



FACULTY OF GRADUATE STUDIES

Total Quality Management Implementation in Al- Iman
Schools- A Descriptive Study

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Dedication

For the Soul of my Deceased Father.

Acknowledgments

Finishing this thesis has coincided with the researcher's going through an open-heart surgical operation. Thus, its completion and successful discussion had not been possible without the involvement and support of the researcher's teachers, friends, and family members, particularly his wife and daughters. Many have helped in so many ways, and this creates the possibility of missing some of them, for whom the researcher extends both his apology and sincere thanks. Still, there are others whose help and assistance were indispensable to finishing this work, and thus their acknowledgment should be a crucial part of this thesis. Among those whom the researcher would like to extend his deep-heart gratitude and hearty thanks are Dr. Munthir Najim, the thesis advisor, who graciously gave his time and expertise in reviewing the entire thesis and enriching it with his constructive suggestions and comments, until it came to a successful end; the researcher's friends and colleagues, especially Engineer Ziyad Nihad, for their highly appreciated support, encouragement, and valued contributions; Al-Iman schools' management and staff, especially engineer Ruba Ajrab, who were very cooperative; and the researcher's wife for her invaluable support, patience and love.

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List of abbreviations

TQM: Total Quality Management.

ISO: International Organization for Standards.

EFQM: European Foundation Quality Management

MBNQA: Malcolm Baldrige National Quality Award.

SPC: Statistical Process Control.

CCI: Comparative Criticality Index.

VR: Variation Ratio.

QFD: Quality Function Deployment.

EQA: European Quality Award.

SME: Small Manufactures Enterprises.

Abstract

Though TQM has been widely adopted by manufacturing companies and other businesses in the world, it is still in its infancy in the educational field, particularly in developing countries such as Palestine. Research on quality management in Palestinian educational institutions has been somewhat limited. This study is an attempt to fill this gap through studying the possibilities, implications and estimated consequences of implementing TQM principles at the Palestinian educational institutions.

A case study analysis was adopted, through Al-Iman Secondary Schools in Jerusalem, to achieve the study objectives, investigate the probability of successful implementation of TQM principles in Palestinian educational institutions, determine the critical quality factors required for TQM implementation, identify the gap that exists and suggest the suitable guidelines and recommendations.

Triangulation methodology that involves both quantitative and qualitative methodologies was employed. A questionnaire was designed to measure the knowledge and perceptions of academic directors, department heads, and teachers of TQM and the extent of its utilization at Al-Iman Schools. Thus, the quality factors cited in literature and considered as essentials to successful implementation of TQM were identified. The questionnaire was administered to 130 directors and teachers, of whom 125 responded.

The data yielded the following results:

1. A significant difference was found among the respondents concerning their opinion in the implementation of TQM at their schools.

2. A significant difference was found in the opinions of respondents concerning TQM's appropriateness for academic institutions and its perception as another management fad.
3. A significant difference was found in the respondents' knowledge of TQM concepts and critical factors.
4. A significant difference was found in the opinions of respondents concerning the problem-solving abilities of teamwork and the excessive time it requires.
5. A significant difference was found in the opinions of department heads concerning staff empowerment and reduction of their authority.
6. A significant difference was found in the opinions of respondents concerning their empowerment and an increase in their participation in process improvement.
7. A significant difference was found in the respondents' opinion concerning the use of TQM vocabulary in their daily course of action.

Recommendations were suggested in light of the above mentioned findings, and the overall result of the study was that many steps should be taken, and hard work and planning should be carried out at Al-Iman Secondary Schools if they want to successfully implement TQM procedures and practices.

ملخص الدراسة

على الرغم من أن إدارة الجودة الشاملة وصلت لمراحل متقدمة في عالم الصناعة والأعمال، إلا أنها مازالت في مراحلها الأولى في حقل التعليم، وخصوصاً في الدول النامية ومنها فلسطين، بل أنها في فلسطين محدودة جداً في المجال التعليمي. هذه الدراسة مساهمة في سبر غور إمكانية تطبيق مبادئ إدارة الجودة الشاملة في المؤسسات التعليمية في فلسطين.

أجريت هذه الدراسة على مدارس الإيمان في القدس، لتحقيق أهداف الدراسة، فحص إمكانية التطبيق الناجح لمبادئ إدارة الجودة الشاملة في التعليم المدرسي الفلسطيني، وتحديد العناصر الحرجة والمطلوبة من أجل التطبيق الناجح، ومن ثم تحديد الفجوة القائمة واقتراح التوصيات المناسبة للتطبيق السليم.

استخدمت في هذه الدراسة الأساليب الإحصائية المتعارف عليها والتي تعتمد على الكم والنوع، حيث صممت الاستبانة لقياس معرفة وفهم الجهاز الإداري، المعلمين ومديري هذه المدارس لمبادئ إدارة الجودة الشاملة. ثم حددت عناصر الجودة التي تعتبر حرجة وضرورية من أجل التطبيق الناجح لمبادئ إدارة الجودة الشاملة. وزعت الاستبانة على 130 من المعلمين والإداريين. أجاب عليها 125 منهم.

أظهرت البيانات النتائج التالية:

- 1- يوجد اختلاف واضح بين المستطلعين في ما يتعلق برأيهم في تطبيق مبادئ إدارة الجودة الشاملة في مدارسهم.
- 2- يوجد اختلاف واضح في آراء المستطلعين في مدى ملائمة مبادئ إدارة الجودة الشاملة للمؤسسات التعليمية وفهمها كأداة إدارية إضافية.
- 3- يوجد اختلاف واضح في معرفة المستطلعين لمفاهيم إدارة الجودة الشاملة والعوامل الحرجة لتطبيقها.
- 4- يوجد اختلاف واضح في آراء المستطلعين من حيث القدرة على حل المشاكل من خلال فرق العمل والوقت الزائد الذي تحتاجه.
- 5- يوجد اختلاف واضح في آراء رؤساء الأقسام حول تمكين العاملين والحد من صلاحياتهم.
- 6- يوجد اختلاف واضح في آراء المستطلعين حول مدى تمكينهم وشاركتهم في تحسين العملية التدريسية.

7- يوجد اختلاف واضح في آراء المستطلعين حول مدى استخدام مصطلحات الجودة الشاملة في

مجري العمل اليومي.

على ضوء الاستنتاجات السابقة تم اقتراح عدد من التوصيات، وخلصت الدراسة إلى أنه يجب اتخاذ

خطوات كثيرة، وان على مدارس الإيمان أن تقوم بجهد وتخطيط كبيرين لتحقيق التطبيق الناجح لمبادئ

الجودة الشاملة.

THE THESIS

Chapter one: Thesis proposal

1.1 Introduction

Total quality management (TQM) is a management philosophy that has transformed the products and processes of leading Japanese companies during the past 40 years (Ishikawa, 1992). Faced with increased competition from Japanese products, companies throughout the industrialized world have begun to adopt TQM.

According to Sahney et al, (2004), quality may be viewed as a property of products or services, or processes producing these products or services. It may also be viewed as meeting and exceeding the expectations of the customers and thus, satisfying goods and services.

As its name implies, TQM focuses on quality. Juran (1989) defines quality as “fitness for use” by the customer. Deming (1986) advocates that quality “should be aimed at the needs of the customer, present and future” and Crosby (1979) supports this: “conformance to requirements set by consumers”.

Besides its popularity in manufacturing companies, TQM philosophy has been adopted in service industries like banks and hospitals (Huchins, 1989; O’ Connell, 1986; Smith, 1987). The applicability of TQM theories in the educational sector has also attracted the interest of many theorists and practitioners such as DeCosmo et al (1991), Edwell (1993), Heverly (1992) and Rhodes (1992). They pointed out that educational institutions have turned to TQM for many of the same reasons that businesses have instituted quality programmes.m

Managing for quality is one of the most important challenges that educational institutions, such as schools, colleges, and universities, face in today's competitive environment, the emphasis on quality is apparent in most educational reforms that have been undertaken in different countries throughout the world (Sahney et al, 2004).

According to Baidoun (2004) implementing TQM involves defining and developing several key elements or factors. They include both the so-called "soft" aspects of management such as leadership, employee empowerment and culture (Wilkinson, 1992), and the "hard" aspects such as systems and improvement tools and techniques (Oakland, 1993).

This study investigates whether these aspects can be implemented in Al-Iman schools in Jerusalem District and then identifies potential gaps.

1.2 Statement of the problem

Numerous writers have suggested approaches to quality management in education; Stensaasen (1995) proposes the use of Deming's 14 points of quality in the educational context. Van der Wiele (1995) notes the importance of transparency of the organization, involvement, customer orientation, quality policy deployment and communication. Mukherjee (1995) proposes the use of TQM in education through customer orientation, management, commitment, continuous improvement and innovation; whereas Tofte (1995) concludes that the paramount driver is quality.

The approaches to TQM identified above are, in the main, only reiterations of the TQM philosophy, but in an educational context. Dervitsiotis (1995) attempted to move away

from the general philosophy of TQM to identify specific aspects of the educational context. He used the concept of critical success factors that were measurable attributes of the educational system.

Williams (1993) concludes that there are two dimensions of TQM. On the one hand “it is a management tool to increase productivity, keep the customers happy and cut down waste”; on the other hand” it is a means of making us better people, of developing our professional good manners and providing us with a moral education”.

TQM is a management tool that aims for “total” and quality assurance”. First TQM implies meeting the expectations of all the customers in the educational system. The external customers< such as tax payers, parents and potential employers, should be satisfied with the standards of the graduates, whereas the internal customers, such as teachers and students, should be satisfied with the teaching and learning process in school. It targets the total process and output of the education system. Second, it requires quality assurance to insure conformity to specification of standards set out by the customers. Third it is a management tool that emphasizes the means for measurement of performance and feedback (Green, 1994; Bolton, 1995; Williams, 1993).

In keeping with the newer demands that have been placed on the educational system by various stakeholders, the higher educational system in particular, has been pressurized to shift its focus from one in quantitative expansion to one emphasizes on quality. Such shifts and changes are being witnessed not only in the developed countries, but also in the developing countries of the world. Not oblivious to the need for adaptation to serve the interests of its stakeholders, in terms of greater responsiveness, the educational system

has, thus, begun to realize the significance of total quality management (TQM) in education.

In the Palestinian context, TQM is a new concept that people started to deal with, in manufacturing first, with little attention to services, especially the vital ones like health and education.

1.3 Importance of the study

1.3.1 Lack of empirical research

As mentioned in Thiagarajan (2001), Dean and Bowen (1994) state that TQM as an ubiquitous organizational phenomenon has been given little research attention. As mentioned above, the bulk of the TQM literature is based on personal experiences and anecdotal evidence (Baker and Starbird, 1992), with very little emphasis on empirical testing (Sitkin et al 1994). Black (1993) argues that TQM risk losing credibility as a management philosophy for improving organizational effectiveness.

The lack of attention given to empirical investigation of TQM experiences is due to three reasons: Firstly, TQM is relatively recent phenomenon outside Japan. Secondly, its origin lies mainly outside the academic world (Spencer, 1994). The third reason is highlighted by Dean and Bower (1994):

They can draw TQM because of its interdisciplinary nature, means that it often transcends the boundaries of existing theories. Thus, it is unlikely that the theories will be sufficiently broad based to support research on TQM.

1.3.2 Lack of empirically sound TQM implementation models

Implementing TQM should be a top priority of all leaders (Dale, 1999; Kanji 1990). Although the literature is full of everything you need about TQM implementation, most of the information is based on personal experience and anecdotal evidence. While there is a general consensus regarding the importance of issues related to leadership and employee involvement for effective TQM implementation (Couclson-Thomas,, 1992; Glover, 1993). There are many differences in opinion about the other relevant components and the appropriate emphasis among the various components (Smith, 1994; Greech, 1994).

According to Easton (1993), there is much disagreement concerning the details of implementation even in the areas in which there is a general consensus.

Consequently, organizations wanting to implement TQM are not only overwhelmed by the numerous precepts (Juran, 1993), principles (Deming, 1986), models (Oakland, 1993) and prescriptions (Crosby, 1979), but also are often left confused as to where to begin. This problem is described as “total quality paralysis” by authors such as Smith (1986).

1.3.3 Lack of empirical research in Palestine

Hard (1992) outlines how the growing importance of quality has spread to many enterprises outside the developed world, especially nations in the South East Asian region. Therefore, it is appropriate that studies in TQM implementation be conducted for

the benefit of managements in Palestine, where the need is confounded by a lack of information relating to TQM. In addition, giving the acknowledged limitations of the findings of some earlier studies in their applicability across national boundaries (Dawson, 1994), the outcome of such systematic studies will create a new critical mass of TQM thinking under different culture environments.

1.3.4 Al-Iman schools as focus of research

An Al-Iman school was first established in 1984, as a kindergarten, and then was developed to a high school in 1990. It has grown through years and now it consists of five schools; two high schools for boys and girls, two elementary schools and a kindergarten, with a total of 2131 students and staff of 183 teachers and administrative staff.

All schools are under the management of Islamic Science and Culture Committee Society. Lately the management recruited an expert to implement ISO 9000 requirements as a step towards implementing TQM. It is the first educational institution in Palestine that is planning to implement TQM.

1.4 Purpose of the study

Constructing a TQM implementation framework, that can be used as a guide in the selection of effective TQM implementation approach in Al-Iman schools. The aim therefore, is to identify the so-called quality critical factors of TQM implication and to

understand how they can be implemented. This is the adopted approach by this study and the central to the approach are the following core requirements:

1. An understanding of the current knowledge of TQM is developed.
2. An analysis is conducted to identify the quality factors for effective TQM implementation in Al-Iman schools and make an assessment and gap analysis for these schools.
3. Identifying the foundation elements for effective TQM implementation and suggesting guidelines to be implemented in Al-Iman schools to achieve TQM.

1.5 Research objective

The main objective of this study is to investigate the probability of implementing quality factors that are critical to effective TQM implementation in Al-Iman schools in Jerusalem. The effort requires an in-depth review of the available literature so as to determine the critical quality factors that are most applicable for effective TQM implementation, make an assessment for Al- Iman schools to find and determine the gap, and then suggest guidelines for effective TQM implementation.

1.6 Research methodology

This study is undertaken in order to ascertain and be able to describe the characteristics of the variables or interest in a situation. Since the characteristics are known to exist and one wants to be able to describe them more clearly by offering a profile of those factors that

affect applying TQM, and because the investigation is interested in delineating the variables that are associated with TQM, then a correlation study is conducted.

The unit of analysis is the management staff and the teachers, so the data gathered from the questionnaire from both teachers and managers and each response as an individual data source. The primary source of the data is then taken from the questionnaire.

This study combines a quantitative research method, and a triangulation approach is employed.

1.7 Thesis Outline

The study will be presented as:

Chapter One: Introduction, this will include an overview of the study, study purpose, importance and objectives.

Chapter Two: Theoretical background, including a depth review of the available literature.

Chapter Three: Research design and methodology.

Chapter Four: Findings and discussion.

Chapter Five: Summary and recommendations,

Chapter two: Introduction

2.1 Introduction

There is an increasing interest in the development of “quality systems” in all kinds of organizations as a means of organizational change through the improvement of key processes. Many organizations are embracing the quality management philosophy and incorporating quality assurance standards as an integral part of their quality systems. According to Berry (1998), there is emerging evidence that schools could also benefit from the development of quality systems through their impact on a school’s capacity to provide services which support both individual and organizational learning. However, although some initial models for quality system development in schools have emerged, there are currently no clear approaches, which could provide a strong theoretical basis. Quality management provides an organizational paradigm for the development of quality systems in schools and can be described as the process or systems incorporated into an organization’s culture which ensures that the services provided by the organization meet or exceed the requirements of the customers or clients of the organization.

Total quality management system is one of the quality systems that are used to satisfy the customers. TQM has been applied primarily in the manufacturing sector. So, there are some questions regarding its applicability to educational institution (Motwani and Kumar, 1997).

In order to apply TQM in education, many issues regarding the mechanics of its operation still need to be addressed. Since TQM models typically revolve around a

manufacturing orientation, adaptations for the key differences in service and academic systems need to be made.

Essential to the concept of TQM is a customer-centered culture. According to Deming, one key ingredient in creating a constancy of purpose. “Customer needs must be the driving force” (Thurmond, 1993) in determining this purpose. But in academia, who is the customer? Our first reaction might be to identify the student as a customer, since they are the direct recipients of the educational output. Although the concept of student as a customer appears to be widely accepted, there is considerable debate as to whether students should be involved as a customer in shaping educational output. Several authors (Brewer, 1991; Cloutur and Richards, 1994; Helms and keys, 1994) believe that what students want from their educational institutions may not be what they need. They argue that by satisfying students, institutions may risk compromising the needs of society as a whole. They prefer a process that models a fitness center where students define their long-term goals and the institution prescribes the program for meeting these goals.

As mentioned in Ehigie and Akpan (2004) TQM is a management philosophy, introduced by Deming (1989) and Juran (1986), both working hand by hand. TQM calls for customers’ satisfaction, continuous improvement, teamwork, and a strong aspiration to self-actualization. The TQM inventors focused less attention on tools, techniques and training but gave more attention to the human aspect of production. They recognized that tools alone cannot automatically produce TQM but it is the power of the human mind to identify the correct problems more efficiently than all the quality tools invested (Williams, 1994).

As mentioned in Ngware et al. (2006), total quality management in secondary schools in Kenya: extent of practice, there is a growing interest in applying TQM in education and for a wide variety of reasons (Thakkar et al., 2006; Temponi, 2005; Cheng, 2003): some of the reasons include:

- 1- Pressure from industry for continuous up grading of academic standards with changing technology.
- 2- Government schemes with allocation of funds, which encourage research and teaching in the field of quality.
- 3- Increasing competition between various private and government academic institutions.
- 4- A reduction in the pool of funds research and teaching, implying that only reputable institutions will have a likely of gaining access to various funds.

Numerous writers have suggested approaches to quality management in education (Hills and David, 2001). Stensaasen (1995) proposes the use of Deming 14 points of quality in educational context. As mentioned in Baidoun (2003) “Understanding the Essentials of TQM a Best Practice Approach”, Wilkinson (1992) highlights that it is a practical to refer to the experience at Black and Decker (UK) and the Co-operative Bank plc. To classify the quality factors along “soft” and “hard” criteria. Soft factors are considered as internal marketing issues (Wilkinson, 1992). They include;

- 1- Senior executive commitment and involvement, actively demonstrated.
- 2- Comprehensive policy development and effective deployment of goals.
- 3- Entire work force commitment to quality goals of the organization.
- 4- Supervisors, unit heads and divisional managers assume active new roles.

- 5- Empowerment.
- 6- Effective communication.
- 7- Teamwork.
- 8- System for recognition and appreciation of quality efforts.
- 9- Training and education.

There is a good chance that the TQM process will end up in failure if there is insufficient attention to “soft” factors.

The implementation of the “soft” quality factors must be supported by tools and systems “hard quality factors” to achieve the goals. These “hard” quality factors include:

- 1- Benchmarking.
- 2- Managing by process.
- 3- Self-assessment.
- 4- Quality control tools.
- 5- Cost of quality process.
- 6- Documented quality management system.
- 7- Supplier management.
- 8- Customer management.

2.2 Soft quality factors

2.2.1 Leadership and top management commitment

Top management’s leadership is one of the essentials of TQM. In every country where TQM has been implemented (Sirvanci, 2004). As mentioned in Ehigie and Akpan (2004),

leadership and top management commitment is a relationship through which one person influences the behavior or actions of other people (Mullins, 1996). He describes leadership as a dynamic process, suggesting that it could be altered to suit a particular management philosophy. Many leadership styles have been proposed in the literature. The most popular ones are dichotomized, like the democratic and autocratic (Lippitt, 1969), consideration and initiating structure (Fleishman, 1974), employee-centered and production-centered (Likert, 1961). Misumi (1995) reports that performance-maintenance leadership style is found to be consistently superior to leadership type because of the fact that a leader exhibits the two styles but at varying degrees.

At Politis (2003) study “ QFD: the role of various leadership styles”, Ahire et al. (1995) states that top management commitment to quality function deployment (QFD) so that management demonstrates its commitment to QFD by providing human and capital resources. Berry (1995) says that many quality management models clearly state the need for top management to be the first to undertake quality processes. Fox (1991) identifies the need for a “TQM steering committee”, which includes a “quality champion”, a “quality sponsor” and a “TQM co-ordinator” as part of the management commitment, and suggests that there are four aspects to top management responsibility, which are to: develop a vision for the future, set specific quality objectives, establish the budget for quality, and provide leadership. There is emerging evidence to suggest that it is through commitment to quality of senior management that the whole organization is able to adopt a quality ethos.

Leadership can be perceived as a form of social action which supports a shared vision for educational change (Berry, 1997). A fundamental responsibility of school leadership is

the development of a learning community characterized by a representative and democratic decision making, critical reflection and dialogue, and a shared commitment to achieve organizational outcomes. The notion of a learning community assumes an organizational structure, which ensure learning opportunities for all members and the perception of all school members and learners.

Leadership in schools has the function of creating a shared organizational vision, but it is also imperative that leaders have the understanding, knowledge and skills – that is the expertise – to lead the cultural need (Berry, 1997). Such expertise is necessary in order to:

- 1- Set the directions of the cultural change, which might be required.
- 2- Develop a shared language to quality improvement.
- 3- Develop a set of shared beliefs about the nature of quality within the organization.
- 4- Provide a focus for introducing the quality culture.
- 5- Initiate training and development in quality management within the school community.
- 6- Provide a platform for the review of emerging quality processes.
- 7- Reinforce the commitment of the organizational leadership to a changing culture.
- 8- Create the expectation that there will be changes both of a philosophical and practical nature.

Leadership is required to articulate the quality policy to be developed within schools in culturally appropriate ways so that notion of quality reflects the unique aspirations of the school community and be representative of their values. The notion of quality policy implies the existence of a range of possible quality alternatives which need to be considered, and

decisions need to be made in relation to the content and structure of quality initiatives (Berry, 1997).

Ngware et al. (2006), says that leadership should make the school teacher establish the context in which students, teachers and board of governors working together must be harnessed. Teachers should concentrate on literacy and teaching that provides a leadership framework that support continuous improvement in the learning process. Padhi (2004) calls it that most important element in TQM, arguing that leadership appears everywhere and requires the manager to provide an inspiring vision, make strategic decisions understood by all and to instill values that guide the subordinates. For TQM to be successful supervisors must be committed to providing leadership (Ngware et al., 2006).

Such leadership is also necessary because the notion of quality, quality management and quality assurance are relatively new to schools and may require those in leadership positions to initiate strategies for a better understanding of quality issues at the organizational level. It may be that someone, or a group of organizational members, finds it necessary to develop specific expertise before quality processes can be attempted (Berry, 1997).

Siegel and Byrne (1994) describe the challenge of leadership in the following way:

It is one thing for a leader to have the vision; it is quite another for that vision to guide the behavior of an entire organization. Leaders in successful quality settings have been able to conceptualize the theory in ways that translate into practice, steer the change process, and guide their people in determining not only how to perform their jobs, but even more importantly, what those jobs should be.

2.2.2 People management and empowerment

According to Baidoun (2003), Kanji et al. (1993) proposes people management, including “teamwork” and people make quality as one of the four principles of TQM. Some authors consider employee involvement and commitment to the goals of TQM process as a condition to its successful implementation (Kano, 1993; Buch et al., 2002; McAdam et al., 2002).

Employee empowerment leads to increasing employee participation (Wuagneux, 2002). Deming (1986) emphasizes the importance to empower employees by giving them the authority and autonomy to their jobs. As mentioned in Melhem (2004), Bowen and Lawler (1992, 1995) highlight the importance of empowerment and that empowerment of service employees requires very important perquisites including knowledge, information, rewards, and power. Empowered employees provide faster and friendlier service to customers as well (Yip, 2000). In their article, the application of TQM: organic and mechanistic?, Moore and Brown (2006), Deming (1982) cited in Spencer (1994) says that the role of management is to "create constancy of purpose for (the) improvement of products and services". Management designs a system that is capable of producing quality output, and consequently it is the management and not the employees who are responsible for poor quality.

As for schools to apply TQM system, the development of internal quality management processes including people management to enable the school to achieve its unique mission. This requires the school to develop a quality management approach, which permeates the whole organization (Berry, 1998). Establishment of teams to work with

school communities in reviewing the performance and development of their schools, assessing and reporting on the effectiveness of the programs and support provided to schools is included through quality assurance (Cuttance, 1993).

According to Malcolm Baldrige National Quality Award (MBNQA) one of the key factors that is important in school education is people management and development.

That is the success of efforts to realize the full potential of teachers and students to create a high performance organization.

Weller (1998) says that one of the duties that leaders of schools must do is that forming teams with team members who are empowered to solve problems and make decisions and who are free of management's tight, restrictive policies and prescribed directives. Talha (2004) says that successful TQM strategies within the organization (including schools) must involve everyone, empowering everyone to contribute to continuous quality improvement. Empowerment of workers/ employees is called the principle of synergistic relationship (Ngware et al., 2006) according to this principle. Teamwork and collaboration are essential administration.

2.2.3 Middle management involvement

Oakland (2000) says that middle management have a particular role to play, since they must explain the principles of TQM and ensure that their commitment is communicated.

Middle managers must give up some authority as power and control are pushed to lower levels in the organization (Thiagarajan and Zairi, 1997). According to Ishikawa (1985) middle management can contribute greatly to quality improvement.

As mentioned in McAdam and Leonard (2004) one of the profiles that reflect the importance that was assigned to TQM at each organizational level is the delegation of authority to middle management at the tactical level and has its greatest application and impact at the operational level. According to Dayton (2003), Black and Porter (1996) say that one of the TQM critical success factors is people management. One of the softer elements of TQM that appear to have a successful implementation is people management activities that involve employees in the TQM process (Wright and Taylor, 2003).

In order to succinctly implement the concept of lean manufacturing successfully within SMEs the recipient companies should harbor strong leadership traits capable of exhibiting excellent project management styles. In essence, these qualities would facilitate the integration of all infrastructures within an organization, since strong leadership and management permeates a vision and strategy for generating, while permitting flexible organizational structure (Achanga et al., 2006) in his study "Critical success factors for lean implementation within SMEs".

In educational system Siegel and Byrne (1994) point out that:

In designing successful quality implementation strategies, education leaders confront two significant challenges that many companies do not. They must build for their people an understanding of individual jobs and professional expertise as the sum total of connected work processes with a customer at the end of each process. And they must alter the organizational culture to support people working together. It is suggested by Gore (1993) that although schools need to develop their own, some aspects of TQM are very relevant; among these is management and enhancement of human resources.

Berry (1997) says that TQM in schools is based on the notion of participation through a “total involvement” approach which requires continuous, first-hand involvement of top management as well as the participation of all organizational members in the development and implementation of quality management strategies. As mentioned in Karunes et al., (2004), Harris (1994) says that there are three generic approaches to TQM one of them is staff focus approach, that is concerned to value and enhance the contribution of all members of staff to the effectiveness of the school.

2.2.4 Training and education

McAdam et al. (2002) says that training and development are key component of all quality initiatives. As mentioned in Baidoun (2003), Oakland (1989) sees training as the single most important factor in improving quality. Oakland (1993) continues to say that training activities should be incorporated within the principles of quality policy. Oakland (2000) adds that quality training must be objectively, systematically and continuously performed.

Ahire et al. (1996) state that first and foremost, companies need to view training costs as investment instead of cost. Zhang et al. (2000) consider investment in education and training vitally important for TQM success. Rao et al. (1996) state that training typically covers problem-solving techniques, problem analysis, statistical process control, quality measurement, organizational diagnoses, group process, and decision-making.

As stated in Wu et al. (2003), one of Deming's 14 points to apply TQM management is training on the job. In a study made by Kaye (2002), "continuous improvement: ten essential criteria", he considers training and development of employees are critical factors for continuous improvement. In Dayton (2003) study, Saraph et al. (1988) determine that among the TQM critical factors is training of employees. As stated in Farr-Wharton and Brunetto (2004), Rothwell and Scedl (1992) say that for effective organizational processes, employees should learn how to develop a culture for solving problems, making decisions, and generally interacting.

Lee (2004) states that there are nine areas, which have been identified, validated and established as the most elements of TQM, one of them is the training of employees to gain skills that are needed for applying TQM in an organization.

Tam and Cheng (1997) state that the process models an educational institution is of high education quality if it's internal functioning is smooth and "healthy". Important internal activities or practices in the educational institution are often taken as the important indicators of education. Leadership, communication channels, participation, co-ordination, adaptability, planning, and decision making. Longbottom and Osseo-Asare (2002) recognize that successful implementation of any change program require proper education and training of those who would be involved in the implementation process to help the employees to understand the terminology involved and to increase their personal involvement and commitments to the process of bringing about improvement in educational institutions.

According to Ngware et al. (2006), Padhi (2004) asserts that training is very important for employees to be productive. Employees require interpersonal skills, the ability to

function within teams, problem solving skills, job management, and performance analysis and improvement skills. Employees are trained to become effective. However, in school institutions, teams building have been based upon biases, prejudices, and "the way we have always done it around here" rather than evidence based decision-making taking account of qualifications, competence and ability (Kiboro, 2003).

2.2.5 Rewards and recognition

In Baidoun (2003), Oakland (2000) says that TQM is user-driven, which means that the ideas for improvement must come from those with knowledge and experience of the processes, activities and tasks. He continues to say TQM is concerned chiefly with changing attitude and skills so that the culture of the organization becomes of preventing failure- doing the right things, right first time, every time. Zhang et al. (2000) state that recognition and reward activities should effectively stimulate employee commitment to quality improvement.

How people are rewarded, recognized and cared for is assessed by the EQA and MBNQA (2000) (Baidoun, 2003). Based on reviewing best practices of quality leaders in Europe, Japan and USA, Jonston et al., (1991) concluded that rewards and recognition are one of the enablers, which maximizes employee's involvement. They add, in doing so, rewards and recognition become one of the main contributors to the organization's quality journey. One of the main duties of senior managers is adopting attitudes towards quality that will encourage employee involvement and ownership (Wright and Taylor, 2003). In Harrington and Keating, 2003) study, Sureshchander et al., 2002) say that employee

satisfaction is important for total quality service dimensions. Henderson and McAdam (2004) sees that one of the large-scale changes to TQM that have taken place is the development of human resources, empowerment concepts, and rewarding systems. In the study of Akpan and Ehigie (2004), Akpan (2002) states that there should be consistency between reward system and quality. Thor (1994) reasons that meaningful reward and recognition is of one the perquisites for the practice of TQM. Barney (1991) in Lewis et al.(2006) study, says that the reward and recognition is one of the unique resources and capabilities that will generate more value in achieving TQM in SME.

One of the issues which educational institutions should consider when implementing a TQM program from start to implementation is recognizing and rewarding quality improvements (Kumar and Motwani, 1997). In Weller (1998) study, Champy (1995) identifies the leader of educational institutions are those who can influence behavior and reinforce employee values by their own words and deeds. One of these values and beliefs central to successful corporation is rewards based on achievement and not the amount of time spent on narrowly defined tasks. New and increased responsibilities are based on ability and overall contributions to the organization. As mentioned in Melhem (2004), Yip (2000) argued that power, information, knowledge and rewards are very significant measures to have an effective workforce.

2.2.6 Teamwork

Rao et al. (1996) identifies teams as:

“Teams are a major part of any total quality management effort because teamwork enables various parts of the organization to work together to meet customer needs in ways that can’t be done through individual job performance”. McAdam et al. (2002) says that work processes of organizations cuts across functional boundaries, leading to a co-operative effort in the solving of process problems.

One of the most publicized aspects of Japanese approach to quality has been the quality circles or Kaisen teams (Baidoun, 2003). The quality circle may be defined as a group of workers doing similar work who meet:

- 1- Voluntary.
- 2- Regularly.
- 3- In normal working time.
- 4- Under the leadership of their “supervisor”.
- 5- To identify, analyze and solve work-related problems.
- 6- To recommend solutions to management.

Teamwork is a critical factor in TQM (Cebeci et al., 2002; McAdam, 2002; Everett, 2002). Kanji (1998a) considers teamwork as a core concept to achieve the principle of people based management. Anjard (1998) states that the implementation of TQM normally follows a seven-stage process, one of these stages is the building of teams. In Harrington and Keating (2003) study, Irani et al. (2002) talks about the benefits of forming of teams in an organization. Teamwork is considered to be one of the most important elements in the implementation of TQM in the recent literature (Lewis et al., 2006).

McAdam and Leonard (2004) says that according to Lau and Anderson (1998) successful TQM programs have led to many other related change initiatives being successfully implemented at operational level in organizations, one of these is empowered teams.

Remmen (2003) reveals that the key to successful teaming is linking the human-resource systems, technology solutions, process design and environmental considerations to the goal of self-directed teams.

According to Berry (1997) quality management in educational institutions is based on change towards the development of quality values, which include customer focus, teamwork, total involvement, and consensus and excellence. Teamwork could be described as the primary element of the quality management approach to quality educational institutions and represents the educational institution structure on which quality improvement process is based. Participation is primarily achieved through the establishment of cross-functional and/or cross-departmental problem-solving teams in the form of quality improvement teams or quality circles. In education, the boundary concept can best be illustrated by the American middle school which emphasizes the team approach to instruction and curriculum development (Weller, 1998). According to Coate (1990), the teams are everything in educational institutions that must be taken into consideration. Sivanci (2004) states that a number of TQM elements may be discussed under cultural transformation. Organizations (companies, schools, colleges,..) that have adopted TQM have transformed their institution's culture into a total quality culture that involves elements such as teamwork.

2.2.7 Effective communication

Effective communication is seen as a means of keeping momentum and morale for quality improvement process. It is important in directing employees toward corporate expectation (Thiagarajan et al., 2001; Dayton, 2001). There are four principal types of communication: verbal (direct and indirect), written, visual and by example (Oakland, 2000). Effective communication is important for the success of any quality initiative (Martinez-Lorente et al., 1998; Surshchandar et al., 2001). The key medium for motivating the employees and gaining their commitment to TQM is face-to-face communication and visible management commitment (Oakland, 2000).

As mentioned in Baidoun (2003), Kanji and Asher (1993) state that effective communication is part of the cement that holds together the bricks of the total quality process. Every element of the change must be talked about, presented and discussed, across levels of organization through effective communication (Dayton, 2001; Claver et al., 2001; Tamimi and Sebastianelli, 1998; Salegna and Fazel, 2000).

In Farr-Wharton and Brunetto (2004) study, Smidts et al. (2001) argue that communication refers to the process whereby individuals and/or groups transact in a variety of ways and within different areas with the aim of carrying out organizational goals. They posit that the effectiveness of organizational communication processes affects the identity and organizational climate within an organization, and in turn, impacts on the performance of the organization. Agrawal and Mehra (2003) state that communication is often the key for the successful implementation of any plan, including

quality goal. This might require different means of communication in different locations. According to Yang (2006), employee development through sharing others in the organization the aims and objectives is a great influence on TQM.

Kumar and Motwani (1997) state that through communication and sharing of ideas, more educational institutions will be able to implement TQM in them. Berry (1998) states that a quality system recognizes that educational organizations are human endeavors and has seven premises stages related to relationships or dynamics, one of these stages is providing for constant communication and feedback.

2.2.8 Quality policy and strategy

Strategic quality management is the “process of establishing long-range quality goals and defining the approach to meeting these goals” (Juran and Gryna, 1993). Oakland (2000) considers a sound quality policy, together with the organization and facilities to put into effect, is fundamental requirement, if an organization being to implement TQM. Rao et al. (1999) states that strategic quality planning demands the integration of quality and customer satisfaction issues into strategic and operational plans.

Talking about quality policy and strategy can't be separated from strategic planning process related to TQM. Such a process is based on determining the needs and requirements of all stakeholders (Cerpín, 2002; Hitchcock et al., 2002). According to Baidoun (2003), Zairi (1999b) states that the policy and strategy at Royal Mail (UK) are formulated on the concept of total quality as follows:

- 1- Mission and values were the fundamental inputs to total quality.

2- Policy and strategy formulation to implementation and achievement of results is managed through three process:

- Strategic direction setting.
- Planning, and
- Performance measurement/ review.

Executive committee establishes the vision and direction, business units define the actions to achieve the targets and review process takes place within each of the processes.

3- Cross-functional forums own elements of theEQFM model and identify implementation plans from feedback received.

4- All business units maintain documented management processes, which are reviewed to ensure their relevance.

As for educational institutions, Evardsson (2003) states that according to the culture of educational institutions is developing in a positive direction, but the goal of systematic, communicable and comprehensive quality strategies still lies in the future and the relationship between enhancement processes and improvement of actual operations is often unclear. Berry (1998) talks about an alternative approach for quality assurance in schools at the international level is the MBNQA education criteria (ASQC, 1995), which includes among classifications the strategic planning, the effectiveness of strategic planning and deployment of goals. As mentioned in Lewis et al. (2006), managers play at least three types of roles, namely:

- 1- Designers of policies, and structures to make them customer-focused (Stalk et al., 1992).

- 2- Teachers to help employees to attain the vision of TQM efforts (Ahire and O'shaughnessy, 1998).
- 3- Stewards to focus their own and employees' attention on serving the customer (Punet et al., 2001).

2.3 Hard quality factors

2.3.1 Supplier management

In Baidoun (2003), Zhang et al., (2000) state that supplier quality management is an important aspect of TQM since materials and purchased parts are often a major source of quality problems. Wong et al., (1999) state that partnership with supplier will lead to quality results from the supply chain. One of the most important parts of the quality improvement process is the relationship between supplier and buyer. According to Lee (2000), there are nine important elements of TQM, supplier quality management is one of these elements. One of the four major principles for the successful implementation of TQM is supplier participation (Ahire et al., 1996; Tamimi, 1993). Fernandez et al., (2003) consider the relationship with suppliers is one of the important elements to implement TQM in the organization. One of the 12 criteria that considered to be important in TQM implementation in recent studies is the contact with suppliers and professional associates, were advocated by many researchers in their studies (Lewis and Lalla, 2006).

According to Dayton (2003), Black and Porter (1996) state that supplier partnership is one of TQM critical success factors. In Wu et al., (2003) study, Deming states that

moving toward a single supplier for any one item, on a long-term relationship of loyalty and trust. Henderson and McAdam (2004) state that customer-supplier chain relationships are very important for implementation of TQM.

Deming (1986) considers the reduction in supplier base will minimize total cost.

Besterfield (1994) says that single sourcing with a large contract will create better quality at a lower cost. Companies worldwide realize that optimizing operations within the four walls of their enterprises is not enough to achieve business excellence. They understand that the involvement of suppliers, which is critical to improve quality and meet customer specifications, can enhance their performance (Kanji and Wong, 1999). As mentioned in Baidoun (2003) study, Easton (1993, 1998) states that many Baldrige Award applicants started quality programs with their supplier (concerned with supplier rating and qualification systems audits, joint design teams, joint quality improvement teams, training, and supplier recognition schemes) to spread gradually the quality movement throughout their entire supply chain.

For education, the suppliers (providers) of the products and services are teachers who work through a new delivery process which is supported, modeled, and facilitated by the principal (Weller, 1998) states that the methods and processes of the organization (educational institutions) are designed and managed to meet both internal and external customer expectations. Suppliers and customers are viewed as partners in the quality initiative.

2.3.2 Accredited quality management system

According to Kolka (2002) quality systems are designed to provide both the support and mechanism for the effective conduct of quality-related activities in an organization. It is a systematic means to manage quality in an organization. As mentioned in Baidoun (2003) study, the ISO 9000 series certification can be defined as the starting point for entering the competition. The ongoing journey towards TQM must deliver the competitive advantage (Stahan, 2002; Kolka, 2002; Shibly, 2002).

In repositioning ISO 9000: 2000 to focus more on quality management, the authors have sought underpin this change with an emphasis on eight quality management principles (ISO, 1999):

- 1- Customer focus.
- 2- Leadership.
- 3- Involvement with people.
- 4- Process approach.
- 5- System approach to management.
- 6- Continual improvement.
- 7- Factual approach to decision-making.
- 8- Mutual beneficial supplier relationship.

ISO 9000 certification can form an important foundation for TQM programs or add additional structure and awareness building to existing TQM programs (Skrabec, 1999).

Once certification has been achieved, however, the quality must be linked with explicit

statements of the perceived benefits linked to the goals of the organization (van der Weile et al., 2001), this is mentioned in Savic et al., (2004). Many organizations consider ISO 9000 certification as the first step in the implementation process of TQM (Oakland et al., 1994). A documented quality system as part of a TQM strategy can contribute to TQM by managing the organization's processes in a consistent manner (Zhang et al., 2000).

The ISO 9000: 1995 component is for education and training organizations. Within this approach a quality system is defined as the organizational structure responsibilities, procedures, processes and resources for implementing quality management. Management has the responsibility to develop, establish and implement a quality system as the means by which stated policies and objectives are accomplished. The quality system is structured and adapted to the organization's particular type of business and takes account of the appropriate elements outlined in the international standard (Berry, 1998).

2.3.3 Organizing for quality

Juran (1974) sees organization for quality in terms of structure and people. This requires the determination of activities to be performed, the responsibilities associated with the activities, dividing the work into jobs, determining job responsibilities and authority, inter-job relations and channels of communication. As mentioned in Baidoun (2003), Moren-Loson and Peris (1998) develop an integrated model for strategic management, organizational design and quality management. They classified organization into the quality assurance (characterized conformity) and the TQM organization (characterized by internal and external customer

satisfaction, continuous improvement and employee involvement) indicating low formalization and centralization organizational structure (Jabnoun, 2000).

Oakland and Porter (1994) consider that one of the responsibilities of senior management at the early stage of initiating the TQM program is the set up of a quality organizational structure. Such structure is needed to create a framework, which will enable quality improvement to develop and flourish (also see Easton, 1993). They consider the quality organizational structure as a key element in ensuring successful implementation of TQM. Smith (1994) recommends the need to have a full time post to manage the quality process. Many organizations have realized the importance of the contribution a senior, qualified director of quality can make to the prevention strategy (Oakland, 2000).

Crosby (1989) considers the success of the quality improvement process dependent on effective and systematic implementation. Oakland (1989) describes the department purpose analysis which involves determining key tasks for the department, describing the key processes, including the involved customers and suppliers and subsequent prioritizing improvement actions at departmental level.

As mentioned in Karunes and Sahney (2004) study, Cheng (1996) states that education quality as the character of the set of elements in the input, process, and output of the education system that provides services that completely satisfy both internal and external strategic constituencies by meeting their explicit and implicit expectations. Winch (1996) identifies four approaches to quality in education:

- 1- Total based.
- 2- Product based.
- 3- User based.

4- Value based.

Process approach is a desired result that is achieved more efficiently when related resources and activities are managed as a process (Lewis and Lalla, 2006).

Tam and Cheng (1997) states that the process in an education institution is a transformational process, which converts inputs into performance and output. The process model assumes that an educational institution is of high education quality if its internal functioning is smooth and “healthy”.

2.3.4 Managing by processes

According to Ahire et al. (1996) all activities of an organization must be planned and executed to improve processes that lead to manufacturing quality products. However, quality must be incorporated into these activities with a clear customer focus (Feigebaum, 2002). One important matter in process management is to ensure that process capability can meet production requirement (Zhang et al., 2000). As mentioned in Bernardi and Biazzo (2003) study, Sinclair and Zairi (1995) set basic steps to set up process management. One of these steps is to identify the customers and the supplier in the process, key activities, points of measurement and feedback loops. The importance of focusing attention on company processes is widely recognized and accepted; however, it is often accompanied by uncertainties and operating difficulties within management practices.

In Ongaro (2004) Boulding (1956) says that one of the process management elements lies in the reshaping of relations among organizational units according to the pattern of the

supplier-customer relations. Organizational units “downstream” in the workflow have to be considered as customers, and organizational units “upstream” have to use the same care as if they were suppliers. One of the basis of TQM core values is focusing on processes (Klefsjo and Hendersson, 2003; Lee, 2004).

As mentioned in Baidoun (2003), the quality-oriented organization makes customer satisfaction its main focus. To deliver quality products, process owners must determine who their customers are (both internal and external), as well as the needs, requirements and expectation of those customers (McAdam et al., 2002; Feigenbaum, 2002). Then they must ensure that process outputs meet customer needs (Rao et al., 1996). To achieve customer satisfaction, Oakland (1993, 2000) emphasizes the importance of managing the internal-supplier relationship as the first step to support the process management. This is found in each organization represented by an intricate structure of both internal customer and internal supplier.

In Lewis and Lalla (2006) study "Exploring soft versus hard factors for Tqm implementation in small and medium-sized enterprises", identifying, understanding and managing a system on interrelated processes for a given objective improves the operational effectiveness and efficiency of firms.

Karunes and Sahney (2004) state that customers of education are anyone being served. Customers may be both internal and external, depending on whether they are located within or outside the organization. Managing of inputs processes include activities of teaching, learning, administration, and the outputs include examination results, employment, earnings and satisfaction. According to berry (1998) managing of processes

in educational institutions is to meet both external and external customer expectations and suppliers.

2.3.5 Benchmarking

According to Oakland (2000) benchmarking measures an organization's operation, product and service against those of its competitors. It will establish targets, priorities and operations leading to competitive advantage. As mentioned in Yat-Lung and Gilleard (2004) benchmarking may be broken down into a number of distinct elements. For example Anderson and Pettesen (1996) identify five distinct phases:

- 1- Planing;
- 2- Searching;
- 3- Observation;
- 4- Analysis; and
- 5- Adoption.

While Atkin and Brooks (2000) identify separate benchmarking steps:

- 1- Identify the subject of the exercise.
- 2- Decide what to measure.
- 3- Identify whom to benchmark both within your sector and outside.
- 4- Collect information and data.
- 5- Analyze findings and determine gap.
- 6- Set goals for improvement.

- 7- Implement new order.
- 8- Monitor the process of improvement.

In Baidoun (2003) study, Zairi (1994) identifies four essential types of benchmarking:

- 1- Competitive benchmarking: comparison with primary competitors.
- 2- Functional benchmarking: comparison with similar functions or processes within the same broad industry leaders as partners.
- 3- Generic benchmarking: comparison with similar functions or processes regardless of type of industry.
- 4- Internal benchmarking: comparison within the set up of one's own corporation (sister organizations or branch offices). It involves an evaluation of practices where knowledge about the processes is uncovered, usually by members of another department or group.

For Dow et al. (1999) benchmarking can be seen as a “hard” quality practice providing some systematic analysis of the achievement of quality goals. Benchmarking has also been demonstrated to be catalyst for the success of a number of other organization change interventions. For example business process re-engineering (Thor and Jarret, 1999) improved operational performance and general changes in organizational thinking and action (Cassell et al., 2001). Jarrar and Zairi (2000) state that benchmarking or best practice management is increasing being recognized as a powerful performance improvement effort for processes, business units, and for entire corporations. One of the most comprehensive list of success factors have been presented by chong and choi (2005), is benchmarking. This is mentioned in chong (2006) study.

Gore (1993) says that although schools need to develop their own approach, some aspects of TQM are very relevant, among these aspects is benchmarking. However, Lamprecht

(1993) emphasizes that the function of process improvement as a central factor in TQM in school and defines five components of TQM one of them is surveying your customer and benchmarking your competitors.

2.3.6 Self-assessment

Self-assessment highlights strengths and improvement opportunities, and drives continuous improvement (Oakland, 2000; Conti, 1999). Zairi (1994) considers self-assessment as an effective technique to measure the culture of quality within the organization. If a process of continuous improvement is to be sustained and its pace increased it is essential that an organization monitors on a regular basis what activities are going well, those, which have

stagnated, and what needs to improved. Self-assessment provides such a framework (Van der Weile et al., 1997).

In Bernardo and Biazzo (2003) study, international recognized “excellence models” for quality awards have proved particularly interesting as “they provide a definition and description of TQM which give a better understanding of the concept (Dale, 1999). The models that have the greatest conceptual value and most international importance in respect of their impact on self-assessment practices (Ritche and Dale, 2000) are the EFQM model, which is the foundation for the European Quality Award and the Performance Excellence Framework for the Malcolm Baldrige National Quality Award (MBNQA).

As mentioned in Baidoun (2003) study, Hakes (1998) reports the following benefits of self-assessment:

- 1- It produces an objective identification of current strengths and areas of improvement.
- 2- Provides a useful analysis of an organization's capability, which is of real interest to potential customers.
- 3- It helps to create a vision in order to counter an organization tendency to skip from one initiative to the next. Overall, self-assessment is predominantly used for strategic management and action planning, or as a basis for improvement projects.

In Svensson and Klefsjo (2006) study, self-assessment could be described as consisting of four phases (Svensson and Klefsjo, 2000; Klefsjo, 2003):

- 1- Plan phase, the organization discusses and decides why self-assessment should be performed, how and when the work should be done, who should be involved in the work and what tool should be used as a basis for describing the current ways of working in the organization.
- 2- Describe phase, the description of the organization's ways of working is obtained based on the chosen tool and the questions contained in that tool.
- 3- Analyze phase, scrutinized and strengths and improvement possibilities are identified.
- 4- Act phase, based on the strengths and improvement possibilities, an action plan is created for the improvement work.

As for educational institutions MBNQA or EQA can be used within self-assessment, which is a technique supporting many different core values. In particular self-assessment

will support “let everybody be committed” if many people in the organization are involved in the self-assessment process.

2.3.7 Cost of quality

Quality costing is a measurement technique that has often been used to help justify the adaptation of quality efforts to senior manager (Sinclair et al., 2001). According to Besterfield (1994) quality costs are those costs associated with the non-achievement of products or service quality as defined by the requirements established by the company and its contracts with customers and society. Simply stated, it is the cost of poor products or services.

In Baidoun (2003) study, Heizer and Render (2001) provide a definition for the Prevention, Appraisal, and Failure model as follows:

- **Prevention cost:**

Cost associated with all activities designed to prevent defects in products or service.

These include the direct and indirect costs related to quality training and education, pilot studies, quality circles, quality engineering's, quality audits, supplier capability surveys, render technical support, process capability surveys and new products reviews. These costs are used to build awareness of the quality program and to keep the costs of appraisal and failure to a minimum.

- **Appraisal costs:**

The costs associated with measuring and evaluating the product or service quality to ensure conformance. These include the cost of inspection, test or audit of purchases, manufacturing or process operations, and finished goods or service. The direct and indirect of the various tests and inspections to determine the degree of conformity are included in this category.

- Internal failure costs:

Costs incurred prior to the shipment of the product or the delivery of the service. They include scrap cost, spoilage, rework and overhead, failure analysis, supplier rework scrap, re-inspection and retest, down time due to quality problems, opportunity cost

Of products classified as seconds or other product downgrade.

- External failure costs:

The costs of discovered defects occurring after product shipment or service delivery.

These costs include warranty charges, customer complained adjustments, product recalls, allowances, and product liability, labor and travel associated with the investigation of customer complaints, test and repairs, warranty field inspection.

According to Agrawal and Mehra (2003) cost of quality must be kept at an acceptance level. If the cost is too high, it may have significant implications with regard to competitive pricing. Lee (2004) study about Chinese manufacturing companies focuses on the reduction of the cost that leads to competitive advantage in the global market.

Identifying strategies for the improvement of an educational institution can be more precisely done by analyzing problems and defect as opposed to education quality, hence, reduce cost. During an inspection on an educational institution, if no apparent problem

arises from its operation, then this institution is assumed to be running smoothly and is fulfilling its educational objectives.

Ngware et al. (2006) consider that school funds are an important input in school activities. Fund allocation and re-distribution among the many competing needs of the school should be optimal for TQM to be effective.

2.3.8 Quality control techniques

Statistical process control (SPC) techniques are used to detect assignable causes contributing to the variation in quality, to provide useful information for product design, and to determine process capability (Ahire et al., 1996). Statistical process control is one of the cornerstones of the model for TQM developed by European Center for TQM (Sinclair and Zairi, 2000). Although most statistical techniques have been used in the manufacturing environment, they can be used in non-manufacturing industry as the service sector (Xie and Gho, 1999). SPC helps quality-oriented firms to monitor quality variations and to investigate critical areas where improvement are needed (Deming, 1986).

Pareto charts, statistical process control, cause-and-effect diagrams, process charts, flow charts, multi-voting, affinity diagrams, brainstorming, and check lists are the quality tools most often used (Curry and Kadasah, 2002).

As mentioned in Baidoun (2003), Stenberg and Deleryd (1999) reported the following major advantages of SPC:

- 1- Lower rejection and quality costs.
- 2- Process and product management.
- 3- Better process comprehension.
- 4- Possibility to control the processes.
- 5- Quality insurance and higher tractability.

Another statistical quality control tools to focus on customer satisfaction is six-sigma (Munro, 2000). Harry and Schroeder (2000) in Munro (2000) define the six-sigma strategy as “a disciplined method of using extremely rigorous data gathering and statistical analysis to pinpoint sources of errors and ways of eliminating them. As for educational institutions, the above techniques are applicable.

Gap analysis continually evaluates the ability of SME or an organization to consistently design, produce, and deliver quality products and services. This would be achieved in the following three ways:

- 1- Continually evaluating the intent and degree of implementation, and the effectiveness of TQM implementation with respect to process and system management.
- 2- Continually assessing the achievement of process objectives to achieve policy finalization, deployment, monitoring and change.
- 3- Involving employees in the strategy formation, deployment, monitoring and change process (Dale, 1999; Sohal et al., 1998).

The core sub-criteria of GA are:

Process approach;

System approach to management;

Strategic quality process; and cultural change.

2.3.9 Customer management

As mentioned in Baidoun (2003), Claes Fornell (1994) in Kanji et al. (2000) says that customers are economic assets that do not appear on the balance sheet. Understanding and satisfying customer needs in superior fashion was advanced as far back as half a century ago (Nakata, 2002). Zairi (1994) considers measuring customer satisfaction as a cornerstone of TQM.

Quality function deployment (QFD) began more than 30 years ago in Japan as a quality system focused on delivering products and services that satisfy customers (Mizuno and Akao, 1994 in Politis 2003). QFD has major categories in Baldrige Quality Award (Besterfield et al., 1999). These categories are initially developed from Chase (1993) in order to grade how well organizations adhere to the methodologies of:

- QFD strategic planning so that the organization sets strategic directions and action plans to support QFD methodologies.
- Customer and market focus so that the organization determines customer requirements, expectations and builds customer relationships for their satisfactions.

- QFD information and development and analysis so that the organization selects information systems that support strategic planning.
- Human resource for on QFD so that the organization enables employees to develop and utilize their full potential to effectively deliver value to the customer.

Yang (2006) says that customer satisfaction is a basic goal of enterprises. If a firm cannot satisfy its customers, its competitiveness will be decreased. TQM practices have positive effects on customer satisfaction, and that the adoption of TQM is therefore an effective means by which enterprises can increase competitiveness. Implementation of TQM also benefited the organization's image, and improved the satisfaction and quality awareness of employees.

As for educational institutions customer satisfaction is often used synonymously with quality, and quality is frequently defined as meeting and exceeding customer expectation. One of the critical steps in TQM implementation is the step of customer identification. Customers of educational institutions are students, parents, employers, society, local community, academic disciplines, and staff (Sirvanci, 2004).

Chapter three: Research methodology

3.1 Introduction:

This chapter contains definition of research, types of research methodologies, the selected methodology, survey design, questionnaire, sampling process, data collection and analysis of factors.

3.2 What is research?

Research can be described as a systematic and organized effort to investigate a specific problem encountered in the work setting that needs a solution (Sekaran, 2000). For Sekaran (2000) research comprises a series of steps designed and executed, with the goal of finding answers to the issues that are of concern to the manager in the work environment. This means that the first step in research is to know where the problem areas exist in the organization, and to identify as clearly and specifically as possible, the problems that need to be studied and resolved.

So research is an organized, systematic, data based, critical, objective inquiry or investigation into a specific problem, undertaken with purpose of finding answers or solution to it. (Sekaran, 2000). For Nachmeias et al., (1981, 1987), research methodology is: "A system of explicit rules and procedures for the research process,

conformity of these rules and procedures are evaluated for claims of knowledge. Claims are rejected if they do not conform".

The aim of this research is to know how or whether TQM can be implemented in Al-Iman schools based on existing gap and critical factors for successful implementations (that is measurement of "what" needed").

According to Chany (1994) detailed explanation of "how it is important to understand best practices, not only the measurement of "what" is needed.

3.3 Types of research methodologies:

3.3.1 Quantitative Research Methods:

Through this method data generally gathered through structured questions. It involves finding answers whenever there is a need to determine what, how many, where and when (Higson, 1987).

Large mail surveys using a standardized questionnaire is a major tool (Instrument) used in quantitative methodology in the field of management research (Brannon et al.1979; Sekaran, 2000).

3.3.2 Qualitative Methodology

By this method data can be generated from the broad answers to the specific questions in interview, from responses to open – ended questions in a

questionnaire, or through observations, or from already available information gathered from various sources (Sekaran, 2000).

Qualitative Techniques are not concerned with measurement, they are more responsive to needs of respondents and to the nature of the subject matters enabling the researcher to understand the situation in the first hand (Walker, 1985) Wong, 1992; Brymann, 1992).

3.3.3 Triangulation Methodology

According to Jick (1997) and Fielding and Fielding (1986), Triangulation Methodology is seen as complimentary qualitative and quantitative methodologies rather than competing approaches. Denzin (1970) defines triangulation as the combination of methodologies in the study of the same phenomenon.

Sekaran (2000) emphasis the need for multi-methods of data collection as almost all data collection methods have biases associated within them, therefore collecting data through multi-methods and from multiple sources lend rigor to research. If the responses collected through interviews and questionnaires are strongly correlated with one another, then we will have more confidence about the goodness of the collected data.

3.4 Methodology Selected

Triangulation methodology is the most suitable research methodology to be used in this research because it consists of multiple methodologies. Also, this research methodology is used in other studies in TQM in particular (Thiagaragan, 1996; Ali, 1997; Baidoun, 2000).

3.5 **Survey Design, Questionnaire and validity of Instruments**

The core of the present study is the creation of questions to be used to extract desired information from respondents. Good question should have three attributes: Focus, brevity and clarity. Every question should focus on a single, specific topic. Survey questions should be as brief as possible and must be completely understood by all respondents (Mehra and Rhee, 2004).

The existing TQM-related literature was reviewed to ensure a representative collection of quality management elements that are applicable in the classroom, and then construct a questionnaire. Discussions of various members, students, and managers also helped in the creation and phrasing of the questions. The questionnaire developed by Thiagaragan (1996) is used to identify the critical quality factors as perceived by respondents. Baidoun (2003) also used this questionnaire.

The questionnaire consists of 31 questions that cover the Deming 14 points for applying TQM in education. It is based on a measurement scale, to solicit

respondents to explicitly identify a quality factor as critical or not, and which permits judgments to be made.

Ten copies of the questionnaire were distributed to test the clarity of the questions, and amend the questionnaire according to the feed back provided from this pre-study sample.

Respondents were asked to rate each of the quality factors (labeled as quality-related factor in the questionnaire) as to its level of importance to a successful implementation of quality management processes at their schools, using the following criteria:

* Critical: Factors that you feel are critical and absolutely essential. The process stands a good chance of ending in failure once these factors are not part of the quality management process.

* Important: Factors that you feel are important but not absolutely essential. The process will survive if they are not addressed, but the school may experience some unnecessary delays to its quality management process until these factors are eventually addressed.

* Minor importance: Factors that your feel of minor importance. These factors will not seriously affect the success or failure of the quality

3.6 Sampling and Data Collection

130 teachers and managers were questioned in this study, from whom 125, responses were obtained. 120 of them are valid. This means that around 92% of respondents were valid.

3.6.1 Factor Analysis

To determine which factors that are critical for implementing TQM in Al-Iman schools, the 31 items in the questionnaire were analyzed by finding the Variation Ratio (VR) which was calculated using the following simple formula:

$VR = 1 - \text{Frequency Distribution of the mode}$. This ratio shows the degree of consensus around each quality factor.

Also, these 31 items in the questionnaire were analyzed using the Index of Diversity. In mathematical terms:

$$\text{Index of diversity} = 1 - (p_1^2 + p_2^2 + \dots + p_k^2)$$

Where P_k is the proportion of responses of category K and K is the number of categories.

The Index of diversity is a measure of agreement amongst respondents concerning the response distribution of each of the quality factors.

A low Index value means general agreement on the importance of a quality factor, while, high Index means general disagreement on the importance of the quality factor. This means that an Index value close to zero will imply near unanimity. A

value close to 0.5 represents equal concentration around two large categories.

From the Index of Diversity, the comparative criticality Index for this study is found as:

$$CCI = (\text{Index of Diversity}) / (\text{maximal value})$$

$$\text{Maximal Value} = (K-1) / K \quad \text{which equals } (3-1) / 3 = 0.667.$$

This provides a scale that ranges between 0 and 1, where 0 represents unanimity in returning the quality factor as critical, and 1 means that the quality factor is the least critical (Baidoun, (2003).

Chapter four: Results and findings

4.1 Analysis of Responses

During the analyses of the questionnaire and based on the literature review, many researchers stratified the hierarchal structure of the critical quality factors in the process of building there to some implementation models such as Thiagarajan, et al. (2001), Ali (1997), Baidoun (2003). All these researchers stratified the quality factors into three hierarchal tier of importance to develop their models.

Baidoun(2003) and Thiagarajan, and Zairi (1998) stratified the quality factors applying the model category in the identification process of the quality factors-the variation ratio to rank the criticality of the identified quality factors-and used the variation ratio and the range as the objective criteria for three-tier stratification of the quality factors. A three-tier structure is appropriate for this study objective.

Stratification is to identify quality factors with regard to their degree of impact on the successful implementation of TQM applying the prioritization process of these quality factors according to their perceived criticality.

Among the 31 items of questionnaire, 19 quality factors are assured to be critical to apply TQM. These 19 quality factors are stratified into three tiers in many researches from the literature (Baidoun, 2003; Thigarajan and Zairi, 1997) and the same process will be followed in this study.

Table 1 below shows the computed Variation Ratio and the Index of Diversity for the 19 quality factors for Al-Iman schools.

Quality Factor	Variation Ratio	Index Of Diversity	CCI
Q1	0.34	0.49	0.73
Q7	0.53	0.56	0.84
Q2	0.5	0.54	0.81
Q27	0.26	0.4	0.6
Q20	0.5	0.57	0.85
Q4	0.39	0.52	0.78
Q3	0.32	0.44	0.66
Q30	0.73	0.66	0.99
Q9	0.48	0.45	0.67
Q15	0.45	0.57	0.85
Q6	0.44	0.57	0.85
Q12	0.38	0.49	0.73
Q16	0.48	0.6	0.9
Q8	0.66	0.66	0.99
Q19	0.73	0.59	0.88
Q21	0.52	0.61	0.91
Q25	0.68	0.64	0.96
Q31	0.52	0.6	0.9
Q28	0.62	0.55	0.82

4.2 Stratification of the Identified critical quality factors

By finding the variation ratio and the index of Diversity, the extent of consensus in rating quality factors is critical. The sorting and ordering of the 19 critical quality factors provide a hierarchal structure in descending order of criticality, which is presented as follows:

Critical Quality Factors Stratified in Tier 1:

- Responsibility of senior executive for the creation of shared mission, focus on it and stick to it through constancy of purpose.
- Adopt the philosophy by sing quality principles in place to manage the school quality journey.
- Commitment of senior executive to quality and customer satisfaction.
- Formal documented quality management system in place.
- Problem solving and continuous improvement processes based on facts and systematic analysis.
- Clear, consistent communication of mission statement and objectives defining quality values, expectations and focus.
- Comprehensive policy development and effective deployment of goals.
- Comprehensive identification of customers and customer needs and alignment of processes to satisfy the needs.
- The entire workforce understands, and is committed to the visions, values, and quality goals of the organization.

Critical Quality Factors Stratified in tier 2:

- Training for employees to improve communication skills, effective meeting skills, empowerment and leading skills.
- Effective top-down and bottom-up communication.
- Supervisors, unit heads and divisional managers assume active roles of continuous improvement employees.
- Training for employees in problem identification and solving skills, quality improvement skills and other technical skills.
- The entire organization understands that each individual and each process has internal customers and suppliers.
- Application of total quality approach to the management of support services and business processes.
- The use of customer surveys and feedback process, and tracking of other key measures to assess customer satisfaction.
- Systematic review and analysis of key process measures that have a direct and indirect impact on value-addition to customer satisfaction.

Critical quality factors stratified in tier 3:

- Cost of quality process to track rework, waste, and rejects for continuous improvement.

- Reliance on reasonable suppliers who are evaluated and selected based on their capability and commitment to product and service quality, and value for money. After stratifying the 19 quality factors into three tiers, the comparative criticality index will be found for Al-Iman schools. The following table shows the CCI for Al-Iman schools.

Index:

Value Quality Factor

Tier 1 Critical Quality Factors:

- | | |
|------|--|
| 0.73 | Senior executives assume active responsibility for evaluation and improvement of management system, and leading quality drive. |
| 0.84 | Elements of quality management structure in place to manage the organization's quality journey. |
| 0.81 | Visibility of senior executive commitment to quality and customer satisfaction. |
| 0.9 | A formal documented quality management system in place. |
| 0.66 | Clear, consistent communication of mission statement and objectives defining quality values, expectations and focus. |
| 0.78 | Comprehensive policy development and effective deployment of goals. |
| 0.85 | Problem solving and continuous improvement processes based on facts and systematic analysis. |
| 0.82 | Comprehensive identification of customers and customer needs and alignment of process to satisfy the needs. |

0.67 The entire workforce understands, and is committed to the vision, values and quality goals of the organization.

Tier II Critical Quality Factors

0.85 Training for employees to improve interactive skills (such as communication skill, effective meeting skills, and empowerment and leadership skills).

0.85 Effective top-down and bottom-up communication.

0.73 Supervisors, unit heads and divisional managers assume active roles as facilitators of continuous improvement, coaches of new methods and leaders of empowered employees.

0.85 Training for employees in problem identification and solving skills, quality improvement skills and other technical skills.

0.99 The entire organization understands that each individual and each process has internal customers and suppliers.

0.88 Systematic review and analysis of key process measures that have a direct or indirect impact on value-addition to customer satisfaction.

0.91 Application of total quality approach to the management of support service and business process.

0.96 Cost of quality process to track rework, waste, rejects and for continuous improvement.

Tier III Critical Quality Factors:

- 0.89 The use of customer surveys and feedback process, and tracking of other key measures to assess customer satisfaction.
- 0.60 Reliance on reasonably few dependable suppliers who are evaluated and selected based on their capability and commitment to product and service quality, and value for money.

4.3 Discussion

As stated before, the comparative criticality index helps to show the degree of unanimity of each critical quality factor. The completed CCI for Al-Iman schools which is found in table 2 shows that there is a large gap and there is a need to work hard in order to apply TQM in these schools. When the CCI approaches zero it means that there is an unanimity of consensus achieved, and when the CCI approaches 1, it means that there is no consensus or the critical quality factor is not applied.

By analyzing each critical quality factor in the three tiers for Al-Iman schools the researcher found that:

Senior executive and top management must create a constancy of purpose and adopt new philosophy by creating a shared vision, focus on it and stick to it, and use quality principles in Al-Iman schools quality journey. Also, the top management team must do their best to achieve customer satisfaction by maximizing employee's commitment and understanding of the mission, values

and goals of the schools, management by facts to solve problems, and continuous improvement.

Previous studies such as (Baidoun, 20003; Ali et. al., 1996; Zhan el al, 2000; Thiagarajan, 1996) assume that the critical quality factor (senior executive assume active responsibility for evaluation and improvement and management system, and leading quality drive) as absolutely essential to the success of the implementation process. But in this study around 27% of Al-Iman schools respondents assumed that this critical quality factors as absolutely essential. This factor is also assumed very important in EQA, MBNQA and Deming's prize.

From the results of the questionnaire, it appears that there is a big documentation problem with Al-Iman schools. Since only 10% of Al-Iman Staff who were questioned assume that the critical quality factor (formal documented quality management system in place) is essential for applying TQM. James (1996) considers an accredited quality management system as a major pillar supporting the development and operations of TQM in an organization.

In order to achieve customer satisfaction, there should be a comprehensive identification of customers and customer needs and alignment of process to satisfy the needs, and a clear consistent communication of mission statement and objectives defining quality values, expectations and focus. This item must work in harmony with the development of a comprehensive policy and effective development of goals in the essence of strategic quality planning by top management (Deming, 1986); Oakland, 2000). To achieve the commitment to the vision, values and quality goals by the entire

work force through effective communication, the quality journey of the organization (Al-Iman schools) must be managed.

For critical quality factors that are stratified in tier 1 which are assumed to be important but not absolutely essential, Al Iman schools top management should maximize employees commitment and involvement starting by middle management i.e. supervisors, unit heads, and divisional managers assuming active roles as facilitators of continuous improvement, coaches of new methods, mentors and leaders of empowered employees. This leads to a common understanding by the entire organization that each individual and each process has internal customers and suppliers (Oakland, 2000).

Training for Employees to improve interactive skills (such as communications skills, effective meeting skills, empowered and leadership skills). Moreover, training employees to identify problems and problem solving skills, quality improvement skills, and other technical skills must be taken into consideration from senior executives of Al-Iman schools if they want to apply TQM successfully, because the results show that all these factors are nearly absent in these schools.

From the results of Al-Iman schools, it's found that the feed back is missed (~12%). So the organization makes a systematic review and analysis of key process measures that have a direct or indirect impact on value-addition to customer satisfaction. Moreover, the school must apply total quality approach to the management of support service and business process to assess customer satisfaction. (Mc Adam and Kelly, 2002).

As for tier three critical quality factors, these items come in the operational level for Al-Iman schools. Therefore, schools should use systematically customer survey and feedback process, and other measures to assess customer satisfaction.

The school should also minimize those defects as possible, in other words, to control the drop outs of students so as to minimize the cost and work hard for continuous improvement.

These 19 critical quality factors are occurred with many Quality Awards principles (MBNQA and EQA) as follows:

- 1- Top management commitment and involvement by creating shared mission, adopt new philosophy.
- 2- Employee involvement and empowerment: Training for employees and empowering them, give them learning opportunities and involvement to the vision, values and quality goals.
- 3- Continuous improvement: improving constantly and forever the process in a school system.
- 4- Importance of external customer focus and understanding the internal customer concept.
- 5- Focus on suppliers based on capability and commitment to quality.
- 6- System for measuring key indicators such as cost of quality and customer survey.

4.4 Conclusion

The comparative criticality index (CCI) that was found for each of the 19 critical quality factors for Al-Iman schools help to show the degree of implementation of each critical quality factor in the way to apply TQM. As stated before when CCI approaches

zero, this means that the degree of the implementation is high and when it approaches 1, means that the implementation is low (see figure 1) which follows :

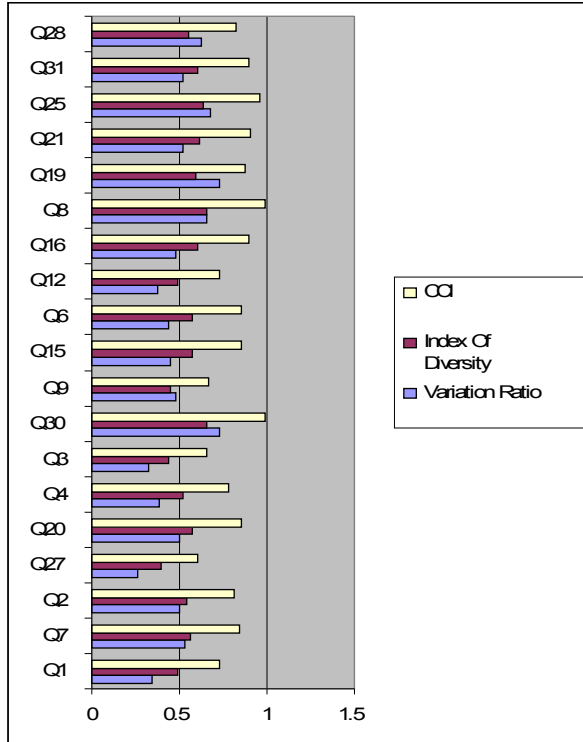


Figure 1 shows a simple and practical gap analysis chart. Critical quality factors are listed on the y-axis with relative to their criticality from the top to the bottom. The CCI values representing the bench mark scores are incorporated on the chart using x-axis. This chart shows that the gap is very large in Al-Iman schools. So, if these schools want a successful implementation of TQM, they should work hard on continuous improvement for these critical quality factors.

4.5 Guide lines for total quality implementation in Al-Iman schools

The Principles of Deming have been translated for education (Ornstein and Lunenburgh in Koksai, 1998): Many schools have endeavored to implement these principles through TQM and the outcome of this procedure has proved to be quite promising, as at Mt. Edgecumbe, a school in Alaska. The following is the list of Deming's principles translated to TQM:

1. Creating continuity in the objectives in order to maintain the improvement of the services:

The Goal of educational system must be shared and credited by all the members of the institution, the most prominent obstacle in this process is viewed as the political fluctuations and changing governments.

2. Sympathizing with a new "Total Quality" philosophy and "Continuous Development":

This principle demands that the tasks and priorities of schools be reviewed. Now that the primary target for the student is "achievement", the current methods, materials and learning environments can be replaced with the new ones. When the total success of the students is considered, individual discrepancies must be dealt with special care. The educators and administrators must be informed about leadership for change.

3. Eliminating addiction to total control in order to grasp quality:

Just as the meaningless and wasteful method of "product control" at the end of the assembly line at factory, the attempt of correcting the wrong items those are somehow

learned or acquired is equally wasteful. There is no harm in trying to teach everything in the most proper way at the very beginning. The standardized testing, total measurement and classification in which students are taken as race-horses are only a technique of evaluating the students within a limited direction. On the contrary, schools are there to seek for ways to produce qualified performance, not new measurement techniques.

4. Eliminating the addiction to assessment of achievement through testing:

It is necessary to abolish a system that classifies the students as "successful" or "unsuccessful", which has a real bad impact upon students.

5. Improving the service and production systems within the organization in order to increase quality and productivity:

In the new understanding of teaching process, everyone, including those who are handicapped will have to be taken into consideration and the necessary grounds for these people will be obtained from Howard Gardner's (1994) "Multiple Intelligence" approach that enables us to look at people of various capabilities in the most productive way. Besides, the educators can seek various ways to enroll the handicapped and the genius in the educational process in the classroom. There must be a line of communication among the schools that the students attend so that the system should remain cooperative.

6. Providing hands-on vocational experience:

The educators must be trained in the following three fields:

- The new techniques and processes that are being developed or tested.
- The new measurement and evaluation methods.

- The principles of the new administrative system in education.

Teacher education in our schools has long been neglected. Apart from the seminars and on-the-job training programs that are offered in summer months by the ministry of Education, nothing new has been done to improve the skills of the teachers (Koksal, 1994).

7. Establishing leadership:

According to Deming and Senge, the method of the system and doing it is the responsibility of the ones who are managing the system, not the ones who are working for it (Koksal, 1988). The first condition for good leadership is to abate the multitude and diversity of the voices within the system through directing all the employees towards the goals in a perfect manner. This can be plausible in industry but a bit impossible to implement in educational institutions where there are many teachers and students.

8. Eliminating the fear of failure:

Fear is the worst barrier that hinders the growth of any system. The heads of departments and the students at schools usually refrain from voicing their problems for fear of being blamed or underestimated. It is the task of the principal to provide opportunities for interaction where the proposals of the teachers are evaluated or even rewarded. The basic philosophy that underlines TQM is the assumption that all the individuals are willing to do their best. The efforts for growth ought to focus on improving the output and the processes, not on accusing individual failure “If there is no quality, it is a system of failure”, says Deming (Deming in koksal, 1998).

It is again the administrator's responsibility to create an environment in which the individuals are trying to perform the best.

9. Eliminating the barriers among the departments and the teachers:

This principle is closely connected with the first principle listed above. Groupings at schools resulting from specialization in the field are usually functional. There is an absolute need for a strong solidarity among the members of the community in order to actualize total Quality at the highest level; this can only be achieved when the academic staff, administrators, personnel working at the dining hall and program developers function as a team.

10. Eliminating the slogans, sermons and numerical quotas:

Slogans, sermons and numerical objectives create a "could have done better if he had studied harder" sort of regret. And this, instead of motivating the teams, demoralizes the teams and destroys their willingness to perform. It is again the responsibility of the administrator to eliminate these expectations within the system that lead to conflicts. Low productivity at a school is the result of the negative aspects that already exist within the system rather than the teachers or the students (Basik in Koksal 1998).

11. Eliminating the quotas that are set by the administrators or the teachers :

There are too many applications that curtail and even annihilate our innate drive named as "intrinsic motivation" to learn by directing our capabilities towards external rewards (extrinsic motivation), For example, the evaluation systems, rewards, numerical standards and administration through quotas are what Deming names as "destructive forces". The following is a list of reasons that hamper achievement:

- Randomly and superficially prepared objectives.
- Due to the limitations brought by the objectives, students targeting minimum achievement.
- Rewards that ruin team work.
- As a result of all these, a diversification that emerges in performance.

Educational leaders are supposed to give a productive advisory assistance instead of these methods mentioned above.

12. Eliminating the factors that prevent the students from being proud of their achievements:

Human beings are fond of producing something that is worth nothing and praising. The elimination of communication gaps, superficiality, annual achievement lists and indifferent counseling result in achievement.

13. Offering a rich educational model and preparing an upgrading program:

The principal and teachers can be given courses dealing with new subjects that have started to creep into educational administration, such as “group dynamics”, “reaching consensus” and “joint decision-making”. School personnel will come to understand that an increase in the achievement and productivity of the students shall bring more responsibilities.

14. Mobilizing everyone to call possibilities in order to be concerned within the system and utilizing the cost of change:

Schools administration and related units ought to prepare a plan for the course actions. This plan is to involve everyone in the school and in the system. TQM is based on the

principle of continuous organizational development with a team spirit (Johnson in Koksal 1998).

Chapter five: Summary and Recommendations

5.1 Introduction

The concept of total quality management (TQM) became popular, first in Japan in the early fifties then in the U.S in the eighties.

Implementing TQM started in industries and extended to services, including hospitals, banks, transportation. One of the most recent implications of TQM is in education, both higher education and school education.

Hundreds of schools started to implement TQM, in United States, Britain and Australia.

The results were tremendous in improving educational systems with direct impact on the targeted schools, where we can mention many indicators

- Lower drop outs
- Better results for students
- Higher percentages of university students are those who graduated from schools implementing TQM.

5.2 Conclusion

In the Palestinian territories the idea of TQM is new, with more emphasis on industry, there is lack of experience and research of implementing TQM in education.

The first formal step in this field was initiated by al-Iman schools, when last year a part time expert was hired to implement the requirements of ISO9000 as a step towards TQM.

It was a bad timing for these schools, with high level of uncertainty and instability resulted from building the Israeli annexation wall.

The wall is a few meters from the head quarters of the administration and 4 of the schools in Dahiat Al Barid and Bir Nabala.

The final shape of the area is not clear, which school will be inside or outside the wall, who are the students and staff who are allowed and can reach there is not clear.

The first requirement of TQM is stability and long term planning, while in this case it's difficult to plan one year in advance.

Returning to the results that were revealed by this study. Al-Iman schools should start from scratch if they want to apply TQM principles. There is a very large gap in all the items that are considered to be critical and important to TQM implementation. As an example the CCI which shows the degree of implementation nearly approaches 1, which means that there is no implementation. TQM can be a powerful tool in the educational setting even though it was developed with manufacturing processes in mind. The key elements to a successful implementation are:

- 1- Gain the support of every one in the chain of supervision.
- 2- Identifying customers.
- 3- Focus on refining the process.
- 4- Use Deming's 14 point as a guide and checklist during the implementation effort.

5.3 Findings

It is clear that there is a wide gap that should be covered in order to apply TQM in Al-Iman schools. They should take into account the awareness and commitment of Everyone, set a clear mission, implements a system planning approach, focus on teamwork and empowerment, focus on mastery learning, manage by measurement, develop students TQM skills, and set a transformation plan.

5.4 Recommendations

If Al-I man schools want a successful implementation of TQM principles they should follow these steps:

- 1) Understand well the implications of the wall over these schools, including students, staff and management, as a prerequisite to explore future potentials, whether to expand or decrease
- 2) Study and analyze the five Cs which formulate the signature of total quality (customer, culture, cost, capacity for continuous improvement and creativity).

Customer:

Customer and customer satisfaction is a key issue in TQM. It is very clear in industry when you produce a tangible product, but more complicated in education, school is not a factory and student is not a product. Analyzing and understanding deeply the supplier-customer chain is a complicated issue in education. In the kindergarten the customers are parents who pay and decide where to register their children. Elementary schools are a second customer in this case, while they are suppliers for secondary schools, where parents are not the sole customers. And the students have more role as customers. We

also have universities as customers at this stage, where students become the major customers and labor market is becoming a customer too.

Each step has its internal and external customers, for management decision teachers can be customers while they are main suppliers of education, which can be a process or product.

Culture:

Successful change strategy involves creating new culture based on trust and participation in decision making.

Cost

To define and allocate sufficient resources. In the short run there will be higher cost regarding time of the staff, training and motivating them for more commitment.

Capacity:

The role of leaders in TQM is essential, where it is necessary not only to change, but also to instill the change process itself. Top leadership is the driving force behind success or failure.

Creativity:

One of the major implications of TQM in education is to shift from teaching to learning, and to make learning more joyable, which needs a revolution in our situation where educational system is based on "filling information" and "setting

- grades". This change will not occur alone as it is not an easy one; the key for it is team work, innovation and training.
- 3) The third step is to hold a total staff meeting with parents, board members and selected students, where a dynamic overview of TQM elements can be done and clear commitment from school's board and principal that they fully support TQM efforts.
 - 4) Set an interim plan to achieve:-
 - a- Create and maintain a constancy of purpose toward improvement of students and service. Aim to create the best quality students capable of improving all forms of processes and entering meaningful positions in society.
 - b- Embrace the new philosophy. Educational management must awaken to the challenge, must learn their responsibilities, and take on leadership for change.
 - c- Work to abolish grading and the harmful effects of rating people. Focus on the learning process, not the rating process.
 - 5) Cease dependence on testing to achieve quality. Eliminate the need for inspections on a mass basis (standardized achievement tests) by providing learning experiences which create quality performance; learning experiences that encourage creativity and experimentation.
 - 6) Work with the educational institutions from which students come. Minimize total cost of education by improving the relationship with student sources and helping to improve the quality of students coming into your system.

- 7) Improve constantly and forever the system of student improvement and service to improve quality and productivity in personal life and community.
- 8) Institute continuous training on the job for students, teachers, classified staff and administrator; for all people connected to the human organization or community.
- 9) Institute leadership. The aim of supervision (leadership) should be to help people use technology and materials to do a better job and set the pace driving human creativity.
- 10) Drive out fear, so that everyone may work effectively for the school system.
Create an environment which encourages people to speak freely and take risks.
- 11) Break down barriers between departments, People in teaching, special education transportation, accounting, food service, administration, curriculum development and research must work as a team. Develop strategies for increasing the cooperation among groups and individual people. Planning time will facilitate this dynamic.
- 12) Eliminate slogans, exhortations, and targets for teachers and students asking for perfect performance and new levels of productivity. Exhortations create adversarial relationships. The bulk of the causes of low quality and low productivity belongs to the system and this lies beyond the control of teachers and students.
- 13) Eliminate work standards (quotas) on teachers and students (e.g., raise test scores by 10%; lower dropouts by 15%). Substitute leadership, the eternal drive for quality, and joy of learning.

- 14) Remove barriers that rob the students, teachers and management (principals, superintendents and central office support staff) of their right to pride and joy of workmanship. This means abolition of the annual or merit rating and of management by objectives. The responsibility of all educational managers must be changed from quantity to quality.
- 15) Institute a vigorous program of education and self-improvement for everyone.
- 16) Put everybody in the community to work to accomplish the transformation. The transformation is everybody's job.

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Appendix A
Survey questionnaire

Please rate the following quality-related factors as to their level of importance to the successful implementation of the quality management process in your organization, by circling the appropriate column- "1", "2", "3"- as the following:

1- CRITICAL

Factors that you feel are critical and absolutely essential. The process stands a good chance of ending in failure if these factors are not part of the quality management process.

2- IMPORTANT

Factors that you feel are important but not absolutely essential. The process will survive if these are not implemented, but the organization will experience some unnecessary delays to its quality management process until these factors are eventually addresses.

3- MINOR IMPORTANCE

Factors that you feel are of minor importance. These factors will not seriously affect the success or failure of the quality management process.

	1- Critical	2- Important	3- Minor importance	Responses
Quality factor				
Q1- Senior executives assume active responsibility for evaluation and improvement of management system, and leading quality drive.				1 2 3
Q2- Visibility or senior executive commitment to quality and customer satisfactions.				1 2 3

Q3-	Clear, consistent communications of missions statement and objectives defining quality values, expectations and focus.	1	2	3
Q4-	Comprehensive policy development and effective deployment of goals.	1	2	3
Q5-	Top management push decision-making to the lowest practical level.	1	2	3
Q6-	Effective top-down and bottom-up communications.	1	2	3
Q7-	Elements of quality management structure in place to manage the organization's quality journey.	1	2	3
Q8-	The entire organization understands that each individual and each process has internal customers and suppliers.	1	2	3
Q9-	The entire workforce understands, and is committed to the vision, values, and quality goals of the organization.	1	2	3
Q10-	The use of employee surveys and tracking of other key measure to assess employee of, and involvement in the quality initiatives.	1	2	3
Q11-	Employee suggestion scheme in place, with target time scales for management response.	1	2	3
Q12-	Supervisors, unit heads and divisional managers assume active roles as facilitators of continuous improvement, coaches of new methods, mentors and leaders of empowered employees.	1	2	3
Q13-	Employee's union support of the organization's quality initiatives.	1	2	3
Q14-	System for recognition and appreciation of quality efforts and success of individuals and teams.	1	2	3
Q15-	Training for employees to improve interactive skills (such as communication skills, effective meeting skills, and empowerment and leadership skills).	1	2	3
Q16-	Training for employees in problem identification and solving	1	2	3

	skills, quality improvement skills and other technical skills.			
Q17-	Informal benchmarking and other forms of information acquisition and sharing with organizations in different sectors and industries to identify best practices for improvement.	1	2	3
Q18-	Competitive benchmarking made against primary competitors.	1	2	3
Q19-	Systematic review and analysis of key process measures that have a direct or indirect impact on value-addition to customer satisfaction.	1	2	3
Q20-	Problem-solving and continuous improvement processes based on facts and systematic analysis.	1	2	3
Q21-	Application of total quality approach to the management of support services & business processes.	1	2	3
Q22-	The use of self-assessment tools and other mechanisms to track and improve performance gaps in the implementation and effectiveness of systems processes and practices.	1	2	3
Q23-	A team approach (such as quality circles, cross-functional teams) in problem solving and continuous improvement.	1	2	3
Q24-	The use of SPC (Statistical process control) variability and improve processes.	1	2	3
Q25-	Cost of quality process to track rework, waste, reject, and for continuous improvement.	1	2	3
Q26-	A formal documented quality management system in place.	1	2	3
Q27-	Reliance on reasonably few dependable suppliers who are evaluated and selected based on their capability and commitment to product and service quality, and value for money.	1	2	3
Q28-	Comprehensive identification of customer and customer needs and alignment of process to satisfy the needs.	1	2	3

- Q29- The use of customer surveys and feedback process, and tracking of other key measures to assess customer satisfaction.
- Q30- Zero defects as the quality performance standard.
- Q31- Long-term relationship and working partnership with key suppliers.

1	2	3
1	2	3
1	2	3