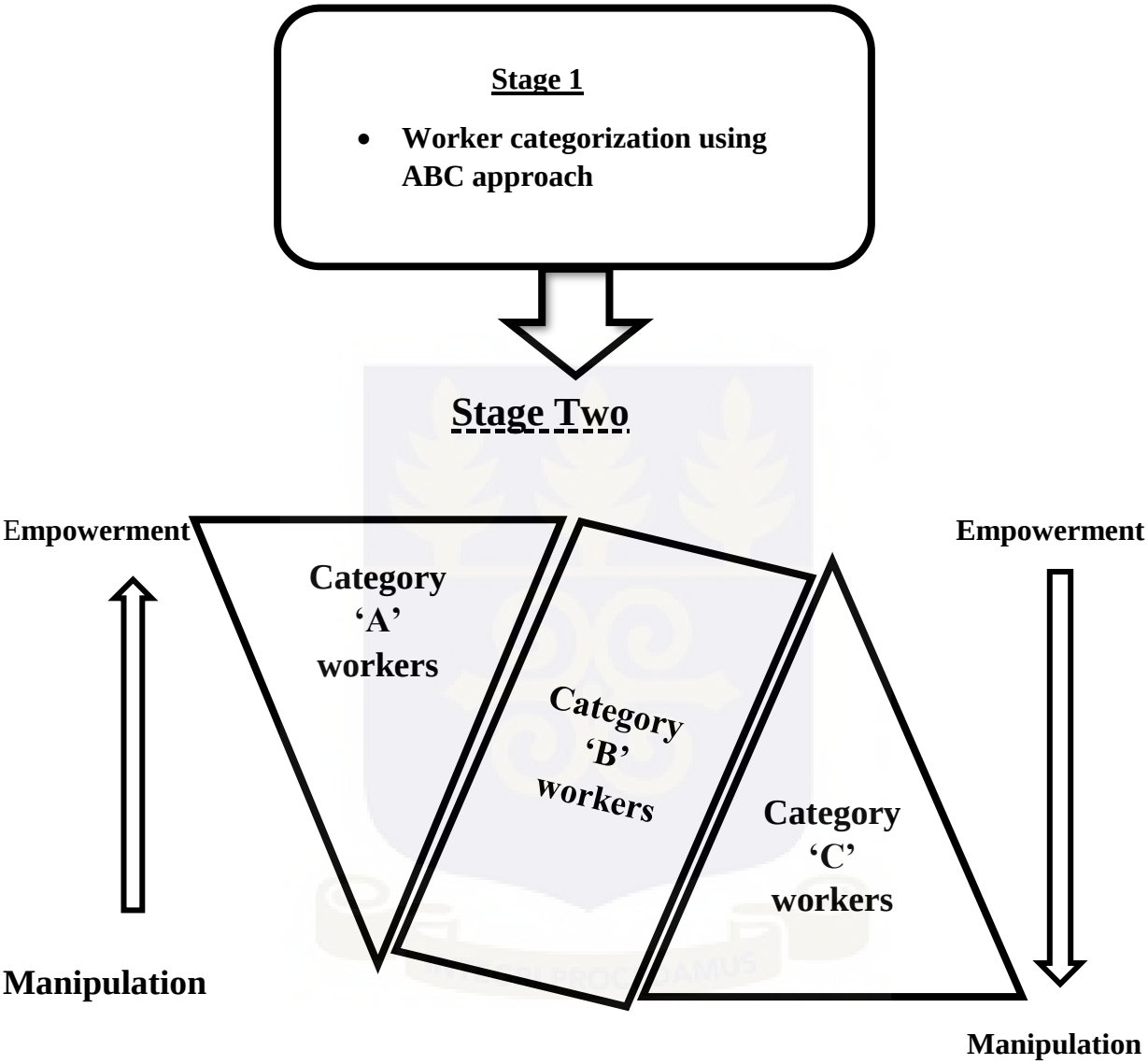
Source: Authors Construct, (2016).

The above table shows which parts of materials, inventory or processes should be standardized or customized. The items categorized in the first column are high value consumption items which should be standardized to reduce the cost. This will ensure that, the materials, inventory or processes that take more of the budgetary allocations should be standardized to reduce variability and ensure quality is achieved. Low value consumption items, materials or products should be customized for customers to create unique features at an extra cost. This will introduce variability and innovativeness at a level where standardization is also high. This will create a balance between innovation and standardization. Materials, inventory or processes within the second column are medium consumption and managers can use their discretion either to customize parts, materials or processes or can decide to standardize their processes, materials or inventory. This will ensure that standardization is achieved not at the expense of innovation. This also ensures that quality are achieved.

7.2.2 A Manipulation-Empowerment and Individualism-Collectivism Framework

Figure 7.2 below is a model which will help organizations to balance the gap between employee manipulation and employee empowerment as well as individualism and collectivism and this will help managers achieve the full benefit of total quality management. The framework is a two stage approach shown in Figure 7.2 below.

Figure 7.2 Framework for balancing Empowerment and Manipulation



Source: Authors Construct, (2016).

The first stage of the framework is the categorization of workers into A, B, and C workers which are explained into details below. The stage two involves two triangles and a rectangle representing each category. In category A, more empowerment and less manipulation is given and in category C, less empowerment and more manipulation is needed.

Stage 1

This stage of the framework involves the grouping of employees into three categories A, B and C. The principle for the categorization is based on the Pareto principle that 80% of quality contributions can only be gotten from only 20% of the employees (Pareto, 1906). This stage was adopted from the ABC approach to material classification as well. In this stage, the ABC approach is modified into human resource classification. Based on the ABC approach, workers in organizations are categorized also into ABC. It is important to put employees of an organization into categories based on independence at the work place and target achievement record. The ABC approach to employee categorization explains that, firms adopting TQM principles should rate their employees based on the following principles:

- This study assumes that, workers who belong to category 'A' in an organization should be workers who have the potential of meeting TQM organizational targets set for them independently. The study further take it that, these workers usually contribute to the progress of the organization without necessarily working in teams. It is further assumed that these workers take initiatives which are consistent with the goals of the organization and are self-motivated. Further to that, it is taken that, this category of workers fits perfectly in the sequential design methodology and are able to ensure organizational standards are achieved. For the purpose of this study, it is assumed that, 70 to 80% of TQM success in the organization depends on these employees. This category of employees should be made up of self-motivated individuals and whose source of knowledge is from the inner self. These workers are perceived in this study to be self-motivators. These workers should be able to identify problems and solve them on their own.

- For the purposes of the framework, this study assumes that, workers who belong to the 'B' category should be classified as interclass workers. These workers should be able to fit into groups and at the same time work as single individuals. It is further assumed that, even though most TQM success does not rely fully on them, they should be attributable to about 30% of TQM success in organizations. It is also assumed that, workers in this category are fit for sequential designs and concurrent designs. They should work in teams and should usually stand out because of their individual brilliance. It is also taken that; these workers should usually be the drivers of groups. The study further assumes that, they must sometimes take initiatives on their own and at times may be coerced by top management to take initiatives. It is taken that, workers in this category should be innovative workers and their sources of skills and innovativeness should come from group efforts as well as their individual brilliance. In some instances, these workers should be those workers who can identify problems on their own and solve them with the help of others. For the purposes of this study, it is assumed that, teams can also identify problems and these categories of workers should be able to develop brilliant ideas to solve these problems.
- Category 'C' are classified in this study as the "Remote Controller workers". The study assumes that, these workers should be workers whose impact on attaining organizational goals and TQM success are highly dependent on groups. The study further proposes that, these workers should be workers who are able to contribute about 5-10% to the success of organizations. They usually form a majority of the workforce as well in an organization. The study considers these workers to be workers who can only achieve when they are directed or work in groups. Further to that, it is assumed that, they usually do not contribute to the groups regularly. The study takes these workers as those who may only achieve set

targets when they are forced to do so. It is also taken that, they believe purely in concurrent designs and their outputs depend on the outputs of others. The study assumes that, they never take initiatives on their own and always want to wait for orders before they act. It is proposed in this study that, the achievement of such workers is highly dependent on the achievement of a group. For the purpose of this study, it is taken that, they believe in collective efforts and are also looking out for other people to take part in what they are doing. These workers are not innovative thinkers and also believe in the status quo. The study assumes they are slow in adapting to change and do not usually find problems or solve problems on their own. They are the workers who doubt their capabilities and may not even come out with an idea when given the opportunity. The framework perceives this category of workers as those who work because they need employment and not because they want to contribute or make an impact. These are the category C workers. These classifications are important to ensure TQM success and success of the organizations. Therefore, managers should get the categorization right.

Stage 2

After the categorization of the employees into the ABC groups, management is therefore to implement stage two of the framework. The stage two of the framework involves empowerment and manipulation of employees. Managers should empower employees in categories A as much as possible with little manipulation. These employees should not be put into groups but should be allowed to harness their potentials and release competences and creativity. Management should require these employees to report results and performance of their work. Management should also ensure that these workers work effectively and efficiently. This can be achieved by motivating employees with incentives, training employees and setting targets for them. These workers even

though work independently, should meet the regulations and requirements of the organization. Employees in category C should be manipulated more with little empowerment. These employees should be made to work in teams and the teams should be empowered. Thus, even though these people are in groups, the groups should work strictly according to set standards with some degree of freedom. Decision making should be made through collective responsibilities and shared values. Management should foster open communications to these categories and implement self-improvement individuals within this group. There should be encouragement of safe failure policies for the team members and management should provide plenty of context for these employees. Roles should be clearly defined for them and management should require accountability from these groups and at the same time support their independence. Employees under category B can be given some level of empowerment equal to some level of manipulation depending on the situation.

CHAPTER EIGHT

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

8.1 Summary

The signing of the European partnership agreement (EPA) between the government of Ghana and the European Union in April 2014 has facilitated trade agreement between the two economies. Increasing globalization and technology coupled with the EPA agreement has increased competitiveness among organizations on the African market. This has contributed to the adoption and implementation of total quality management by most organizations to provide products which are consistent with the needs and expectations of all stakeholders. Organizations seek to take advantage of TQM to gain competitive advantage. Over the years, TQM has moved from a concept to a managerial strategy and a leadership style which is implemented by top management in an organization. The implementation of TQM is seen to have inherent contradictions which are "standardization versus innovation", "individualism versus collectivism" and "empowerment versus manipulation". Standardization, empowerment and collectivism are TQM principles while innovation, individualism and manipulation are leadership principles. If these contradictions are not prioritized and balanced, TQM success may not be achieved. Also, the study examined the effects of these contradictions on TQM success.

Quantitative approaches were adopted in the methodology that was used because the quantitative approach is seen as more appropriate in estimation processes. To help achieve the above objectives, the study was conducted on ISO 9000 certified firms as these are firms implementing TQM principles. There are 40 ISO 9000 certified firms in the Greater Accra Region of Ghana and all these firms were involved in the study. The population of the study involved management and employees. Three hundred employees were sampled for this study using the stratified and convenience sampling techniques. Forty TQM managers and 40 general managers were also

involved in the study and these represent the 40 ISO certified firms in the Greater Accra Region. Three sets of questionnaires were designed to gather information on each TQM principle and leadership principle as well as TQM success. The Kruskal Wallis test and the structural equation modelling-PLS were the main analytical techniques used for this study. The Kruskal Wallis test was used to establish that the principle which was prevalent and the PLS-SEM was used to assess the effects of the principles on TQM success. Finally, the study developed a framework that organizations adopting TQM principles can use to balance the gap between these contradictions to enhance TQM success and benefits.

8.2 Conclusions

It is concluded that, the implementation of TQM principles by management of organizations brings with it hidden contradictions which are mostly overlooked by management of organizations. The sources of these contradictions are the integration of leadership with quality management in the process of implementing the principles of TQM. It is concluded that, three contradictions exist between TQM principles and leadership principles. These contradictions are "standardization versus innovation", "individualism versus collectivism" and "manipulation and empowerment". The contradictions need to be balanced because of the relationship that exist between the principles and TQM success. The study also concludes that, these principles have significant relationships with the indicators of TQM success. Thus, product quality, responsiveness, flexibility, cost reduction strategies and employee satisfaction can be significantly affected by at least one of the principles. This indicates that, if the gap between these principles is not narrowed, organizations may lose focus and this will hinder the success of TQM.

8.3 Recommendations

This study adds up to the literature on total quality management especially in Africa. The study provides conclusive arguments on the discus on the contradictory principles in the implementation of TQM. These contradictions have been overlooked and very little studies have been made on them. The study therefore provides an insight on the existing contradictions in the implementation of TQM principles and adds to literature. The academic and research community is therefore informed about these contradictions in this study. This study contributes abundantly to research by providing a model which future researchers can test and develop it into a theory. This model can be studied on and developed in further research. This study opens up to management of firms adopting TQM principles by informing them on contradictions which are not known. The study further explains the impact of these contradictions on the success of TQM. Mangers remain aware of these principles and will have to use the framework in chapter 7 to ensure that TQM success is achieved.

Management of organizations should categorize the materials, parts and processes within the production system into the ABC and the XYZ matrix which is given in Chapter Seven. This classification should be based on consumption values, demand and forecast. In other to achieve a balance between standardization and innovation, management needs to standardize materials or processes with higher consumption values. Also, goods with low consumption values should be customized by management while medium consumption goods or processes can either be standardized or customized. Also, management of organizations should classify their workers according to category A, category B and category C workers. What goes into the categorization of workers is shown in Chapter Seven. After the categorization is done, management should empower workers in category A and manipulate workers in category C. Workers in category B can either be

empowered or manipulated. This will help management to bridge the gap between individualism and collectivism as well as between manipulation and empowerment.

It is also recommended that, further research should test the framework or the model that has been developed in this study. This implies that, these future reporters should apply the framework to firms implementing TQM principles. Further studies can carefully analyze the model to help develop it. It is also recommended for future studies to analyze and apply the model in further work on TQM implementation.

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APPENDICES

APPENDIX A

QUESTIONNAIRE FOR MANAGERS IN CHARGE OF TQM

UG BS
University of Ghana Business School

Department of Operations and Management Information System

Dear respondent, this questionnaire is an academic survey instrument which is aimed at collecting data on total quality management implementation in your organization. This information will be used for academic work as part of the requirements for the award of M.Phil. in Operations Management at the University of Ghana Business School. Your availability to be part of this survey and your objective responses will significantly contribute a lot to this study. I will humbly request for your time to fill this questionnaire. Thank you.

Respondent's Assurance: Any information provided in this study is purely for academic purposes and nothing else. Respondent's utmost anonymity and confidentiality will be strictly adhered to.

SECTION A: Background Information

1. Gender: a. Male ☐ b. Female ☐

2. Number of years working for the organization

a. 1-3 years ☐ b. 4-6 years ☐ c. 7-10 years ☐ d. Above 10 years ☐

3. What is the principal nature of your organization's business?

☐ Services ☐ Extraction and Construction ☐ Agriculture

☐ Manufacturing ☐ Regulatory Other, Specify…….

4. How long have you been a Manager?

☐ Under 3 years ☐ 3-6 years ☐ 6-9 years ☐ above 9 years

5. How would you rate your understanding of Leadership principles?

☐ Low ☐ Moderate

☐ High ☐ Excellent

SECTION B: PRINCIPLE OF INNOVATION

The following statements are related to innovation in TQM implementation. *Please indicate the extent to which you agree with these statements on a scale of 1 to 7 with 1 representing strongly disagree and 7 representing strongly agree.*

Items	1	2	3	4	5	6	7

QB1) Variety in products makes the production system expensive							
QB2) Creativity makes it difficult to produce higher volumes of products or services							
QB3) Adding new features to a product makes the product more expensive							
QB4) The ability of the firm to make unique products or services opens up new levels of competition							
QB5) Introduction of new products or services quickly responds to customer needs.							
QB6) Modifying existing products meet customers' requirements.							
QB7) Process innovation improves the performance of the process							
QB8) Employing creativity during the product or services design delays getting products on the market early.							
QB9) Adding uniqueness during the product or service design delays getting new products to the market early.							
QB10) Development of new ideas opposes strict adherence to procedures							

SECTION C: PRINCIPLE OF INDIVIDUALISM

The following statements are related to **Individualism** in your organization. *Please indicate the extent to which you agree with these statements on a scale of 1 to 7 (1-Strongly disagree to 7- Strongly Agree)*

Items	1	2	3	4	5	6	7
QC1) Sequential design negatively affects number of customers the firm has.							
QC2) The efficiency of the production system is not achieved when the design is done in a sequential manner.							
QC3) When each functional area works independently, production cost increases							
QC4) Individual creativity during product design makes the production system complex							
QC5) Recognition of individual performance diminishes the effectiveness of group performances							
QC6) Reward schemes based on individual performance, defers from those based on group performance.							
QC7) The way individuals take control of situations during production or service delivery makes it difficult to enhance team based approaches.							
QC8) Individual creative ability increases the speed at which products are repaired or services are corrected							
QC9) Flexibility is not achieved when individualist culture is maintained							

SECTION D: EMPLOYEE MANIPULATION IN TQM IMPLEMENTATION

The following statements are related to **employee manipulation** in relation to TQM implementation. *Please indicate how you would rate these statements on a scale of 1 to 7(1-Strongly Disagree to 7-Strongly Agree)*

Items	1	2	3	4	5	6	7
QD1) Detailed surveillance on employee improves the quality of a product or service							
QD2) Employees working under strict supervision ensures set targets are met.							
QD3) Large volumes of products are produced when employees strictly adhere to the procedures.							
QD4) Giving employees less authority enhances efficiency							
QD5) Motivating people to act in the interest of the firms reduces the level of manipulation in the firm							
QD6) Employees abuse power when delegated with authority							

QD7) Giving employees much authority does not encourage compliance to processes and procedures							
QD8) Quality is not compromised when management influences employees during the product design.							
QD9) Processes are strictly monitored by employees to reduce defectives when management controls employees							
QD10) Controlling employees can create obstacles to quality work							
QD11) During service delivery, controlling employees ensures accurate services are delivered							
QD12) Quality is achieved when the production system is strictly monitored.							

Thank you for your co-operation.

APPENDIX B

QUESTIONNAIRE FOR GENERAL MANAGERS

UG BS
University of Ghana Business School

Department of Operations and Management Information System

Dear respondent, this questionnaire is an academic survey instrument which is aimed at collecting data on total quality management implementation in your organization. This information will be used for academic work as part of the requirements for the award of M.Phil. in Operations Management at the University of Ghana Business School. Your availability to be part of this survey and your objective responses will significantly contribute a lot to this study. I will humbly request for your time to fill this questionnaire. Thank you.

Respondent's Assurance: Any information provided in this study is purely for academic purposes and nothing else. Respondent's utmost anonymity and confidentiality will be strictly adhered to.

SECTION A: Background Information

1. Gender: a. Male ☐ b. Female ☐
2. Number of years working for the organization

a. 1-3 years ☐ b. 4-6 years ☐ c. 7-10 years ☐ d. Above 10 years ☐

3. How long have you been a Manager?

☐ Under 3 years ☐ 3-6 years ☐ 6-9 years ☐ above 9 years

4. How would you rate your understanding of Total Quality Management principles?

☐ Low ☐ Moderate

☐ High ☐ Excellent

SECTION B: STANDARDIZATION IN TQM IMPLEMENTATION

The following statements are related to **STANDARDIZATION** in TQM implementation. *Please indicate how you would rate these statements on a scale of 1 to 5 (1-strongly disagree to 5-strongly agree)*

Items	1	2	3	4	5	6	7
QB1) Commonly available parts that are used during product or service design ensure high volume of products or services are produced.							
QB2) Reduction in variety leads to lower investment in inventory							
QB3) A standardized process brings about fewer inspections.							
QB4) The uniformity in the product or service leads to a great cost advantage.							

QB5) Using standardized parts in a product saves design time							
QB6) Standardization makes it possible to interchange parts among products							
QB7) Using common parts during the design reduces the level of uniqueness in the product or service							
QB8) The process chosen to produce a product or service must be consistent with product or service characteristics							
QB9) Work routine procedure reduces creative thinking in the firm.							
QB10) Adherence to formal procedure during the design stage limits alternative thinking							
QB11) Standardization of work process reduces flexibility							

SECTION C: LEVEL OF COLLECTIVISM

The following statements are related to **COLLECTIVISM** in TQM implementation. *Please indicate the extent to which you agree with these statements on a scale of 1 to 5 (1-Strongly disagree and 5- Strongly)*

Items	1	2	3	4	5	6	7
QC1) Concurrent design improves the quality of the design							
QC2) Simultaneous design of products or services by design teams improves the time to market the product							
QC3) When design teams are used, it reduces lead time.							
QC4) Working in groups improves the quality of product assembly							
QC5) Group performance measurements limit individual competence.							
QC6) In the design stage, individual contributions impact more than collective ideas.							
QC7) Collective nature of work does not encourage individual creativity							
QC8) Using collective approach makes it difficult to recognize individual responsibility.							
QC9) Compensation packages based on team efforts are more effective than compensation packages for individual efforts.							
QC10) Group employee's appraisals are more effective than individual employee appraisals.							

SECTION D: EMPLOYEE EMPOWERMENT IN YOUR ORGANIZATION

The following statements are related to **EMPLOYEE EMPOWERMENT** in your organization. *Please indicate the extent to which you agree with these statements on a scale of 1 to 5 (1-Strongly Disagree to 5-Strongly Agree)*

Items	1	2	3	4	5	6	7
QD1) Motivating employees to voluntarily make deep commitments help in attaining quality							
QD2) Delegating authority to employees allows them to harness their potentials during production to reduce wastages.							
QD3) Delegation of authority to employees enhances the innovative power of employees							
QD4) When employees are given independence, it helps to create uniqueness in products or service during the design of the product or service.							
QD5) Freedom of action among employees helps to increase employee satisfaction.							
QD6) Empowering employees during TQM implementation creates conflicts of interest							

QD7) Giving employees much authority does not encourage compliance to processes and procedures.							
QD8) When employees are empowered to work freely, customers changing demands are always met							
QD9) Internal commitment by employees ensures products are easily customized to meet customer demands.							
QD10) Employee complaints are quickly handled when employees are empowered.							

Thank You for your co-operation.

APPENDIX C

QUESTIONNAIRE FOR EMPLOYEES

UG BS
University of Ghana Business School

Department of Operations and Management Information System

Dear respondent, this questionnaire is an academic survey instrument which is aimed at collecting data on total quality management implementation in your organization. This information will be used for academic work as part of the requirements for the award of M.Phil. in Operations Management at the University of Ghana Business School. Your availability to be part of this survey and your objective responses will significantly contribute a lot to this study. I will humbly request for your time to fill this questionnaire. Thank you.

Respondent's Assurance: Any information provided in this study is purely for academic purposes and nothing else. Respondent's utmost anonymity and confidentiality will be strictly adhered to.

SECTION A: Background Information

1. Gender: a. Male ☐ b. Female ☐

2. Number of years working for the organization?

a.1-3 years ☐ b. 4-6 years ☐ c. 7-10 years ☐ d. Above 10 years ☐

3. How would you rate your understanding of Total Quality Management?

☐ Low ☐ Moderate

☐ High ☐ Excellent

Section B: TQM ACHIEVEMENT

The items in this section are related to product (goods and services) quality in your organization. Please indicate the extent to which you agree with each item on a scale of 1 to 7 where 1 represents strongly disagree and 7 represents strongly agree.

Items	1	2	3	4	5	6	7
QB1) The organization does less rework.							
QB2) There is loss in goodwill of our customers.							
QB3) Customers complain less about defective products or inaccurate services.							
QB4) Materials from vendors are mostly defective.							
QB5) The organization is mostly engaged in litigation with customers which arise from defectives products or services							
QB6) The organization frequently makes payment to customers on defective items or bad services.							
QB7) Defective products are frequently replaced for customers							

The statements in this section are related to flexibility (the ability of the organization to respond to changes in demand patterns and product varieties) in your organization. Please indicate the extent to which you agree with each of these statements by rating them on a scale of 1 to 7 where 1 represents strongly disagree and 7 represent strongly agree

Items	1	2	3	4	5	6	7
QB8) Product features are easily changed to meet customers' changing demand.							
QB9) The organization is able meet changing volume requirements of customers.							
QB10) The organization is able to proportionally adjust volume without compromising quality to meet customer volume needs.							

QB11) New information needs of customers are easily met by this organization							
QB12) Products are easily customized to meet specific customer needs.							
QB13) The organization is able to meet a wider range of new customer requirements.							
QB14) In the design stage, information flows at a faster rate to meet new customer demands.							

The items in this section are related to employee satisfaction in your organization. Please indicate the extent to which you agree with each of these statements by rating them on a scale of 1 to 7 where 1 represents strongly disagree and 7 represent strongly agree

Items	1	2	3	4	5	6	7
QB15) The employee is satisfied with compensation packages and promotion in this firm							
QB16) The organization has good internal communication and information flow systems.							
QB17) Management recognizes suggestions and contributions of workers							
QB18) Effective training programs are in place in this organization.							
QB19) The relationship between employees and management is cordial.							
QB20) The working conditions in this firm is the best.							
QB21) There is a conducive working environment in this organization							
QB22) The organization has a safe working environment							
QB23) In house training is organized for employee development.							
QB24) Employees are sponsored to attend training programs elsewhere.							

The following statements are related to items under the responsive nature (responding to customers' demands within an acceptable time frame) of business operations. Please indicate the extent to which you agree with each of these statements on a scale of 1 to 7 with 1 indicating strongly disagree and 7 indicating strongly agree.

Items	1	2	3	4	5	6	7
QB25) Employees are able to help customers in unusual situations							
QB26) The organization is able to reduce lead time (time between placement of an order and delivery of an order).							
QB27) The organization has adequate storage facilities to meet market uncertainties in a timely manner							
QB28) The organization is able to attend to customer complaints in a timely manner							
QB29) The organization delivers goods and services in a timely manner							
QB30) Employees are always willing and able to help customers to deal with problems on time							
QB31) Quality products or services are delivered consistently							

The following statements are related to items under cost and pricing strategies of your organization. Kindly indicate how you would agree or disagree with these statements by ranking on a scale of 1 indicating strongly disagree to 7 strongly agree.

Items	1	2	3	4	5	6	7
QB36) Inventory is managed properly to reduce cost							
QB37) Production processes are stabilized to reduce production cost							
QB38) The customers have a good value for their money							
QB39) Productivity standards are tightened to reduce wastages.							

QB40) The right quantity of materials are ordered to reduce material transportation cost							
QB41) Mass customization of products is done to reduce cost.							
QB42) The production process or service delivery process is monitored to prevent defectives in order to reduce cost.							
QB43) Products are simply designed to reduce cost							

Thank you for participating in this survey

APPENDIX D: Factor loadings on Measurement Model

Indicators	1	2	3	4	5	6	7	8	9	10	11
QB1	0.6004	-0.133	-0.1176	-0.046	-0.3098	-0.228	-0.2975	-0.2807	-0.0062	0.0946	0.0926
QB3	0.754	-0.4497	-0.1381	-0.0849	-0.2753	-0.4552	-0.2825	-0.3009	-0.3606	-0.4304	-0.3983
QC2	-0.3605	0.7707	0.1637	-0.1329	0.303	0.4911	0.5552	0.3522	0.412	0.2408	0.2006
QC4	-0.3681	0.7925	0.3498	0.0314	0.3101	0.3118	0.3829	0.3152	0.5638	0.1991	0.3273
QC5	-0.3839	0.5595	0.3873	0.3286	0.1295	0.2899	0.1343	0.1735	0.2587	0.314	0.1698
QC6	-0.0509	0.6408	0.124	-0.0858	0.0312	0.169	0.2101	-0.0525	0.1326	0.0706	0.2154
QC7	-0.3525	0.6448	0.3057	-0.0707	0.111	0.1921	0.2874	0.0918	0.1409	0.0475	0.0164
QC9	-0.2558	0.7724	0.1364	-0.1061	0.2075	0.1477	0.32	0.1727	0.2295	-0.0685	0.0433
QD1	-0.17	0.4655	0.7354	0.1078	0.2962	0.4614	0.4007	0.5629	0.5305	0.2824	0.3155
QD4	-0.0785	0.1982	0.7299	0.2992	0.1828	0.2548	-0.008	0.3374	0.2161	0.3452	0.3039
QD8	-0.2487	0.2026	0.661	0.5676	0.5359	0.4779	0.2845	0.5383	0.6093	0.6929	0.5849
QD9	-0.0869	0.2273	0.8165	0.3382	0.4159	0.4275	0.2565	0.5257	0.4023	0.5213	0.5889
QD11	-0.0148	0.0708	0.65	0.2931	0.2043	0.2857	0.2215	0.4283	0.2503	0.1381	0.2842
EMQB4	0.1491	-0.0654	0.2672	0.7801	-0.0601	0.0123	-0.1097	0.0604	0.2824	0.2159	0.2907
EMQB5	-0.1849	0.0488	0.3692	0.8814	0.204	0.0621	-0.1132	0.1294	0.3946	0.2789	0.2871
EMQB6	-0.1412	-0.0692	0.4901	0.8262	0.4218	0.3138	0.0359	0.2865	0.3457	0.2869	0.3233
EMQB12	-0.2776	0.2466	0.3374	0.127	0.7986	0.5626	0.4144	0.5747	0.365	0.3166	0.4079
EMQB13	-0.4306	0.3399	0.4532	0.1936	0.7952	0.5747	0.4008	0.5781	0.4437	0.4823	0.421
EMQB14	-0.2957	0.1524	0.3951	0.3221	0.8188	0.4949	0.222	0.4832	0.4656	0.4657	0.4008
EMQB15	-0.4449	0.4986	0.6084	0.4317	0.6043	0.8292	0.5438	0.6239	0.6233	0.5748	0.5518
EMQB16	-0.2374	0.4403	0.2935	-0.002	0.4768	0.7426	0.463	0.4882	0.4745	0.334	0.2363
EMQB17	-0.424	0.2089	0.2504	0.2889	0.2559	0.6402	0.5314	0.4203	0.3831	0.3379	0.3604
EMQB18	-0.223	0.1965	-0.0307	-0.1191	0.3328	0.5138	0.4912	0.3567	0.1838	0.1795	0.1007
EMQB19	-0.5171	0.1895	0.4683	0.2636	0.604	0.8381	0.4719	0.7178	0.4711	0.4632	0.4555
EMQB20	-0.476	0.372	0.4827	0.2868	0.6102	0.8649	0.652	0.773	0.5645	0.421	0.4124
EMQB21	-0.3713	0.3294	0.564	-0.1317	0.4977	0.7454	0.6357	0.7891	0.4442	0.5238	0.4316
EMQB22	-0.2392	0.2488	0.3406	-0.234	0.5184	0.6658	0.6056	0.6782	0.3821	0.4224	0.324
EMQB26	-0.0729	0.0297	0.1613	-0.0084	0.2267	0.4636	0.5805	0.4718	0.3872	0.2188	0.2162

EMQB28	-0.3464	0.4695	0.394	-0.0273	0.3044	0.6066	0.7944	0.5491	0.4214	0.2158	0.306
EMQB29	-0.3067	0.4235	0.175	0.0205	0.2628	0.4799	0.8028	0.4282	0.3794	0.2046	0.2072
EMQB30	-0.023	0.1702	-0.1451	-0.4045	0.0986	0.1456	0.5434	0.2339	0.0402	-0.0267	0.0217
EMQB31	-0.4401	0.4368	0.3275	-0.0686	0.452	0.6452	0.7426	0.6361	0.3343	0.3947	0.3601
EMQB32	-0.3093	0.2503	0.3859	0.0237	0.5274	0.5774	0.6155	0.7232	0.4947	0.5084	0.3512
EMQB33	-0.3997	0.1728	0.6247	0.1712	0.6488	0.7223	0.626	0.8677	0.5608	0.5509	0.4628
EMQB34	-0.2767	0.1866	0.5178	-0.0154	0.5099	0.6229	0.4099	0.7011	0.3051	0.3015	0.3784
EMQB35	-0.1303	0.0402	0.419	0.1641	0.4283	0.5682	0.4111	0.7582	0.3422	0.304	0.3817
EMQB36	-0.5217	0.3496	0.5509	0.4225	0.6801	0.7515	0.5674	0.8194	0.622	0.5199	0.5294
EMQB37	-0.1875	0.2696	0.3974	0.1732	0.2898	0.5784	0.5277	0.5893	0.5233	0.3128	0.391
EMQB38	-0.1754	0.2053	0.4112	-0.1856	0.2536	0.4805	0.4679	0.6329	0.2512	0.2971	0.2669
EMQB39	-0.3393	0.3472	0.6631	0.2828	0.4786	0.5817	0.4509	0.746	0.455	0.3993	0.4956
GMQB2	-0.0666	0.1895	0.3328	0.2939	0.1576	0.2394	0.1871	0.2219	0.6529	0.1318	0.3473
GMQB3	-0.2577	0.3312	0.3538	0.3216	0.4079	0.3794	0.3095	0.3786	0.7309	0.2208	0.3631
GMQB4	-0.0336	0.4481	0.2778	0.2021	0.1684	0.2621	0.2116	0.1787	0.6283	0.1412	0.3223
GMQB5	-0.1742	0.4903	0.4915	0.2443	0.4203	0.5379	0.4841	0.5278	0.8134	0.3508	0.4871
GMQB6	-0.11	0.056	0.5576	0.2416	0.3039	0.4229	0.194	0.516	0.4945	0.4238	0.2291
GMQB8	-0.0715	0.1362	0.1918	0.2754	0.3171	0.1494	0.2132	0.2613	0.5611	0.367	0.419
GMQB10	-0.4099	0.3929	0.3941	0.2928	0.4466	0.5621	0.4115	0.4914	0.5977	0.3204	0.3297
GMQC2	-0.0496	0.0276	0.1908	-0.0126	0.3507	0.3427	0.2088	0.3256	0.2676	0.6291	0.2743
GMQC3	-0.1257	0.091	0.4983	0.3322	0.545	0.5005	0.3919	0.5533	0.5762	0.8092	0.685
GMQC7	-0.3252	0.2325	0.4378	0.1254	0.2228	0.4087	0.2036	0.3505	0.1075	0.6394	0.3463
GMQC8	-0.1623	0.0641	0.4296	0.0662	0.1616	0.3068	0.0678	0.2687	0.2039	0.6174	0.4842
GMQC10	-0.3294	0.3161	0.455	0.4285	0.3836	0.3426	0.1537	0.3032	0.2218	0.6634	0.518
GMQD5	-0.4062	0.2718	0.6298	0.1684	0.384	0.4505	0.371	0.5626	0.5209	0.6754	0.7645
GMQD7	-0.2123	0.3208	0.4765	0.3806	0.4126	0.4715	0.2255	0.3724	0.4204	0.6697	0.8241
GMQD8	-0.0959	0.0598	0.5097	0.2415	0.3061	0.3334	0.1902	0.4023	0.3543	0.5341	0.8451
GMQD9	-0.1935	0.2315	0.5089	0.4084	0.5181	0.4452	0.3756	0.483	0.4753	0.5688	0.9046
GMQD10	-0.1553	0.1312	0.4684	0.307	0.4783	0.4595	0.3276	0.5361	0.5282	0.5342	0.8552

Source: Survey, Report (2016).

1-Innovation, 2-Indovodualism, 3-manipulation, 4-product quality, 5-flexibility, 6-employee satisfaction, 7-responsiveness, 8-Cost, 9-Standardization, 10-collectivism, 11-empowerment

Color Code

Red	*Indicators (Items in questionnaire) which loads less on constructs and therefore were taken out.*
Yellow	*Indicators (Items in questionnaire) which loads well on construct and therefore was included in the measurement model*
Brown	*Constructs with only two indicators loading well (Items in questionnaire) on them.*
Green	*Indicators (Items in questionnaire) loading well on more than two constructs.*

APPENDIX E: Deming's 14 Points for Quality Management and Improvement

1. Create a constancy of purpose toward product improvement to achieve long-term organizational goals.
2. Adopt a philosophy of preventing poor-quality products instead of acceptable levels of poor quality as necessary to compete internationally.
3. Eliminate the need for inspection to achieve quality by relying instead on statistical quality control to improve product and process design.
4. Select a few suppliers or vendors based on quality commitment rather than competitive prices.
5. Constantly improve the production process by focusing on the two primary sources of quality problems, the system and employees, thus increasing productivity and reducing costs.
6. Institute worker training that focuses on the prevention of quality problems and the use of statistical quality-control techniques.
7. Instill leadership among supervisors to help employees perform better.
8. Encourage employee involvement by eliminating the fear of reprisal for asking questions or identifying quality problems.
9. Eliminate barriers between departments, and promote cooperation and a team approach for working together.
10. Eliminate slogans and numerical targets that urge employees to achieve higher performance levels without first showing them how to do it.
11. Eliminate numerical quotas that employees attempt to meet at any cost without regard for quality.
12. Enhance worker pride, artisan, and self-esteem by improving supervision and the production process so that employees can perform to their capabilities.
13. Institute vigorous education and training programs in methods of quality improvement throughout the organization, from top management down, so that continuous improvement can occur.
14. Develop a commitment from top management to implement the previous 13 points.

Source: Russell and Taylor, 2011 page 61.

APPENDIX F: An Introductory letter from the OMIS Department for data collection

UNIVERSITY OF GHANA
BUSINESS SCHOOL
DEPARTMENT OF OPERATIONS AND
MANAGEMENT INFORMATION SYSTEMS

UGBS
University of Ghana Business School

Ref. No.: **REF /0616/013**.....

20th January, 2016

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

LETTER OF INTRODUCTION: MR. ALEXANDER NTIRI-AMPOMAH (10507014)

I write to introduce to you **Mr. Alexander Ntiri-Ampomah** who is a student at the University of Ghana Business School. He is pursuing M.Phil in Operations Management.

He is conducting a thesis on **Balancing the gap between the hidden contradictions in Total Quality Management Implementation.**

Hence, I would appreciate any assistance you can give to him to collect the relevant information.

This dissertation is under the supervision of Dr. Francis Banuro of the Department of Operations and Management Information Systems.

Thank you.

Yours faithfully,

Prof. Richard Boateng
(Head of Department)

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