The Impact of Adopting Total Quality Strategy (TQS) on Improving Competitiveness: An Empirical Study of Jordanian Pharmaceutical Companies

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Abstract

The overwhelming challenges arising from the globalization of economy, markets liberation and information technology and the consequent changes and competitiveness forced business and government organizations to respond by adopting clear visions that emphasize the need to depart from traditional ways of doing business. This led most, if not all, organizations to adopt a TQM approach to enhance their competitiveness in local and international markets. Therefore, the major objective of this study is to use an empirical approach employing statistical tools to test hypotheses regarding the impact of adopting Total quality strategy (TQS) on the drive of the Jordanian Pharmaceutical Companies to improve their competitiveness in local and international markets. To achieve this objective, the study uses data collected from randomly selected sample of employees in Jordanian pharmaceutical companies to elicit information to test hypotheses. The analysis shows that there is statistically significant relationship between adoption of TQS and competitive position of the Jordanian pharmaceutical companies.

Keywords: TQM, TQS, competitive position, customer, Jordan

Introduction

The objective of this paper is to use statistical methodology to analyze data and test hypotheses about the impact of adopting Total Quality Strategy (TQS) that consists of TQM elements on improving the competitive position (measured by certain indicators) in Jordanian pharmaceutical companies. To achieve this objective, the study uses data collected in survey research from a randomly selected sample of managers involved in strategic planning in the Jordanian pharmaceutical companies. Thus, the paper examines the attitudes and opinions of those managers regarding the impact of adopting TQS on the competitive position of their companies. Therefore, the main research question is: Do the managers involved in strategic planning in Jordanian pharmaceutical companies believe that adopting total quality strategy helps enhancing their companies' competitiveness position?

In modern times, Total Quality Management (TQM) is essentially considered as a strategy to enhance organizational competitiveness by increasing businesses ability to meet the overwhelming challenges imposed on them by the globalization of national economies, markets liberalization and the tremendous development of information technology. The consequent drive for competitiveness imposed by these challenges and changes forced business and government organizations to respond by adopting clear strategic visions and missions that emphasize the need to depart from traditional ways of doing business. This led most, if not all, organizations to adopt a TQM approach to enhance their competitiveness in local and international markets. Jordanian pharmaceutical companies are not exceptions in this respect.

Literature Review

The literature review in this section is divided into four main interrelated themes. These include (1) Concept of Total Quality Management (TQM), (2) Its evolution and relation with modern management thought, (3) Concept of Total Quality Strategy (TQS) which represents the main theme of this study, and (4) Evolution of the Jordanian pharmaceutical companies.

The Concept of Total Quality Management (TQM)

It may be useful to begin this literature review by giving a comprehensive and widely accepted definition of TQM as a management philosophy. The definition is provided by the International Organization for Standardization (ISO):

TQM is a management approach for an organization, centered on quality, based on the participation of all its members and aiming at long-term success through customer satisfaction, and benefits to all members of the organization and to society (Wikipedia, 2008).

This ISO definition is comprehensive because it portrays the major elements that constitute the fundamental pillars of the philosophy of total quality management which are relevant to private, public and non- governmental organizations. The definition shows that TQM is based on three pillars:

1. Total: the entire membership of the organization and all its processes is involved in the production of quality

2. Quality: quality is a matter of customer satisfaction with all its varied definitions and complexities. The benefits of producing quality cover all members of the organization and society as a whole.

3. Management: The system of managing and producing quality which involve all the components of the management process of planning, organizing, controlling, leading, staffing and motivating" (Mansour, 2008).

In TQM philosophy the organization is seen as a collection of processes. Therefore, to produce quality products and services, it must concentrate on continuously improving its work processes by using the knowledge and experiences of its employees. In this drive, the organization's simple motto is "Do the right things, the first time, every time". Although originally applied to manufacturing operations, TQM as a generic management tool is now adaptable and applicable to many types of organizations such as service, public sector and non-governmental organizations (Hashmi, 2009). A group of management techniques and processes are founded on the three pillars of TQM and are used to enable business organizations to produce and deliver quality products and services. These techniques and processes are designed to facilitate the following operations in TQM.

- Commitment by senior management and all employees
- Meeting customer requirements
- Reducing development cycle times
- Just in Time/Demand Flow Manufacturing
- Improvement teams
- Reducing product and service costs
- Systems to facilitate improvement
- Line management ownership
- Employee involvement and empowerment
- Recognition and celebration
- Challenging quantified goals and benchmarking
- Focus on processes/improvement plans

- Specific incorporation in strategic planning (Hashmi, 2009)

Evolution of TQM and its Relation with Modern Management Thought

The modern intellectual origins of the philosophy of TQM date back to the contributions of TQM's first gurus such as Shewhart, Edwards Deming, Juran, Crosby and Feigenbaum. However, its first roots were planted in Frederic Taylor's scientific management school. Taylor and his disciples major drive was to promote workers' efficiency and increase their productivity by designing work processes and removing waste (Tenner, 1992). Both concepts of efficiency and removal of waste are pivotal in classical as well as modern concepts of quality (Tenner, 2008). However, unlike the quality gurus, Taylor was not concerned with the element of employees' empowerment and their role in improving their work processes.

The TQM approach originated in the 1950's and dominated management thinking since the early 1980s. It is true that the evolution of TQM concepts have their intellectual roots in USA, since most of the classical gurus are Americans (in fact the phrase Total Quality Control was first used by A. V. Feigenbaum in 1951 in his book, Quality Control: Principles, Practice, and Administration). However, it is the Japanese industry which succeeded activating and adapting these concepts to their industries before they re-exported them back to USA and other countries. At the time Japanese automobile and electronic manufactures were grabbing a greater share of the American market with cars and electronic equipments of higher quality than their American counterpart products as a result of adopting TQM concepts in these industries (Mansour, 2008; Talha, 2004).

In the literature, there is consensus that TQM is a combination of quality and management tools aimed at increasing business and reducing losses due to wasteful practices (Wilkinson, 1998; Morgan, C. and Murgatroyd S. (1995). Scholars also agree that the conceptual framework of TQM is based on many pillars that include its strategic connection with organizational goals through customer focus, employees' total involvement and empowerment, continuous improvement, top management commitment as well as the organization's relation with its suppliers (Leonard &Mc Adam, 2002). However, the departure from traditional management to adopt TQM framework requires new ways of thinking and organization (Boon, 2005), and tremendous efforts to change traditional bureaucratic organizational culture and methods of carrying out business's activity (Svensson & Wood, 2005).

TQM is about coordinating different activities of all employees, tools and equipment as well as information to achieve organization's objectives (Figenbaum, 1991). It is also about meeting customers' needs and their expectations. There is general agreement among scholars that TQM is both a managerial philosophy and a system that aims to help organizations achieve their objective by focusing on customers' satisfactions (Ljungstrom & Klefsjo, 2002; Hellsten & Klefsjo, 2000; Khan, 2003). In this capacity, TQM has found wide acceptance irrespective of cultural differences. Therefore, it has been embraced by many organizations in different countries and different cultures (Mehra & Agrawal, 2003). This process is also accelerated by globalization which has helped to internationalize management philosophies and their spread in different countries (Sevensson, 2005).

TQM has close relations with many modern approaches to management such as knowledge management. This is so because TQM is considered as one of the practices that help enhance the creation of knowledge and its management in organizations. TQM also helps create the required environment that facilitates and adapts the use of knowledge and experience to quality production in organizations (Kermally, 2002; Berawi, 2004) .

The TQM philosophy has also encouraged many new approaches to management such as benchmarking which is used as a tool to achieve continuous improvement. Benchmarking involves adopting and improving the best business practices of the top organization in the industry (Wheelen & Hunger, 2004; Oskland, 2001; Evans & Dean, 2003). Benchmarking is considered by business organizations as an important tool to achieve the goals of quality strategy.

TQM has also strong relations with many other modern managerial approaches such as reengineering and employee empowerment. Reengineering is a developmental approach that concentrates on redesigning organizations to promote continuous improvement to produce quality and cost reduction and employee empowerment (Evans & Dean, 2003). Employee empowerment is about giving power and authority to employees in their jobs to make the right options. The objective of empowerment is to encourage innovation and tapping employees' abilities to realize it (Evans & Dean, 2003,). This is because TQM is a tool that encourages and enhances management and employees' involvement in the continuous improvement of the production of goods and services (Hashmi, 2009).

TQM and associated concepts have been deeply embedded in management thought and practice in many countries. In management practices, these concepts are incorporated in many international standards, which are fervently sought by both public and private organizations, such as the ISO-based quality management systems (QMS) and the ISO certification series as applied by the International Organization for Standardization (ISO) (Jackson and Ashton,. 1995).

The TQM system also persists in an extended list of international and national quality awards and prizes. These include, for example: Deming Prize for Quality, European IST Grand Prize, Henry Laurence Gantt Medal, Japan Quality Medal, Malcolm Baldrige National Quality Award, Nikkei QC Literature Prize, Ron Brown Award, and Qimpro Benchmark Competition and The European Quality Award (Lisiecka, 1999; Tari, 2005).

Total Quality Strategy (TQS)

Total quality management (TQM) is not just a management technique but a managerial philosophy "that seeks to integrate all organizational functions (marketing, finance, design, engineering, and production, customer service, etc.) to focus on meeting customer needs and organizational objectives" (Hashmi, 2009). The concepts of total quality revolve around changing the culture, attitude and organization of businesses that strives to satisfy the needs of their customers by providing them with quality products and services. The change of organizational culture requires improving the quality of "all aspects of the company's operations, with processes being done right the first time and defects and waste eradicated from operations" (Hashmi, 2009). These concepts clearly point to the strategic nature of TQM.

The concept of Total Quality Strategy (TQS) has developed as an extension to the concept of Total Quality Management (Madu & Kuei, 1993). The term Total Quality Strategy is not new and was first used in 1987 by Garvin (1987) who considers the understanding of customers' views as the base for the strategic dimension of quality (Leonard & Mc Adam, 2004). The relationship between quality and strategy was not very strong in the sixties and seventies because the essence of "strategy" was understood traditionally as a practice related to outside environments of the organization. Quality was then seen as an internal matter that was related to production and market operations only and not associated with outside environment and international dimensions. However, these conceptions changed and new approaches emerged to advance the goal of integrating TQM concepts with organization's strategic planning. Many scholars believe that this change is inevitable if organizations are serious to achieve their objectives (Hermel & Bartoli, 2001).

Quality is a competitive necessity and since competitiveness takes place with the outside environment, it is therefore, also a strategic necessity. This is so because every company is, in fact, a subsystem of a larger system that represents its outside environment. The company and its environment are interconnected by its continuous chain of customers and suppliers who are also interconnected among themselves by common factors and interests. Both customers and suppliers provide the system with its needs and resources and both benefit from and contribute to its success. TQM techniques play the role of coordinating these interactions in the system and this is what made TQM of strategic importance to top management. The company is not simply an independent unit and a closed system that competes for suppliers, customers, and direct competitors. It is an entity which operates in a wider system that encompasses the whole world.

In this context, TQS implies that the company must consider quality concepts, cooperation, and long-term success as strategic goals that need realizing and integration. Quality, therefore, is a package of continuous efforts aspiring to build a perfect system (McGee, 2005). Within this framework, many aspects prove the essentiality of the relationship between quality and strategic management. These include according to Hermel & Bartoh, (2001):

1- The relation between internal dimensions (operations) and external dimensions (environment) with the company strategy

2- The importance of employees' roles in the strategic process

3- The importance of integrating socio-economic, technical, commercial and aspects of strategic analysis

4- The importance of the interaction of the comprehensive strategy with organizational, cultural and behavioral factors in the company

All these elements point to the fact that management internal concerns with quality should be integral parts of the requirements for formulating, implementing and reviewing the organization's strategy. This has been adopted by many international companies that come to acknowledge that "quality comes first" such as Ford, General Electric, Xerox, Hewlett-Packard, Motorola, Westinghouse, and IBM. This is also why many authors argue that TQS is

an organized activity that concentrates on long-term strategies that aim to enhance quality production through strategic planning and the successful implementation of all vital quality strategies and regular evaluations of continuous improvement efforts (Aravinclan & Devadasan,). This is because quality is the backbone of competition strategies that are developed by organizations to satisfy their customers and that world competition forced organizations to think of new ways and means to survive this competition. Therefore, organization should treat the question of quality as a strategic problem (Pheng & Hong, 2005). This requires linking strategy and quality (Beecroft, 1999, p. 502; McGee et al., 2005)

The Pharmaceutical Industry in Jordan

The beginning of pharmaceutical industry in Jordan can be traced back to 1962 when the Arab Company for Medical Manufactures, the first pharmaceutical company in Jordan, was established. There are now 17 companies 11 of them are limited liability companies and the rest are joint stock companies registered at Amman Stock Exchange. These companies employ 4500 employees at present. They meet 60% of local market demand for medicines and export 74% of their products to foreign markets.

The Jordanian pharmaceutical companies are classified as large companies according to the classification of the Jordanian Ministry of Industry which is based on the classifications of the Jordanian Royal Scientific Association and Amman Trade Chamber.

It is worth noting here that most Jordanian pharmaceutical companies adopt international quality standards and specifications and most of them are certified by American and European institutions such as ISO 9000, FDK & EU Approval and Swedish MPA Approval. It is expected that Jordan membership in the WTO will attract large international companies to invest in this important and vital sector. This investment may take many forms: knowledge and technology transfer, partnerships, franchises and research and development activities.

The pharmaceutical industry is one of the main sectors in the Jordanian economy. It has grown tremendously in the last four decades and following the year 2002 they have occupied the third rank among export industries in Jordan. Whereas, the total value of pharmaceutical exports in 2004 amounted to 158.452 million JD, the total value of textile industry reached 708.960 JD and mining industry was 310.156 JD (Central Bank of Jordan, 2006)

The Jordanian pharmaceutical industry like other industries in Jordan faces challenges that were imposed on it by Jordan's admission to the World Trade Organization (WTO). The WTO subjected the products of local pharmaceutical industries to fierce competition from foreign products. This fact makes these companies unable to keep pace with new developments in pharmaceutical industries even at the level of some Arab countries that were able to get the franchise of producing some newly discovered medicines.

The commitment of Jordanian companies to observe patents and intellectual property rights has forced them to face the challenges of paying the high cost for franchises. Despite all this, the Jordanian pharmaceutical companies were able to register their products in 60 states including the United States, Germany, and Britain and many other nations in Europe. The Middle East markets are the main markets for Jordanian pharmaceutical products. However, they are able to market their

products in other Asian and European countries also. Saudi Arabian and Algerian markets received about 65% of Jordanian pharmaceutical products.

The exports value of the 17 Jordanian pharmaceutical companies exceed some of their Arab counterparts such as Egypt and Syria. Whereas their exports in 2005 were valued at $250 million, Egypt 45 factories exports were valued at $115 million, and Syria 52 factories exports were valued at $45 million.

Research Design and Methodology

Research Problem

Quality is one of the most important factors that determine the success of business organizations. This fact has not been well addressed by businesses in developing countries in general and Jordon in particular. Consequently quality has not been treated as a strategic objective by most companies in developing countries. Therefore, the research problem of this study resides in the importance of adopting a strategy for TQM that helps improving the competitiveness of Jordanian pharmaceutical companies. In the light of this fact, the research problem can be broken down into this main question: Do the managers involved in strategic planning in Jordanian pharmaceutical companies believe that adopting a total quality strategy helps enhancing companies' competitiveness? This main question, in turn, can be divided into the following two questions:

1- Do the following elements (sub-variables) of TQS (top management commitment, customer focus, and relation with suppliers, continuous improvement, employee empowerment, and quality culture) correlate positively with the indicators of competitive position of the companies under study?

2- Does each individual element (sub-variables) of TQS positively correlate with each individual indictor (sub-variable) of the competitive position?

Research Hypotheses

The research hypotheses are formulated to reflect the different dimensions of the research problem and the derived research questions. Accordingly, two major null hypotheses are built to reflect the main research question.

1- There is no statistically significant relationship between adopting TQS in Jordanian pharmaceutical companies and the following indicators of the competitive position (market quota; profit rates; share value; diversification of products; penetration of foreign markets; goal effectiveness)

2- There is no statistically significant relationship between each element of TQS (top management commitment; customer focus; relation with suppliers; continuous improvement; employee empowerment; quality culture) and each indicator of the competitive position in Jordan pharmaceutical companies.

Variables of the Study

The Elements of Independent Variable: Total Quality Strategy (TQS)

Total Quality Strategy (TQS) is a model or long term plan to integrate goals, policies and operations to develop the culture of excellence for the sake of enhancing the competitive position. This variable is broken

down into the following seven sub-variables whose operational definitions are provided by the questionnaire statements.

1- Commitment of Top Managers: This involves supporting and participating in developing quality programs; determining quality goals in work plans; determining annual quality improvement; participating in quality teams; making quality their first priority and making material and spiritual support to all employees; motivating employees to adopt and use quality concepts.

2- Customer Focus: This requires concentrating on customers' satisfaction by meeting their present needs and predicting future expectations by listening to them and making this part of the organization culture. This process aims at developing customer loyalty to the company products and help attract new customers.

3- Relation with Suppliers: This refers to the relationship between companies and their suppliers. It should be a cooperative partnership that helps meet customers' needs and based on mutual interests. This relationship should also be stable because the high turnover of suppliers is correlated negatively with the application of quality concepts (Gosen et al, 2005; Fawcett & Magnan, 2002)

4- Continuous improvement: Continuous improvement refers to organizations' continuous efforts to realize customers' requirements through a series of operations designed to reduce or eliminate activities that do not add value to the production of commodities and services. The essence of continuous improvement is to reduce variations and defects (Carpinetti & Martins, 2001).

5- Empowerment: Empowerment refers to the delegation of power and authority to employees to design and improve their jobs to satisfy customers. This requires building and enhancing top management trust in employees' ability to make the right choices to design and improve their work processes without prior top management approval (Tari, 2005,). It also requires training employees to acquire problem solving skills and attitudes that enable them to shoulder their responsibilities (Summers, 2000; Yong & Wilkinson, 2001).

6- Quality Culture: Quality culture refers to the set of values that enhances quality production and continuous improvement. Building quality culture requires changing organizational culture to adapt with changing internal and external environments to facilitate organization's mission and its strategy to produce quality.

The Indicators of Dependent Variable: Competitive Position

Competitive position is the main dependable variable in this study. It refers to the ability of the company to compete in internal and international markets. This variable is measured by ten indicators (sub-variables) whose operational definitions are provided by the questionnaire statements. They include the following:

1- **Market Quota:** It refers to the ability of a company's strategic business units (SBU) to achieve targeted sales goals in specified time limits. Market quota is an indicator of competitive position and a good measurement for it.

2- **Profitability:** It refers to gross profits minus the value of capital investments.

3- **Share Value:** It refers to the company's current share value in stock exchange markets compared to its nominal value

4- **Product Diversifications:** These refer to the quantities and types of products and the company's ability to innovate and produce new products.

5- **Foreign Markets Penetration:** This refers to the ability of the company to export its products to regional and international markets and penetrating new markets.

6- **Effectiveness:** It is the ability of the company to realize its strategic goals that reflect the ambitions of top management. These strategic goals may be concerned with increasing market quota, profitability or exports.

Methodology and Procedures

Unit of Analysis

The unit of analysis is the individual member of different managerial ranks. It consists specifically of the general manager, deputies, assistants, quality units' managers and functional units' managers in the Jordanian pharmaceutical companies.

Population and Sample

The population of the study consisted of all top managers in Jordanian pharmaceutical companies. The total number of population is 110 (N=110). A random sample was selected from this population. The sample consisted of 86 respondents (n=86) representing 78% of the population. 86 questionnaires were distributed to them. The questionnaire, using Likert Scale, contained 72 questions, 6 questions were assigned to demographic variables, 9 questions concentrate on companies' characteristics, and the remaining 57 questions were designed to measure the attitudes of sample respondents towards independent and dependent variables and sub-variables. Of the 86 distributed questionnaires, only 74 (86% of the sample) were found usable for analysis.

The study uses the SPSS program to describe and analyze data. Since all variables are measured at the ordinal level and transformed to numerical values, the study uses means to describe the sample data. To test the research hypotheses to answer the research questions Pearson Correlation Coefficient is computed to the scores of independent and dependent variables. It is worth noting here that a significant correlation coefficient does not imply a causal relationship between the independent and the dependent variable. It only indicates a statistical association between the independent and dependent variable.

Whereas, Table 1 below shows the system used to assign numerical values to the respondents' responses to the questionnaire statements, Table 2 depicts the method employed to interpret the mean scores in the study.

Table 1

Assignment of Values to Respondents' Responses

Degree of Agreement	Points
Strongly Agree	5
Agree	4
Neutral	3
Disagree	2
Strongly Disagree	1

Table 2

Interpretation of Means Scores

Degree of agreement	Points
Very High	4.5 and more
High	4-4.4
Medium	3.5-3.9
Low	3-3.4
Very Low	Less than 3

Field Study

Sample Characteristics

Table 3 below displays the characteristics of the sample. The table shows low female presence (16.2%) in top management ranks compared to male presence (83.6%). The table also indicates that the age of the sample respondents is distributed among four age groups with the majority of respondents falling in the age groups 30-49.

The table also shows that the majority of respondents are middle managers (97.2). 43.2 per cent of those are executive managers and 35.2% are top managers. Branch managers and supervisors represent only one fifth of the sample. The table also shows that all the sample respondents have received higher education and 47.3% of them possess work experience of more than 10 years. Only 2.7% have work experience of less than 3 years.

Variable	**Groups**	Frequencies	???????
Gender	Male	62	% 83.8
	Female	12	% 16.2
Age	30-39	47	% 63.5
	40-49	16	% 21.6
	50- 59	7	% 9.5
	60 and more	4	% 5.4
Job	General manager	2	%2.8
	Middle manager	72	%97.2
Managerial Level	Top manger	26	%35.2
	Executive manager	32	%43.2
Experience	Supervisors	16	%21. 6
Qualifications	Secondary	0	0.000

	Community College	2	%2.7
	Bachelor	47	%63.5
	Master	21	%28.4
	Ph.D	4	%5.4
Experience	Less than 3 years	2	%2.7
	6-3 years	15	%20.3
	7-10	22	%29.7
	10 and more years	35	%47.3

Analysis of the Sample Data

Independent Variable: TQS in Jordanian Pharmaceutical Companies

The questionnaire contains statements measuring the sample attitudes toward the independent variable TQS as defined in this study. Given below are the responses of sample to different sub-variables that define the independent variable.

Top Management Commitment

Table 4 below displays the responses to statements measuring the level of Top Management Commitment to TQM. The table contains 6 statements that define operationally the variable top management commitment and mean scores that reflect the views of the respondents towards this variable.

Table 4

Top Management Commitment

Question No.	Statement	Mean	St. Dev
17	Top management is keen to reward innovative implementers of TQS	3.81	0.82
24	Top management supports initiatives to improve quality performance	4.33	0.74
28	Company management supports the spread of "quality culture among employees	4.13	0.66
33	Top Management gives highest importance to TQM	4.39	0.67
36	Top management believes in the necessity of enhancing trust in employees as an essential condition to the implementation and success of TQS	3.86	0.81
41	Top management is keen to do SWOT analysis	3.56	0.79
Grand Mean	**Level of Top Management Commitment to TQS**	**4.1**	**0.53**

The grand mean of 4.01 and standard deviation of 0.53 indicates a very strong commitment to quality. This result is enhanced by the scores received by the statement "Top Management gives highest importance to TQM" with a mean of 4.39 and a standard deviation of 0.69. However, top management does not give due concern to doing SWOT analysis (3.56) which is very important to strategic planning in general and strategic quality planning in particular.

Customer Focus

Table 5 below shows the survey results for the sub-variable (customer focus). The table contains 7 statements that define operationally the variable customer focus and mean scores that reflect the views of respondents towards different statements that are designed to measure the respondents' attitudes toward their customers.

Table 5

Customer Focus

Question No.	Statement	Mean	St. Dev
16	Company competitiveness strategies are based on customers' satisfaction	4.37	0.6559
19	Company management is keen to hold regular meetings to enhance customer relations	3.79	0.8437
20	Company management gives great importance to improving customer service	4.36	0.6532
22	Exploratory studies are conducted to identify customer needs and future expectations	3.66	0.8645
26	Our products are valued more in comparison with competitors	4.13	0.8330
31	The company takes into consideration customers suggestions and trends when developing their products	3.97	0.7397
52	Customer satisfaction represents a strategic goal to our company	4.29	0.67
Grand Mean	**Customer Focus**	**4.08**	**0.44**

The grand mean of 4.08 and standard deviation of 0.44 indicates a very strong tendency for respondents to focus on their customers and take them seriously. Moreover, companies' strategies are based on customer satisfaction (mean= 437 and St. Dev = 0.65). The companies also gives great importance to improve customers' service (mean= 4.36 and St. Dev = 0.65). However, the companies do not give equal weights to listening to customers suggestions and their trends when developing their products (mean = 3.97 and St.Dev 0.73). Finally, the companies management do not seem to give great weight to exploratory studies to identify customer needs and future expectations (mean= 3.66 and St.Dev = 0.86)

Relations with Suppliers

Table 6 shows the results concerning the extent of companies' attention to relation with suppliers as a basic requirement for adopting TQS through the responses of the respondents to five operational statements that are designed to elicit information regarding the views of managers about the relations of their companies with their suppliers.

Table 6

Relations with Suppliers

Question No.	Statement	Mean	St. Dev
18	Suppliers are selected according first to quality criteria and specifications and then price	4.22	0.83
23	Company management perform regular tests to supplies to ensure conformity to standard specifications	4.77	0.48
29	Company management is keen to build better relations with internationally recognized	4.09	0.76
32	Company management is keen on suppliers participation in the process of products development through organizing mutual workshops	2.94	0.81
43	Company management is keen on having better relation with local suppliers	4.08	0.75
Grand Mean	**Relations with Suppliers**	**4.02**	**0.47**

The table grand mean (4.02 and St. Dev = 0.47) reveals the companies' strong attention to relation with their suppliers. There are some minor variations in the areas of this relation. However, the table shows low levels in company efforts to encourage suppliers' participation in the process of products development through organizing mutual workshops as indicated by the mean value of 2.94 and a standard deviation of 0.81.

Continuous Improvement

This variable measures the efforts and keenness of the companies to integrate continuous improvement in all its operations as an indicator of adopting TQS. Table 7 below registers these efforts. The table contains 6 statements that define operationally the variable continuous improvement and mean scores that reflect the views of respondents towards this variable.

Table 7

Continuous Improvement

Question No.	Statement	Mean	St. Dev
21	Company management is keen to make continuous improvement the responsibility of all managerial level	4.27	0.83
37	Company management is keen to integrate continuous improvement in all its policies and procedures	4.12	0.48
	Company management adopts competitive strategies based on providing high quality products	4.52	0.48
45	Company management makes continuous improvement the top criterion in employees' performance evaluation	3.83	0.81
48	Company management introduces recent technologies since it contributes to implementing TQS	4.01	0.74
51	Company management gives considerable weight to R&D related to design and development of its operations and products	4.18	0.82
Grand Mean	**Continuous Improvement**	**4.15**	**0.53**

The table indicates that the companies' managements are keen to adopt the operations that target the achievement of continuous improvements (grand mean= 4.15 and St. Dev = 0.53). There are minor variations in responses to the different statements in this variable. However, it seems that the companies' managements do not give equal weight to using continuous improvement in employees' performance evaluation (mean= 3.83 and St. Dev = .81).

Employees' Empowerment

This variable measures the level of employees' empowerment as an important element in TQS implementation. Table 8 below consists of 6 operational statements that are designed to capture the respondents' attitudes towards the companies' efforts to empower their employees.

Table 8

Employees' Empowerment

Question No.	Statement	Mean	St. Dev
25	Company management is keen to continuously develop employees' skills through debates and experts	3.78	0.79
34	Company management is keen to encourage participation in decision-making	3.33	0.91
35	The company train employees on problem solving and TQS application skills	3.78	0.76
38	Company management is keen to provide information and knowledge to employees by providing computers and Internet	4.06	0.96
47	Company management is keen to provide all methods to enhance employees organizational loyalty	3.55	0.93
49	Motivation program encourage preserve distinguished employees	3.16	1.11
Grand Mean	**Employees' Empowerment**	**3.64**	**0.64**

It is notable that the statements of employees' empowerment received low scores compared to other sub-variables in TQS, with a grand mean of 3.64 and a standard deviation of 0.64. However, there are variations in the scores of the constituent elements of this variable. It is clear that the companies provide knowledge and information through providing computers and internet connections. This is clear in the scores received by the statement "Company management is keen to provide information and knowledge to employees by providing computers and Internet facilities (mean= 4.06 and 0.96 standard deviation0.96). Other statements received less impressive scores.

Quality Culture

Table 9 below contains the sample responses regarding the extent, presence and spread of quality culture in the Jordanian pharmaceutical companies. The table displays 6 statements that define operationally the variable quality culture and mean scores that reflect the views of respondents towards this variable.

Table 9

Quality Culture

Question No.	Statement	Mean	St. Dev
27	Company management uses TQM philosophy as a framework for values and beliefs of employees	4.29	0.71
30	Dominant values and beliefs in the company enhance positive behavior towards continuous performance improvement	4.01	0.73
42	Company management emphasizes TQM as a collective responsibility of all its employees	4.35	0.67
44	Dominant values and beliefs in the company encourages development and reduce change resistance	3.75	0.75
46	Quality mottos are present in all company plans and operations	4.04	0.80
50	Dominant organizational climate in the company encourages innovativeness and invention	3.36	0.62
Grand Mean	**Quality Culture**	**3.95**	**0.57**

The grand mean (3.95 & St. Dev 0.57) indicates that the variable quality culture received medium scores. Despite this conclusion, it is notable that that the respondents believe that TQM philosophy represents a general framework in their companies for the set of employees values as indicated by the scores received by the statement "Quality mottos are present in all company plans and operations" (mean= 4.29 & St. Dev 0.71).

The respondents also believe that the enhancement of quality concepts and values is associated with quality cultures. This is reflected in the scores received by the statement "Dominant values and beliefs in the company enhance positive behavior towards continuous performance improvement" (mean= 4.01 & St. Dev 0.73). The scores received by the statement "Company management uses TQM philosophy as a framework for values and beliefs of employees" display a strong tendency among managers to establish and enhance quality culture.

Dependent Variable: Competitive position of Jordanian Pharmaceutical Companies

The dependent variable "competitive position of Jordanian Pharmaceutical Companies" is measured by six indictors (sub-variables) which include, market quota, profits, diversifications of products, ability to penetrate outside markets, value of stocks, and effectiveness. The following tables show the results of respondents opinions towards these indicators.

Market Quota

Table 10 shows the extent of improvement in market quota as a result of adopting TQS from the point of view of sample respondents. The table uses 3 operational statements to produce answers about the role of TQS on enhancing market quota.

Table 10

Market Quota

Question No.	Statement	Mean	St. Dev
53	Improvement of annual sales indicators as a result of applying TQS	4.33	0.70
54	Improvement of companies' ability to sign export contracts with suitable conditions	4.36	0.69
72	Growth rates of gross market quota of the company as a result of applying TQS	4.09	0.72
Grand Mean	**Market Quota**	**4.18**	**0.53**

The results of table 12 shows reasonably high rates of growth of market quota associated with TQS adoption with a grand mean of 4.18 and standard deviation of 0.53. All indicators in this variable received high scores reflecting high agreement among respondents over the impact of adopting TQS on companies' market quota.

Profitability

Table 11 shows the attitudes of the sample respondents' with regard to the impact of adopting TQS on the profitability of companies. This table employs 3 operational statements to measure the attitudes of respondents towards the impact of TQS on profitability.

Table 11

Profitability

Question No.	Statement	Mean	St. Dev
55	Profits increase	4.33	0.70
56	Increases in rates of revenues on company investments	4.36	0.69
68	Increases in company ability to invest in capital assets	4.09	0.72
Grand Mean	**Profits**	**4.18**	**0.53**

The table shows that the sample respondents believe on the whole that company profitability increases as a result of applying total quality management concepts. They think that company profits (mean = 4.32 & St. Dev = 0.70) and rates of investment (mean= 4.33 & St. Dev. = 0.70) have increased as a result of TQS adoption. However, the scores received by the question "increases in company ability to invest in capital assets" indicates that the respondents do not believe that the companies are able to enhance their ability to invest in capital assets as result of their adoption of TQS.

Company Share Value

Table 12 shows the opinions of the sample respondents with regard to the extent of achieving growth in companies' share as a result of adopting TQS. The table utilizes 3 operational statements to gauge the impact of adopting TQS on companies' shares value as one of the indicators of their competitive positions.

Table 12
Share Value

Question No.	Statement	Mean	St. Dev
61	Investment becomes feasible in company shares	4.05	0.73
64	Company shares rose in stock exchange markets	3.59	0.87
66	Rates of returns on property rights increased	3.85	0.90
Grand Mean	**Value of shares**	**3.83**	**0.87**

The grand mean (Mean = 3.83 and St. Dev 0.87) in table 12 points to a medium impact on companies' shares values resulting from adopting TQS. Nevertheless, the sample respondents strongly believe that the adoption of TQS has helped to make investment on company's share more feasible (mean=4.05 & St. Dev 0.73).

Diversification of Products

Table 13 below provides information about the opinions of the respondents regarding the impact of adopting TQS on the ability of companies to achieve increases on product diversification. This variable is measured by 3 operational statements the scores of which measure the attitudes of respondents towards the impact of TQS adoption on companies ability to diversify their products.

Table 13

Diversification of Products

Question No.	Statement	Mean	St. Dev
62	Demand for diversified company products increased	4.04	0.80
69	Customers' complaints rates decreased	3.95	0.78
70	Diversification and development of new company products increased	4.24	0.65
Grand Mean	**Diversification of Products**	**3.95**	**0.61**

It is notable from the grand mean in table 13(3.95 St. Dev. 0.61) that the respondents think that the impact of applying TQS on diversifying products is moderate. However the respondents strongly believe that adopting TQS has led to increased demands for company products (mean=4.04 &St. Dev. 0.80) and encouraged companies to diversify and develop new products (mean = 4.24 & St. Dev 0.61).

Ability to Penetrate Foreign Markets

Table 14 below uses 4 operational statements and the scores they received to display the views of the sample regarding the effect of adopting TQS on the ability of companies to penetrate foreign markets as one of the indicators of the competitive position.

Table 14

Ability to Penetrate Foreign Markets

Question No.	Statement	Mean	St. Dev
57	Company's ability to participate in international fairs improves	4.02	0.77
59	Company becomes more keen to adhere to conditions and standards of export to foreign markets	4.00	0.79
60	Continuous improvement of marketing operation related to exports	3.67	0.81
65	Facilitating present company products to penetrate new markets	4.25	0.66
Grand Mean	**Ability to penetrate foreign markets**	**3.98**	**0.51**

The grand mean of 3.98 with a standard deviation of 0.51 in table 14 shows that the sample respondent hold moderate views about the impact of TQS on the ability of companies to penetrate foreign markets. However, the respondents strongly believe that the companies' ability to participate in international fairs and exhibitions has improved (mean=4.02 & 0.77), and that the adoption of TQS made the companies more keen to adhere to conditions and standards of export to foreign markets (mean=4.00 &St. Dev. 0.79). Moreover the adoption of TQS enhances the companies' ability to penetrate and open new markets for their products (mean= 4.25 & St. Dev. 0.66).

Effectiveness

Table 15 contains the opinions of the sample respondents regarding the impact of adopting TQS on the ability of the companies to achieve their goals. The table contains 6 statements that define operationally the indicator effectiveness and displays mean scores that reflect the views of respondents towards this variable.

Table 15

Effectiveness

Question No.	Statement	Mean	St. Dev
58	The company provides the organizational climate conducive for invention and innovation	3.59	0.92
63	Increased employees loyalty and involvement in achieving company goals	3.51	0.99
67	Improved ability to achieve strategic goals	4.06	0.66
71	Increased company's competitive ability and progress to lead the market	4.09	0.63
Grand Mean	**Effectiveness**	**3.81**	**0.63**

The grand mean of (3.81 &St. Dev. 0.63) indicates that the impact of TQS on effectiveness in their companies is moderate. Nevertheless, the adoption of TQS has improved the companies' ability to achieve strategic goals (mean =4.06 & St. Dev. = 0.66) and to enhance company's competitive ability and progress to lead the market (mean = 4.09 &St. Dev = 0.66). However, the companies do not provide the organizational climate conducive to invention and innovation (Mean= 3.59 and St. Dev. = 0.92). The respondents also believe that the adoption of TQS has not increased employees loyalty and involvement in achieving company goals (mean= 3.51 & St. Dev.= 0.99).

The grand mean of (3.81 &St. Dev. 0.63) indicates that the impact of TQS on effectiveness in their companies is moderate. Nevertheless, the adoption of TQS has improved the companies' ability to achieve strategic goals (mean =4.06 & St. Dev. = 0.66) and to enhance company's competitive ability and progress to lead the market (mean = 4.09

Testing Hypotheses

The objective of this section is to go beyond the sample data and generalize its findings to the population of the study. For this purpose the study uses inferential statistics to test the following hypotheses that revolve around the basic theme of the research problem: the impact of adopting TQS on the competitive position of the Jordanian pharmaceutical companies.

The first hypothesis

There is no statistically significant relationship between adopting TQS in Jordanian pharmaceutical companies and the following indicators of the competitive position (market quota; profit rates ; share value; diversification of products; penetration of foreign markets; goal effectiveness)

This hypothesis attempts to test the impact of the independent variable TQS on the indicators of the dependent variable "the competitive position". To do this the paper computes the values of Person Correlation Coefficient (R) for the independent variable as measured by its constituent sub-variables (indicators) and the individual sub- variables (indicators) of the dependent variable.

Table 16 below shows the result of this computation.

Table 16

Person Correlation Coefficients for the Impact of Adoption of TQS

Dependent	R	P-value
Market Quota	0.737	0.000
Profitability	0.591	0.000
Product Diversification	0.662	0.000
Shares Value	0.452	0.015
Foreign markets penetration	0.809	0.000
Effectiveness	0.772	0.000

The table shows that all the values of Person Correlation Coefficients (R) are statistically significant indicating a positive correlation between TQS and each individual sub-variable (indicators) of the dependent variable. This result means that the adoption of TQS by Jordanian pharmaceutical companies has a positive impact on improving the competitive position of these companies. However, there are variations in the magnitudes of this impact. Whereas, the impact of adopting TQS is very strong on the indicators of foreign markets penetration, effectiveness and market quota, it is moderately strong on profitability, product diversification, and shares value.

The Second Hypothesis

There is no statistically significant relationship between each element of TQS (top management commitment; customer focus; relation with suppliers; continuous improvement; employee empowerment; quality culture) and each indicator of the competitive position in Jordan pharmaceutical companies.

This hypothesis attempts to uncover which of the independent sub-variables have a greater impact on the dependent indicators (sub-variables). To test this hypothesis, the paper computes Pearson Multiple Correlation Coefficient (multiple R). The result of this computation is displayed in Table 17 below.

Table 17

Matrix of Person Correlation Coefficients for the Element of TQS and the Indicators of the Competitive Position

		Effecti-veness	Penetra-tion of Foreign markets	Product Diversi-fication	Share Value	Profita-bility	Market Quota
Top Management	R	0.590**	0.630**	0.465**	0.205	0.413**	0.491*
	P. Value	0.000	0.000	0.000	0.079	0.000	0.000
Customer Focus	R	0.650**	0.672**	0.516**	0.238*	0.503**	0.609**
	P. Value	0.000	0.000	0.000	0.41	0.000	0.000
Relation with Suppliers	R	0.495**	0.580**	0.567**	0.379**	0.352**	0.501**
	P. Value	0.000	0.000	0.000	0.001	0.002	0.000
Continuous Improvement	R	0.717**	0.751**	0.630**	0.273*	0.559**	0.707**
	P. Value	0.000	0.000	0.000	0.019	0.000	0.000
Empowerment	R	0.616**	0.648**	0.428**	0.295*	0.348**	0.473**
	P. Value	0.000	0.000	0.000	0.011	0.002	0.000
Quality Culture	R	0.687**	0.755**	0.574**	0.353**	0.479**	0.619**
	P. Value	0.000	0.000	0.000	0.002	0.000	0.000

** Significant at 0.01 * Significant at 0.05

The matrix above shows that most elements of TQS are positively correlated with the indicators of the competitive position with high levels of significance. This result indicates that the adoption of TQS affect positively the competitive position of the Jordanian pharmaceutical companies. It is notable that TQS elements are either weakly correlated with companies share values or have no correlation at all as in the cases of the elements of top management commitment and customer focus.

Results and Recommendations

This paper uses a survey methodology to elicit information about the attitudes of managers involved in strategic planning in Jordan pharmaceutical companies towards the possible impact of adopting Total Quality Strategy on companies' competitive position. The paper uses a survey research tool and employs statistical techniques to describe the sample data using the mean to measure the attitudes of the random sample respondents and Pearson Correlation Coefficient to test the research hypotheses. The findings of both operations are listed below.

Sample Data Findings

1- The analysis of the results of descriptive statistics of the sample respondents and the characteristics of companies shows that the percentage of females in top management positions in Jordanian pharmaceutical companies is low.

2- The analysis also shows that most employees belong to the young and educated groups.

3- The Jordanian pharmaceutical companies succeed to attract highly educated personnel with bachelor and master degrees and long work experiences.

4- The analysis of the sample data indicates that managers in Jordanian pharmaceutical companies do not give due attention to strategic analysis (SWOT) which represent the backbone of strategic planning.

5- The analysis also shows that the Jordanian pharmaceutical companies do care about their customers; nevertheless they do not hold regular meetings with them at the desired level.

6- The Jordanian pharmaceutical companies are keen to make continuous improvement a common responsibility of the different managerial levels with the objective of providing high quality products, however they do not give due care to evaluation of employees' performance on the bases of continuous improvement.

7- The sample data shows that the Jordanian pharmaceutical companies maintain good relations with their suppliers but they are not keen to involve them in the process of product development.

8- It is clear from the data that neither employees' empowerment nor employees' motivation is awarded the attention that they deserve. Therefore, the companies need to train their managers in delegation of authority and train their subordinates to shoulder responsibility of owning their jobs.

Hypothesis Testing Results

The results of testing the two hypotheses of the study that seeks to uncover the relationship between the elements of TQS and the competitive position of Jordanian pharmaceutical companies are listed below. However, a word of caveat here is in order. The study uses Pearson Correlation Coefficient to test the two hypotheses of the study. It is worth noting here that a significant correlation coefficient does not imply a causal relationship between the independent and the dependent variables. Therefore, more studies are needed to substantiate that significant relationship.

First: The relationship between TQS and Indicators of Competitive Position

1- The results of statistical analysis uncover a positive correlation for the adoption of TQS on all indicators of the competitive position of the Jordanian pharmaceutical companies and the strongest impact is seen in the relationship between TQS and ability to penetrate outside markets (R=80.7).

2- The impact of TQS on the value of shares is the weakest (R= 45.2). This may be explained by the fact that some companies under study are not registered in Amman Stock Exchange

Second: The Relationship between Elements of TQS and the Indicators of the Competitive Position

1- The study finds that there is a statistically significant positive correlation between the element of top management commitment and all the indicators of the competitive position of the companies with the exception of the shares market value. The highest correlation coefficient is found between top management commitment and ability to penetrate outside markets (63%) followed by the indicators of market quota, diversification of products, and profits.

2- The study finds out that there is a statistically significant positive correlation between the element of customer focus and all indicators of the competitive position with the exception of the shares market value. The strongest correlation is between the element of the customer focus and ability to penetrate outside markets (67.2%) followed by effectiveness, market quota, diversification of products, and profits.

3- There is a statistically significant positive correlation between relations with suppliers and all indicators of the competitive position. The strongest relation is with penetration of outside markets (58%) followed by diversification of products, market quota, effectiveness and shares market value.

4- There is a statistically significant positive correlation between the element of continuous improvement and all the indicators of the competitive position with the exception of the share market value. The relation with the penetration of outside markets obtains the highest correlation coefficient (75.1%) followed by effectiveness, market quota, diversification of products and profits. The correlation with shares

values (R= 27.3) is not statistically significant indicating the absence of any relation between the two variables.

5- There is a statistically significant positive correlation between the element of employees' empowerment and all the elements of the competitive position. The strongest correlation is with penetration of outside markets (64.8), effectiveness, (61.6), followed by market value, diversification of products, profits. However, there is no statistically significant relation between employees' empowerment and shares market value.

6- There is a statistically significant positive correlation between the element of quality culture and all indicators of the competitive position with the exception of the shares market value. The TQS adoption has the strongest impact on the penetration of outside markets (75%) followed by effectiveness, market quota, diversification of products, and profits.

7- To conclude, it is clear that managers in the Jordanian pharmaceutical companies believe that the adoption of TQS has positive impact on all indicators of the competitive position with the exception of the companies' market share value.

Recommendations

The above listed findings support the following recommendations:

1- The Jordan pharmaceutical companies need to perform SWOT analysis before they design their Total Quality Strategies in order to be able to address their weaknesses, enhance their strength, and acknowledge the threats posed by their environments and opportunities provided by them.

2- The companies need to establish a permanent system of two-way communications with their customers to integrate them in the process of strategy building. Strategy building should start by determining customers' needs and specifications.

3- Without integrating continuous improvement with performance evaluation and rewards, employees will not be motivated to engage in continuous improvements of their jobs. The companies need to establish a clear system that links employee performance evaluation to the process of continuous improvement.

4- Suppliers are integral part of the system of quality production and therefore, their participation in producing quality is as important as the customer focus. The companies must make their suppliers aware of their goals and objectives.

5- It is clear from the data that neither employees' empowerment nor employees' motivation is awarded the attention that they deserve. Therefore, the companies need to train their managers in delegation of authority and train their subordinates to shoulder responsibility of owning their jobs and empower themselves.

References

Aravindan, P & Devadasan, S.R. (1995). A Focused System Model for Strategic Quality Management, International Journal of Quality. Retrieved from: www.Emeraldinsight.com.

Beecroft, G.D. (1999). The role of Quality in Strategic Management, Management Decision. Retrieved from: ABSCOhost.Htm.

Berawi, M. (2004). Quality Revolution: Leading the Innovation and Competitive Advantages, International Journal of Quality & Reliability Management. (on line).Retrieved from: www.Emeraldinsight.com.

Carpinetti, Lc & Martins, R. A. (2001). Continuous Improvement Strategies and Production Competitive Criteria, Total Quality Management. 12, 281-282.

Central Bank of Jordan. (2006, December). Monthly Statistical Bulletin. Amman, Research Department, 42, 1.

Daft, Richard L.(2000). Management. New York: The Dryden Press

Daft, R.L.(2001). Organization Theory and Design. Cincinnati: South Western.

Deepak, T.R. (2005). Influence of Experience and Collaboration on Effectiveness of Quality Management Practices, the Case of Indian Manufacturing. International Journal of Productivity and Performance Management. 54, 23-26.

Evans, J. R & Dean, J.W. (2003). Total Quality Management, Organization, and Strategy. USA: South-Western.

Garvin, D.A.(1987). Competing on The Eight Dimensions of Quality. Harvard Business Review. (on line). Retrieved from: file:// www.Emeraldinsight.com.

Gosen, J, Babbar, S & Prasad, S. (2005). Quality and Developing Countries: The Role of International and Organizational Factors. International Journal of Quality & Reliability Management. Retrieved from:// www.Emeraldinsight.com.

Hashmi, K. (2009, December) Introduction and Implementation of Total Quality Management (TQM). Retrieved December 25, from http://www.isixsigma.com/library/content/c031008a.asp.

Hermel, P & Baroli A.(2001). Strategic and Organizational Innovations in The Pharmaceutical Industry-Searching for Total Quality: The Case of A large European Pharmaceutical. The TQM Magazine.13, 169-172.

Jackson, P. and Ashton, D. (1995). Managing a Quality System Using BS/En/ ISO 9000. London: Kogan Page.

Khan. H. (2003). Impact of Total Quality Management on Productivity. The TQM Magazine. . (on line). Retrieved from: www.Emeraldinsight.com.

Leonard. D & McAdam. R. (2002). Developing Strategic Quality Management: a Research Agenda. Total Quality Management. (on line).Retrieved from:// www.Emeraldinsight.com.

Leonard, D. & McAdam. R. (2004). Total Quality Management in Strategy and Operations: Dynamic Grounded Models. Journal of Manufacturing Technology Management, 15, 254-256.

Lisiecka, K. (1999). ISO 9000 Standards and TQM Strategy- Business

Improvement Tools for Polish Companies. Magazine Auditing Journal. 14 , 40-43.

Ljungstrom, M. & Klefsjo, B. (2002). Implementation Obstacles for a Work Development-Oriented TQM strategy. Total Quality Management. 13, 621-623.

Madu, C.N. and Kuei, C.H. (1993). Introducing Strategic Quality Management. Long Range Planning. 26, 121-123.

Mansour, A. M. (2008) Quality, Competition and Public Sector Performance: A Theoretical Perspective", published in the proceedings of the 2nd Annual Congress Middle East on Creating Architecture of Quality and Excellence, Dubai, 6-9 April 2008.

McGee, T. & Wilson, D.(2005). Strategy: Analysis and Practice, London: McGraw Hill.

Mehra, S & Agrawal, S. (2003). TQM as a New Global Competitive Strategy. International Journal of Quality & Reliability Management. (on line). Retrieved from: www.Emeraldinsight.com.

Morgan, C. and Murgatroyd S. (1995). Total Quality in the Public Sector. Buckingham: Open University Press.

Oakland, J.(2000). TQM. Text With Cases. Oxford: Butterworth-Heinemann.

Pheng, L.S & Hong, S.H. (2005). Strategic Quality Management for the Construction Industry. Total Quality Management. Retrieved from // www.Emeraldinsight.com.

Shen, H & Hsu, S.(2005). Knowledge Management and its Relationship with TQM. Total Quality Management. 16, 351-353.

Summers, D.C.(2000). Quality. New Jersey: Upper Saddle River.

Svensson, G & Wood, Q. (2005). Corporate Ethics in Total Quality Management. The TQM Magazine, Vol 17, No 2, 137-149.

Tallha, M. (2004). Total Quality Management (TQM): an Overview. The Bottom Line: Managing Library Finances. 17, 15-18.

Tari, J. J.(2005). Components of Successful Total Quality Management. University of Alicante, Spain, The TQM Magazine. 17, 182-183.

Tenner, A. R. (1992). Total Quality Management: Three Steps to Continuous Improvement. Reading, Massachusetts: Addison-Wesley.

Wheelen, T.L. & Hungor, J. D. (2004). Strategic Management and Business Policy. New Jersey: Pearson Prentice Hall.

Wikipedia, 2008, http://en.wikipedia.org/wiki/Total_Quality_Management 18/1/2008,

Wilkinson. A. (2004). Quality and the Human Factor. Total Quality Management. (Electronic version). Retrieved from: // www.Emeraldinsight.com.

Wilkinson, A. (1998). Managing Through TQM. London: Macmillan.