BIRZEIT UNIVERSITY

Assessing Awareness & Level Of Understanding of TQM Success Factors: Benchmarking Critical Factors For TQM in Jawwal

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ملخص

أجريت هذه الدراسة لتعريف النشاطات الرئيسية لإنجاح تطبيق إدارة الجودة الشاملة في شركة جوال. وتم توزيع إستبيان على جميع مدراء شركة جوال لتقييم حدود الوعي ومستوى الإدراك لعوامل إدارة جودة شاملة ناجحة في الشركة، وبلغت نسبة الإستجابة لهذا الاستبيان 98%.

كان الهدف الرئيسي والأول من إجراء الإستبيان جمع المعلومات حول مدى إدراك مدراء جوال لعوامل الجودة الرئيسية لإنجاح تطبيق إدارة جودة شاملة. ثانيا ، يهدف الإستبيان لخلق قاعدة للقياس مع التجارب الأخرى للتعرف على المجالات ذات الأهمية القصوى و القليلة. ثالثا، يهدف الإستبيان لقياس كيفية تصنيف العومل الرئيسية لإنجاح خطة إدارة الجودة الشاملة من قبل مدراء جوال.

وكان قياس العوامل الرئيسية الإثني وعشرين من خلال الدراسة الفلسطينية والدراسة الأصلية لراميريز ولوني، باستعمال نتائج دراساتهم، مرجع مفيد لتقييم مستوى الوعي والإدراك لتطبيق إدارة الجودة الشاملة في شركة جوال.

كما اظرت عملية القياس بان مستوى الوعي والإدراك لنجاح إدارة الجودة الشاملة في شركة جوال منخفض بالمقارنة مع إجابات إستبيان الدراسة الأصلية ومرتفع بالمقارنة مع إستبيان الدراسة الفلسطينية.

Abstract

This study was carried to identify activities which are critical for the success of TQM implementation in Jawwal Company, a questionnaire was distributed throughout all Jawwal managers to assess the awareness and level of understanding of TQM success factors in Jawwal, with a response rate of 98%.

The major purpose of the survey is to collect data on how Jawwal managers perceive the critical quality factors of successful TQM implementation. Secondly, the survey aims at creating a basis for benchmarking with other experiences to identify areas of over and under emphasis. Thirdly, to measure how Jawwal managers rank the critical factors for successful implementation of TQM initiatives.

Benchmarking the twenty two critical quality factors across the Palestinian study and the original study by Ramirez and Loney, using the result of their studies, was a useful reference to assess the level of awareness and understanding of TQM implementation in the Jawwal Company.

Moreover, the Benchmarking process revealed that the level of awareness and understanding of TQM success factors in Jawwal Company is low compared to the responses of the original study's sample, and is high compared to responses to the Palestinian study's sample.

Chapter 1

Introduction

1.1 Introduction

TQM is a process and a journey, not a destination. It is a philosophy, culture, and way of doing business. It focuses primarily on total satisfaction for both the internal and external customers within a management environment and seeks continuous improvement for all systems and processes. The philosophy is based on an intense desire to achieve business excellence (Ho, 1994).

"Total means applying to every aspect of work, from identifying customer needs to aggressively evaluating whether the customer is satisfied. Quality means meeting and exceeding customer expectation. Management means developing and maintaining the organizational capacity to constantly improve quality" (Cohen & Eimicke, 1994, p. 450). It is important to remember that the ultimate measure of a successful TQM implementation will be how well the customers' needs are met (Gustafson & Hundt, 1995).

To be successful in the market place, each part of the organization must work properly together towards the same goals by recognizing each person and each activity.

To improve competitiveness, organizations are looking for a higher level of effectiveness across all functions and processes and are choosing TQM as a strategy to stay in business. The increased awareness of senior executives, who have recognized that quality is an important strategy issue, is reflected as an important focus for all levels of organization (Oakland, 2000). This requires defining and implementing several factors (identified as quality factors in this thesis). These quality factors include top management commitment and involvement, employee empowerment and culture, these factors are known by some writers as the soft aspects of management while the hard aspects include factors such as improvement tools and techniques and system (Wilkinson, 1992; Oakland, 2000).

However, these quality factors for successful implementation of TQM cited in the literature are not formulated on the basis of empirical researches (Black, 1993; Black and Porter, 19996; Thiagarajan et al., 2001).

Factors such as top management commitment and leadership, people management, policy and strategy, partnership and resources management and management of processes are generally considered as the initial inputs to the implementation of TQM.

The purpose of this thesis is firstly identifying the critical quality factors of TQM in Jawwal Company as to the level of perceived importance of each of the twenty two quality factors required for the success of TQM implementation in Jawwal Company and secondary to stratify these factors in a hierarchical structure in descending order of criticality.

1.2 Statement of the Study Problems

1.2.1 Lack of empirical studies.

The bulk of the Total Quality Management literature is based on the fact that very few authors, writers or researchers wrote about and assessed the awareness and level of understanding of TQM success factors.

There have, however, been very few pieces of research that have studied the awareness and level of understanding of TQM success factors. One of those few studies is the study of Ramirez and Loney (1993), who identify activities which are critical for the success of TQM implementation. That study target ninety two organization and various quality experts.

There is a huge lack of information about the nature and stage of TQM implementation in regions including the Middle East.

The only study that addressed TQM implementation and its quality critical factors in Palestine was conducted by Baidoun (2003) that aimed to identify critical success factors for successful implementation in the Palestinian context.

So that there are no previous similar studies of assessing awareness and level of understanding of TQM success factors in Palestine in general and in one unique structure in an organization, therefore there is a huge lack of studies focus on one organization. That's why this study is focused in one organization which is Jawwal Company.

The lack of empirical studies can be attributed to the following reasons:

1- The existing theoretical base of TQM to support research on total quality is not sufficient (Dean et al, 1994).

2- TQM is relatively recent philosophy outside Japan.

3- The origin of TQM lies outside the academic world.

1.2.2 Lack of empirical studies in the developing economies.

The growing interest in quality has reached, due to globalization, several developing countries in the Middle East region (Ali, 1997). It is appropriate, therefore, studies in TQM implementation be conducted for the benefit of the managers in these developing countries, where the need is confused by a dire lack of total quality management information (Thiagarajan, 1996; Ali, 1997). Generally, there seems to be acknowledged limitations of the findings of some of the earlier studies in their applicability across national boundaries Rao et al.(1999). Therefore, the findings of such systematic studies will generate a new way of thinking concerning total quality management in the various culture contexts.

1.3 Purpose of the Study.

The main purpose of this study is to assess and measure the awareness and level of understanding of TQM success factors in Jawwal Company.

This purpose will be achieved after measuring TQM understanding and perception of Jawwal managers and investigating TQM implementation experience for them.

This will be done after analyzing the data gathered by the questionnaire to identify the critical quality factors for effective implementation in Jawwal Company.

1.4 Study Objectives

This study has three main objectives. The first objective is to identify the quality factors that are critical to effective implementation of TQM based on the up to date existing knowledge of implementation in the developed countries.

The second objective is to assess the level of awareness and understanding of TQM. This involves identifying factors of over-emphasis and factors of under emphasis compared to other similar studies (Baidoun: 2003) and Ramirez & Loney (1993)

The third objective is to identify the quality factors that are critical for effective TQM implementation in Jawwal Company.

1.5 Study Questions

This study will try to answer these questions:

1. To what extent do Jawwal managers aware of TQM System and its importance?
2. What are the quality factors that are critical for effective TQM implementation in Jawwal Company?
3. Is Jawwal Company in the right track towards successful implementation of TQM compared with all other Palestinian companies and organizations?

4. Where is Jawwal compared with original study by Ramirez & Loney (1993) and Baidoun (2003)?

1.6 Study Limitation:

- Due to the ongoing political situation in West Bank and Gaza, Gaza managers could not be contacted directly, the questionnaire has been distributed to them via Email and Fax..
- This study is limited to Jawwal Company as a mobile service provider in Palestine. Therefore, the results cannot be universally generalized due to the extensive differences in perceptions, attitudes, and disciplines.
- This study mainly examines the perception of Jawwal managers and not all Jawwal employees.

1.7 Structure of the thesis:

The thesis is presented in four chapters; these chapters cover the following aspects:

The first chapter provides a general introduction and an overview of the study. The thesis structure will be maintained by the following chapter (Two),which will include a comprehensive literature review about TQM and emphasis on the main critical success factors that light affect any implementation of TQM.

This chapter will pass through many authors and writers who wrote about TQM and its critical success factors.

The next chapter (Three) will summarize the study methodology where this will be obtained by designing a questionnaire.

The followed chapter (Four) is an analysis and discussion for results obtained from data gathered from the questionnaire and calculation. The final chapter will summarize the main conclusion and recommendations obtained from the fourth chapter.

1.8 Terms Definition

Total Quality Management (TQM): A total quality management is an approach to quality with improvements undertaken in continuous basis in every sector and level of reviewing and controlling products, processes and organizations.

Quality Critical Factors: Critical factors are factors that influence the achievement of a given corporate objective, or the factors that determine success and/or failure of that objective. In TQM Critical Quality Factors are referred to as "variables that serve as a means to achieving the end result of TQM" (Najeh et al, 2004).

Jawwal: Palestine's first cellular service provider, was established in the summer of 1999 as a project of the Palestinian Telecommunications Company (Paltel).

Managers: All responsible people in Jawwal company that are in charge to manage all the company tasks and duties, consist of top management, middle management and lower management who answered the questionnaire of this study.

Benchmarking: Studying the business practices of other companies for purposes of comparison. It is the process of understanding one's practice and performance, comparing them against that of competitors or best-in-class firms, learning how they practice and perform, and using that information to improve one's own practice and performance. It is an effective catalyst for change and an effective tool for continuous improvement.

Chapter 2

Literature Review

2.1 Introduction

Critical factors are factors that influence the achievement of a given corporate objective. Elsewhere, and in the context of total quality management, Critical Quality Factors (CQFs) are referred to as "variables that serve as means to achieving the end result of TQM" (Najeh et al, 2004: pp).

The factors that determine success and/or failure in TQM have attracted the attention of many management scholars (Thiagarajan 1996; Baidoun 2000 and 2003; Salegna 2000; and Al-Omaim 2002). Understanding the workings of TQM and its critical factors becomes an essential task to assist in:

* Guiding organizations in understanding what is required, the size of the challenge, the level of resources and commitment needed for achieving successful implementation of TQM;

* Persuading sceptics by indicating that critical factors of TQM are conducive to positive business results if adhered to;

* Beginning to support organizations in integrating TQM into their business, through the development of a management approach entirely dependent on TQM principles.

One of the problems of critical factors of TQM is how to define them and what should be the measure of their impact before they become critical. When one scans through the literature, numerous factors tend to be stressed as facilitators for successful TQM implementation. Table 2.1 gives some examples.

Table 2.1 Some critical factors of TQM

		Element	Author
Leadership and commitment	(1)	Active senior management involvement	Juran[7]
	(2)	Top management consciousness and overall embracement of responsibility for TQM implementation	Kano[11]
	(3)	Top management motivation to be part of TQM and a warning that the greatest enemy of TQM is top management doubt	Kano[11]
	(4)	Co-ordinated approach at a corporate-wide level through active leadership	Barker[12]
	(5)	Commitment of top management through devoting a substantial amount of time for TQM issues	Easton[13]
Employee involvement	(1)	Success of departmental purpose analysis (DPA) at IBM UK Ltd was due to employee ownership of the process	Kyte[14]
	(2)	Employees' total involvement in innovation and determining the best alternative for NPD in terms of cost, safety, quality and productivity	Vallely[15]
	(3)	Union involvement can lead to successful TQM implementation	Carman[16]
Education and training	(1)	"Quality begins with education"	Ishikawa[17]
	(2)	"Continuous improvement requires a commitment to learning"	Garvin[18]
	(3)	TQ projects can only succeed through training all teams and team leaders in teamwork, leadership skills and problem-solving techniques	Casbourne[19]
	(4)	Employees of applicants for Malcolm Baldrige National Quality Award receive between 40-80 hours of training per year with expenditures around 3.5 per cent of the payroll	Easton[13]

Source: Zairi (1995)

2.2 The Definition of TQM

TQM is a necessity. It makes Japanese industry a miracle. It is the way to survive and succeed.

TQM is the totally integrated effort for gaining competitive advantage by continuously improving every facet of an organization's activities. If we look at the meaning of each word, TQM can be defined as:

Total – everyone associated with the company is involved in continuous improvement (including its customers and suppliers if feasible),

Quality – customers' expressed and implied requirements are met fully.

Management – executives are fully committed.

Ideally, everyone in the organization should be committed. However, according to Deming's (1986) research, some 94 per cent of the problems in quality are caused by management and the system they create. Therefore, commitment by management should come before that of the front-line workers. Totality of managing quality implies that everyone, including the front-line workers, should be involved in the process. Thus the above definition of TQM is a good balance between the ideal and the real world.

One interesting rule of thumb in quality is called the 1-10-100 Rule. If someone produces defective work and rectifies it immediately, it only costs him another equal effort to do so. If it has slipped to his internal customers and he wants to rectify it then, it will cost 10 times more effort. If, unfortunately, it has passed on to the external customer, then he has to pay around 100-fold in order to get the error rectified and the adverse consequences that follow. The rule is also the basis of the widely known "just in time" logistic system.

In its strictest sense, all goods/services supplied have to be 100 per cent right first time. This is particularly significant for the service industries as most of their work directly deals with external customers. They have less chance to rework internally. So quality is compulsory for survival.

Among many definitions of total quality management (TQM), Tobin (1990) provides this definition "TQM is the totally integrated effort for gaining competitive advantage by continuously improving every fact of organization culture. TQM focuses externally on meeting customer requirements exactly, while internally on management commitment, and employee training and education. It's main objective to embed quality into processes, thus products and services. TQM stresses the involvement of everyone inside an organization and related persons outside the organization, such as customers and suppliers. TQM uses statistical process control (SPC) (AMSDEN et al, 1986) as its main tool to ensure the firms quality. However, TQM entails much more than statistical tools. It requires top management commitment, leadership, training and team work. These are the key factors in a successful implementation of TQM.

Witcher defines TQM as:

Total: every person in the firm is involved (and where possible its customers and suppliers).

Quality: customer requirements are met exactly.

Management: senior executives are fully committed.

Feigenbaum defines TQM as the total quality control's organization-wide impact.

Another definition, from the USA's Department of Defense in Saylor, is that TQM is both a philosophy and a set of guiding principles that are the foundation of a continuously

improving organization. TQM is the application of quantitative methods and human resources to improve the material services supplied to an organization, all the processes within the organization, and the degree to which the needs of its customers are met, now and in the future. TQM integrates fundamental management techniques, existing improvement efforts, and technical tools under a disciplined approach focused on continuous improvement.

2.3 The basic principle of TQM and its components

The ideas that are at the foundation of TQM are deceptively simple. Most people call them common sense. Certainly none of them is original. But if they are common sense why do so many people have such difficulty in applying them? The reason is that they require people to relate together in their work in ways very different from those to which we have been accustomed in the past. This is difficult and requires everyone, especially senior management, to rethink their role in and their contribution to the organization in which they work.

For TQM to stand a chance of taking root, it is vital for senior management to be committed to the transformation of the organization into one which is managed on TQM principles. Yes, it is a transformation. We now have plenty of evidence that we need to change our ways of working together. Change is difficult, but then survival is not compulsory.

No progress can be sustained without management leadership, but it needs the help of everyone working in the organization. Perhaps this is a definition of the leadership

needed. “To enable everyone to contribute to the common objective”. That idea is not new; it has been a definition of leadership for many years.

Let us have a look at the foundations of TQM.

First, the organization must have an aim or purpose. Some call this the vision and others may call it the mission. Everyone must know it, understand it and, share it. This is another attribute of the leader. He/she must achieve the sharing of the aim with all who contribute towards attaining it.

The next major starting-point is the idea that the organization exists to achieve the aim. It is a system made up from interconnecting parts which work together. The system is therefore a set of individual processes, each of which contributes into the total system to achieve the aim by working effectively together.

No system can produce identical output every time. There is always variation in the output.

Sometimes the output is not able to meet the aim of the system. This output is rejected, if we can find it, and hence the resources spent on producing it are wasted. People working in the system need to understand how and why the output varies. They need to improve their processes continually, so that variation, and hence waste, is reduced.

People need knowledge and understanding of the operation of their processes in order to know how to improve them. They must hypothesize and experiment. Quality management philosophy has titled this process as the PDSA cycle. PDSA stands for Plan, Do, Study, Act and is a process for creating knowledge. We usually call it the scientific method and it is the way in which all scientific and engineering knowledge was created.

The method needs to be applied to all processes and to the total system, repeatedly. This is continual improvement. One can always improve.

For this method to be successful, we must involve everyone so that they work co-operatively and effectively with one another. The company needs to benefit from the knowledge of everyone who works within the system. It is all too easy to inhibit co-operation. Fear is the greatest inhibitor.

Also some modern practices, such as individual payment by results, can be, in reality, the abdication of management leadership and will inhibit people working together.

This summarizes the foundations of total quality management. Deming calls it “Profound Knowledge”.

TQM principles are the main factors which guarantee the successful implementation of TQM. Broadly speaking, they can be classified into ten major headings:

(1) Leadership.

(2) Commitment.

(3) Total customer satisfaction.

(4) Continuous improvement.

(5) Total involvement.

(6) Training and education.

(7) Ownership.

(8) Reward and recognition.

(9) Error prevention.

(10) Co-operation and teamwork.

All these principles can be found in works by authors such as Saylor and Hakes.

There are numerous valuable contributions related to the theory, techniques, studies and guidance on TQM. The philosophy of TQM is trying to involve employees at all levels to promote the wellbeing of the company as a whole.

TQM depends on linking the top management goals with a set of TQC tools for the operators to achieve these goals. Dr W.E. Deming and Dr J.M. Juran were the pioneers who introduced the concept of TQM. When compared with the 20 requirements of the ISO 9001 quality system, Dr Deming and Dr Juran also list 14 points and seven points respectively as guidelines on quality systems.

The following are the key elements for successful implementation of TQM:

• Commitment and involvement by top management;

• A teamwork approach to solving problems;

• Thorough training to promote quality awareness;

• Improvement of quality control techniques and methods;

• A continuous improvement programme.

• Participation of staff at all levels.

Fourteen TQM criteria / enablers are identifies according to the Norwegian empirical data. The criteria are not exactly as those proposed in the US Baldrige and European quality award models. The US Baldrige model is evaluated and modified every two years (Bbemowski, 1996). Although the 1997 version still covers seven categories, the seven categories are broken down into 20 examination items, down from 24 in 1996 and 33 in 1990. The European quality model was also modified in 1997 (European Foundation For Quality Management, 1996; 1997). For one thing, private companies and public companies are separated in the 1997 manual. The Australian quality award model treats

small businesses separately from larger ones (Australian Quality Council, 1996). Even after their modification, the models in different countries – for example, Japan, U.S.A., Canada and Europe – are not exactly the same (Laszlo, 1996, p.16). Conti (1997) believes that the model for evaluating quality management in a company should not be the same. The quality award model of a country or region should be geared to a business model that integrates the quality concept and organizational concepts and managerial practices. Laszio (1996, p.18) claimed that the application of TQM tends to vary with location.

Examples of successes in TQM cannot be copied and strictly followed as receipts. The quality award model, especially those designed for several countries and regions can only be used as a guide rather than a model for copying.

According to the Quality Award Model, the general, theoretical components of TQM will cover the enablers (i.e. what a company does) and the results (i.e. the increase of the expected outcomes). The US Baldrige Quality Award Model consists of seven categories and the European Quality Award Model covers nine. The Norwegian empirical data show that the categories in the Norwegian context are not the same as suggested in the two quality models.

2.4 Deming's Approach to TQM

The theoretical essence of the Deming approach to TQM concerns the creation of an organizational system that fosters cooperation and learning for facilitating the implementation of process management practices, which, in turn, leads to continuous improvement of processes, products, and services as well as to employee fulfillment, both of which are critical to customer satisfaction, and ultimately, to firm survival (Anderson

et al., 1994a). Deming (1986) stressed the responsibilities of top management to take the lead in changing processes and systems. Leadership plays in ensuring the success of quality management, because it is the top management's responsibility to create and communicate a vision to move the firm toward continuous improvement.

Top management is responsible for most quality problems; it should give employees clear standards for what is considered acceptable work, and provide the methods to achieve it.

These methods include an appropriate working environment and climate for work-free of faultfinding, blame or fear.

Deming (1986) also emphasized the importance of identification and measurement of customer requirements, creation of supplier partnership, use of functional teams to identify and solve quality problems, enhancement of employee skills, participation of employees, and pursuit of continuous improvement. Anderson et al. (1994a) developed a theory of quality management underlying the Deming management method. They proposed that: The effectiveness of the Deming management method arises from leadership efforts toward the simultaneous creation of a cooperative and learning organization to facilitate the implementation of process-management practices, which, when implemented, support customer satisfaction and organizational survival through sustained employee fulfillment and continuous improvement of processes, products, and services.

The means to improve quality lie in the ability to control and manage systems and processes properly, and in the role of management responsibilities in achieving this.

Deming (1986) advocated methodological practices, including the use of specific tools and statistical methods in the design, management, and improvement of process, which aim to reduce the predictable variation that occurs from “common causes” and “special causes” in production.

“Common causes” of variations are systemic and are shared by many operators, machines, or products. They include poor product design, non-conforming incoming materials, and poor working conditions. These are the responsibilities of management. “Special causes” relate to the lack of knowledge or skill, or poor performance. These are the responsibilities of employees. Deming proposed 14 points as the principles of TQM (Deming, 1986), which are listed below:

(1) Create constancy of purpose toward improvement of product and service, with the aim to become competitive and to stay in business, and to provide jobs.

(2) Adopt the new philosophy. We are in a new economic age. Western management must awaken to the challenge, must learn their responsibilities, and take on leadership for change.

(3) Cease dependence on mass inspection to quality. Eliminate the need for inspection on a mass basis by building quality into the product in the first place.

(4) End the practice of awarding business on the basis of price tag. Instead, minimize total cost. Move toward a single supplier for any one item, on a long-term relationship of loyalty and trust.

(5) Improve constantly and forever the system of production and service, to improve quality and productivity, and thus constantly decrease costs.

(6) Institute training on the job.

(7) Institute leadership. The aim of supervision should be to help people and machines and device to do a better job. Supervision of management is in need of overhaul, as well as supervision of production workers.

(8) Drive out fear, so that people may work effectively for the company.

(9) Break down barriers between departments. People in research, design, sales, and production must work as a team, to foresee problems of production and in use that may be encountered with the product or service.

(10) Eliminate slogans, exhortations, and targets for the workforce asking for zero defects and new levels of productivity. Such exhortations only create adversarial relationships, as the bulk of the causes of low quality and low productivity belong to the system and thus lie beyond the power of the workforce.

(11) (a) Eliminate work standards (quotas) on the factory floor. Substitute leadership.

(b) Eliminate management by objective. Eliminate management by numbers, numerical goals. Substitute leadership.

(12) (a) Remove barriers that rob the hourly worker of his right to pride of workmanship. The responsibility of supervisors must be changed from sheer numbers to quality. (b) Remove barriers that rob people in management and in engineering of their right to pride of workmanship. This means, inter alia, abolishment of the annual or merit rating and of management by objective.

(13) Institute a vigorous program of education and self-improvement.

(14) Put everybody in the company to work to accomplish the transformation. The transformation is everybody's job.

2.5 Juran's Approach to TQM

TQM is the system of activities directed at achieving delighted customers, empowered employees, higher revenues, and lower costs (Juran and Gryna, 1993). Juran believed that main quality problems are due to management rather than workers. The attainment of quality requires activities in all functions of a firm.

Firm-wide assessment of quality, supplier quality management, using statistical methods, quality information system, and competitive benchmarking are essential to quality improvement. Juran's approach is emphasis on team (QC circles and self-managing teams) and project work, which can promote quality improvement, improve communication between management and employees coordination, and improve coordination between employees. He also emphasized the importance of top management commitment and empowerment, participation, recognition and rewards.

According to Juran, it is very important to understand customer needs. This requirement applies to all involved in marketing, design, manufacture, and services. Identifying customer needs requires more vigorous analysis and understanding to ensure the product meets customers' needs and is fit for its intended use, not just meeting product specifications.

Thus, market research is essential for identifying customers' needs. In order to ensure design quality, he proposed the use of techniques including quality function deployment, experimental design, reliability engineering and concurrent engineering.

Juran considered quality management as three basic processes (Juran Trilogy): Quality control, quality improvement, and quality planning. In his view, the approach to managing for quality consists of: The sporadic problem is detected and acted upon by the process of quality control; The chronic problem requires a different process, namely, quality improvement; Such chronic problems are traceable to an inadequate quality planning process. Juran defined a universal sequence of activities for the three quality processes, which is listed in Table 2.2.

Juran defined four broad categories of quality costs, which can be used to evaluate the firm's costs related to quality. Such information is valuable to quality improvement. The four quality costs are listed as follows:

- Internal failure costs (scrap, rework, failure analysis, etc.), associated with defects found prior to transfer of the product to the customer;
- External failure costs (warranty charges, complaint adjustment, returned material, allowances, etc.), associated with defects found after product is shipped to the customer; - Appraisal costs (incoming, in-process, and final inspection and testing, product quality audits, maintaining accuracy of testing equipment, etc.), incurred in determining the degree of conformance to quality requirements;
- Prevention costs (quality planning, new product review, quality audits, supplier quality evaluation, training, etc.), incurred in keeping failure and appraisal costs to a minimum.

Table 2.2 Juran' three quality processes

Quality planning	Quality control	Quality improvement
Establish quality goals	Choose control subjects	Prove the need
Identify customers	Choose units of measure	Identify projects
Discover customer needs	Set goals	Organize project teams
Develop product features	Create a sensor	Diagnose the causes
Develop process features	Measure actual performance	Provide remedies, prove remedies are effective
Establish process controls, transfer to operations	Interpret the difference Take action on the difference	Deal with resistance to change Control to hold the gains

2.6 Crosby's Approach to TQM

Crosby (1979) identified a number of important principles and practices for a successful quality improvement program, which include, for example, management participation, management responsibility for quality, employee recognition, education, reduction of the cost of quality (prevention costs, appraisal costs, and failure costs), emphasis on prevention rather than after-the-event inspection, doing things right the first time, and zero defects.

Crosby claimed that mistakes are caused by two reasons: Lack of knowledge and lack of attention. Education and training can eliminate the first cause and a personal commitment to excellence (zero defects) and attention to detail will cure the second. Crosby also stressed the importance of management style to successful quality improvement. The key to quality improvement is to change the thinking of top managers-to get them not to accept mistakes and defects, as this would in turn reduce work expectations and standards in their jobs.

Understanding, commitment, and communication are all essential. Crosby presented the quality management maturity grid, which can be used by firms to evaluate their quality management maturity. The five stages are: Uncertainty, awakening, enlightenment, wisdom and certainty. These stages can be used to assess progress in a number of measurement categories such as management understanding and attitude, quality organization status, problem handling, cost of quality as percentage of sales, and summation of firm quality posture. The quality management maturity grid and cost of quality measures are the main tools for managers to evaluate their quality status. Crosby offered a 14-step program that can guide firms in pursuing quality improvement. These steps are listed as follows:

(1) Management commitment: To make it clear where management stands on quality.

(2) Quality improvement team: To run the quality improvement program.

(3) Quality measurement: To provide a display of current and potential nonconformance problems in a manner that permits objective evaluation and corrective action.

(4) Cost of quality: To define the ingredients of the cost of quality, and explain its use as a management tool.

(5) Quality awareness: To provide a method of raising the personal concern felt by all personnel in the company toward the conformance of the product or service and the quality reputation of the company.

(6) Corrective action: To provide a systematic method of resolving forever the problems that is identical through previous action steps.

(7) Zero defects planning: To investigate the various activities that must be conducted in preparation for formally launching the Zero Defects program.

(8) Supervisor training: To define the type of training those supervisors need in order to actively carry out their part of the quality improvement program.

(9) Zero defects day: To create an event that will make all employees realize, through a personal experience, that there has been a change.

(10) Goal setting: To turn pledges and commitment into actions by encouraging individuals to establish improvement goals for themselves and their groups.

(11) Error causal removal: To give the individual employee a method of communicating to management the situation that makes it difficult for the employee to meet the pledge to improve.

(12) Recognition: To appreciate those who participate.

(13) Quality councils: To bring together the professional quality people for planned communication on a regular basis.

(14) Do it over again: To emphasize that the quality improvement program never ends.

2.7 The Malcolm Baldrige National Quality Award

In 1987, the US Congress passed the Malcolm Baldrige National Quality Improvement Act, and thus established an annual quality award in the US. The aim of the award is to encourage American firms to improve quality, satisfy customers, and improve overall firms' performance and capabilities. The model framework can be used to assess firms' current quality management practices, benchmark performance against key competitors

and world class standards, and improve relations with suppliers and customers. The Malcolm Baldrige National Quality Award model framework (1999) is listed as follows:

(1) Leadership

- Organizational leadership;

- Public responsibility and citizenship.

(2) Strategic planning

- Strategy development;

- Strategy deployment.

(3) Customer and market focus

- Customer and market knowledge;

- Customer satisfaction and relationships.

(4) Information and analysis

- Measurement of organizational performance;

- Analysis of organizational performance.

(5) Human resource focus

- Work systems;

- Employee education, training, and development;

- Employee well-being and satisfaction.

(6) Process management

- Product and service processes;

- Support processes;

- Supplier and partnering processes.

(7) Business results

- Customer focused results;
- Financial and market results;
- Human resource results;
- Supplier and partner results;
- Organizational effectiveness results.

2.8 The European Quality Award (EQA).

The EQA was developed and introduced by the European Foundation for Quality Management (EFQM) in 1991. The EFQM itself was created in 1988 by leading business organizations to alert European business organizations to the need to incorporate quality management in all operations and also to raise the level of knowledge and awareness of the benefits of TQM.

The EQA criteria are split, 50 per cent representing enablers and 50 per cent representing results. The criteria are represented in nine broad categories. These are:

(1) Leadership;

(2) Customer satisfaction;

(3) People satisfaction;

(4) Impact on society;

(5) Policy and strategy;

(6) People management;

(7) Resources;

(8) Processes;

(9) Business results.

2.9 The Australian Quality Award (AQA)

The Australian Quality Award (AQA) was introduced in 1988 for similar reasons to those linked to MBNQA and EQA, mainly to recognize the efforts of outstanding organizations, to encourage other companies to follow suit and to raise the level of education and awareness on the importance of quality in raising competitive standards and its impact on the community. The AQA criteria include leadership, policy and planning, information and analysis, people, customer focus, and quality of process, product and service.

2.10 The critical factors of TQM.

There are many authors who wrote about the critical factors of TQM, The first real attempt which was made at grouping a list of critical factors for TQM was a study conducted in the USA by Saraph *et al*., which led to the proposal of a list of 78 factors. This was followed by a research project conducted in the UK, which replicated the study undertaken in the USA. Responses were obtained from 101 quality managers and out of all the critical factors, the ten highest and lowest scoring items are exhibited in Table 2.3.

In addition to the important factors which one would expect, such as senior management leadership and commitment, it is surprising to see that there is heavy emphasis on inspection, review and checking. The results also indicated that employee participation

and involvement were not considered to be critical and that data utilization for improving quality is not so important. This seems to be contrary to the workings of the TQM philosophy and the teachings of all the gurus who clearly emphasize the importance of teamwork, employee participation and involvement and the use of data and reliance on facts rather than subjective opinions.

The study by Black in 1993 was an attempt at developing a model for measuring the critical factors of TQM. Using the MBNQA criteria, a questionnaire with 39 critical factors was produced and through the use of a ratio scaling method respondents were asked to assign a ratio score of importance to each of the 39 criteria. These are represented in Table 2.4

These factors appear to be compatible with successful TQM implementation programmes. They represent strategic elements, people involvement, emphasis on communication, a focus on the customer, an awareness of the external market, the need to develop supplier partnerships, measurement and the long-term emphasis on developing a culture for quality improvement.

Table 2.3 : Mean score for the 20 TQM factors

Item	Mean
The highest mean scoring items	
Quality departments' access to divisions' top management	3.7
Extent to which sales and marketing people consider quality a saleable attribute	3.6
Amount of final inspection, review or checking	3.6
Importance of inspection, review or checking of work	3.5
Autonomy of the quality department	3.4
Commitment of the divisional top management to employee training	3.4
Extent to which divisional top management supports the long-term quality improvement process	3.4
Clarity of product/service specifications and procedures	3.3
Degree to which divisional top management considers quality improvement as a way to increase profits	3.3
Amount of in-process inspection/review/checking	3.3
The ten lowest mean scoring items	
Extent to which quality data are used as tools to manage quality	2.2
Degree of participation in quality decisions by hourly/non-supervisory employees	2.2
Extent to which inspection, review or checking of work is automated	2.1
Extent to which quality data, control charts, etc. are displayed at employee workstations	2.1
Extent to which quality data are used to evaluate supervisor and managerial performance	2.1
Training in basic statistical techniques in the division as a whole	2.0
Impact of trade unions on quality improvement	2.0
Use of statistical control charts for process control	2.0
Availability of cost of quality data in the division	1.9
Training in advanced statistical techniques in the division as a whole	1.5

Source: Zairi (1995)

Table 2.4: Black Critical factors for TQM

Critical factors of total quality management
1. People and customer management Education, training, involvement schemes, role definition, service standards and recognition in line with quality and performance plans
2. Supplier partnerships Quality audits, reviews, improvement action and long-term relations
3. Communication of improvement information Quality costs information, assessment of training needs, benchmarking of processes, promotion of quality
4. Customer satisfaction orientation Policies, warranties, customer satisfaction determination and comparison, benchmarking of products
5. External interface management Public responsibilities, future customer requirements, integration of requirements and operations constraints
6. Strategic quality management Use of process control, active quality leadership, employee wellbeing considerations, executive commitment, long-term planning, prioritization of improvements
7. Teamwork structures for process improvement Organizational structures, identification of key processes and requirements
8. Operational quality planning Short-term plans and goals relating to quality
9. Improvement measurement systems Assessment and improvement of processes/products, management of data and data-gathering cycle
10. Corporate quality culture Long-term goals related to quality, company-wide culture

Source: Zairi (1995)

2.11 Ramirez and Loney: The original study

This project was carried out by Ramirez and Loney to identify activities which are critical for the success of TQM implementation. A questionnaire based on 22 critical factors short listed from the teachings of quality gurus such as Deming, Crosby, Juran and MBNQA was devised.

The list was then finalized by comparing it with activities which award winning organizations tend to undertake. Ninety-two organizations were targeted, including national quality award winning organizations in the USA and various quality experts.

The winning organizations included:

* Winners of the MBNQA Award;

* The presidential and Prototype Quality Award;

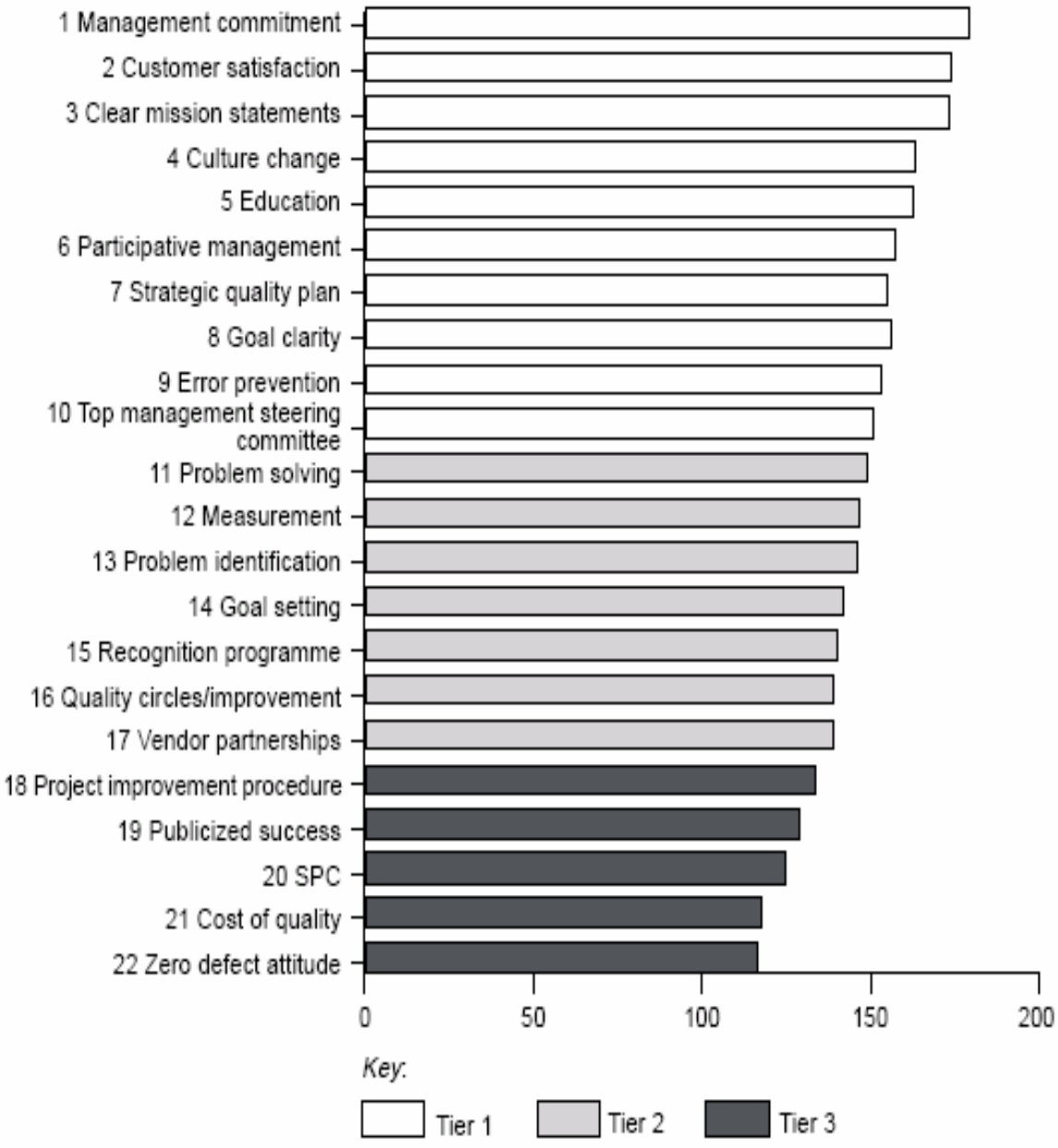
* NASA Q&E George M. Low Award.

The response rate to the questionnaire was 68 per cent, including 37 quality award winners and 26 consultant firms.

The results illustrated in Figure 2.1 demonstrate that:

* For TQM to be introduced successfully there has to be top management commitment and this is to be demonstrated through active involvement, setting clear goals and a vision for the organization and integrating TQM into the strategic quality planning process.

Figure 2.1 Original study by Ramirez and Loney



Source: Original study by Ramirez and Loney[3]

* The primary purpose for introducing TQM is to achieve complete customer satisfaction. This will in turn impact on business organizations' level of competitiveness and prosperity.

* TQM introduction is heavily reliant on employee involvement and participation and TQ-based performance is dependent on people productivity. As such, investment in people through education and training is fundamental to the success of TQM implementation.

* TQM is long term, and can only succeed if there is a serious attempt at changing methods, ways of working, ideas, technologies etc. In a sense it requires a fundamentally new culture.

* The Ramirez and Loney project does also indicate that TQM is certainly not just about using simple tools such as statistical process control (SPC), quality costing and a zero defect attitude.

It is surprising, however, that factors such as measurement and vendor partnerships were not considered as very critical. They were both ranked in the middle tier. Measurement, however, is the catalyst for improvement and also is the essential ingredient for goal setting, monitoring and review. Vendor partnerships on the other hand are essential for establishing high competitive standards, based on low cost, high quality, speed of responsiveness, innovation, among others.

The survey highlighted other factors which the respondents did not consider to be covered sufficiently enough in the list of 22, including for example:

* Process management;

* Union participation;

* Benchmarking;

* match quality plan to business plan;

* CEO and senior executives must believe;

* Commitment of resources;

* Emphasis on team – not individual;

* Full-time quality consultant and professionals;

* Strong communication plan.

In relation to reasons for introducing TQM in the first place, the following were given by the respondents:

* Competition, loss of market share;

* Survival;

* Desire to improve, be a leader in our field, be a world-class company;

* Negative publicity, customer dissatisfaction, crisis in operation;

* Ordered or required to implement a quality process by management;

* Practice what we preach, "walk the talk";

* Need to reduce costs, maximize productivity.

Out of all the critical factors, respondents were asked to highlight those ones which were particularly difficult to implement and where they have encountered difficulties most. The following factors were particularly mentioned by some of the respondents:

* Getting management commitment and support;

* Getting buy-in related;

* Vision, goal or strategy related;

* Culture change related;

* Finding time to devote to quality issues;

* Training all employees;

* Focus on quality instead of numbers;

* Patience – it takes a long time.

Figure 2.2 illustrates a chart of the 22 critical factors in the three-tier classification carried out by Ramirez and Loney.

Figure 2.2 The 22 critical factors "Ramirez and Loney".

Tier		Score (out of 189)	Percentage
Tier 1			
1	Management commitment	188	99.47
2	Customer satisfaction	184	97.35
3	Clear mission statement	182	96.30
4	Culture change	172	91.01
5	Education	171	90.48
6	Participative management	165	87.30
7	Strategic quality planning	163	86.24
8	Goal clarity	163	86.24
9	Error prevention	161	85.19
10	Top management steering committee	158	83.60
Tier 2			
11	Problem solving	156	82.54
12	Measurement	154	81.48
13	Problem identification	153	80.95
14	Goal setting	148	78.31
15	Recognition programme	147	77.78
16	Quality circles/improvement teams	145	76.72
17	Vendor partnership	145	76.72
Tier 3			
18	Project improvement process	139	73.54
19	Publicized successes	136	71.96
20	Statistical process control	130	68.78
21	Cost of quality	123	65.08
22	Zero defects attitude	121	64.02

Source: [3]

2.11.1 Ramirez and Loney Critical Factors

In this section twenty two success Quality Factors will be discussed.

Management Commitment:

Top management commitment is the first step and requirement for a firm's TQM implementation efforts. Lack of management commitment is one of the reasons for the

failure of TQM efforts (Brown et al., 1994). Top managers need to show their commitment through their actions rather than their words. Top management commitment can positively affect employees' commitment to TQM and culturally change people involved. If top management considers quality is more important than cost, more important than meeting product schedules, employees' quality awareness is easily improved. To implement TQM, top managers should be committed to establishing a firm that always considers quality as a major goal. If the organizational culture does not embody quality, any quality improvement effort is probably low and short-lived (Dale, 1999; Juran and Gryna, 1993).

Customer Satisfaction:

Customer satisfaction nowadays is being the main goal for most of the firms and organizations. It is a way to evaluate the performance of the firm and the modern economy. Marketing scholars and practitioners recognized that customer satisfaction is an important goal of all business activities. According to Fornell (1992), not only do many firms continually monitor customer satisfaction at the firm level, but some countries also measure customer satisfaction on a national basis (e.g., Sweden, US, Japan, Singapore, and EC countries).

The Malcolm Baldrige National Quality Award (1999) considers customer-focused results the most important. For the European Quality Award (1994), customer satisfaction is the most important in terms of points assigned. According to Fornell et al. (1996), customer satisfaction provides an important measure of the firm's past and current performance, as well as future financial health. Dean and Bowen (1994) believed that

customer satisfaction to be the most important requirement for long term organizational success. In fact, a firm can exist because the firm has customers; it is very clear that no customer means no business.

Clear Mission Statement:

Mission statement is the starting point for strategies, structures and processes. Processes will not cause the right results unless the process objectives have been taken from the mission. The mission statement tells us what our goal is – where are we going. It is how the organization is going to achieve its vision. Only clear definition of the business purpose and mission makes clear and realistic business objectives.

The mission statement should:

_ Give clear guidance to all who serve the organization.

_ Relate to the organizations current and future customers/markets.

_ Express the benefits the organization's products or services are to bring to the targeted customer/markets.

_ Always look outside the business not inside. For example a mission that is focused on increasing market share is an inwardly seeking mission whereas a mission that is focused on bringing cheap digital communication to the community is an outwardly seeking mission statement.

_ Express a shared belief. People should be involved in the development of the mission statement.

_ Remain constant despite changes in top management. Too many changes to the mission cause people to pull in different directions.

_ Take into account all stakeholders.

_ Take the medium-term view (objectives take the short-term view and vision the long-term view).

Culture change

Successful TQM implementation is dependent on the existence of a total quality culture among all personnel. It is generally believed that culture change or at least culture awareness is a necessary requirement for "excellence" and "quality" (Lewis 1998). The implementation of TQM and its main components is directly influenced by organizational culture (Zeitz 1997; Jabnoun 2001; Hyland et al. 2000). Collins (1994) considers TQM to be a culture-based approach to quality. Some argue that organizations achieve acceptable business results just by encouraging an appropriate quality culture without adopting TQM programs (Smith, Barnes, and Townsend 2002; Kanji and Yui 1997).

While the influence of corporate culture on the success of TQM programs has been highlighted by a number of authors, it has also been argued that TQM implementation leads to changes in organizational culture (Jenner et al. 1998). Flood (1993) considered TQM to be mean for cultural change. Sousa-Poza, and Nystrom (2001), and explained that there is bidirectional causality between TQM and corporate culture. While an adequate culture must be present to effectively implement TQM, some TQM programs, such as training and employees' involvement and empowerment, do explicitly modify culture.

The empirical studies relating TQM to culture are rather limited. More important, the reviewed literature either links TQM to culture or to performance. None of these studies has addressed the combined effect of culture and TQM on performance.

Education

Training refers to the acquisition of specific skills or knowledge. Training programs attempt to teach employees how to perform particular activities or a specific job. Education, on the other hand, is much more general, and attempts to provide employees with general knowledge that can be applied in many different settings (Cherrington, 1995). Training and education require a systematic approach based on the employee's or firm's need to increase the probability of success. By providing training, it is guaranteed that the organization is improved efficiently and effectively. From the perspective of human resources management, labor will no longer be considered as a cost to be minimized, but will be an investment for organizational success (Wiley, 1997).

Investment in education and training is much important for ensuring the success of education and training programs.

According to Hackman and Wageman (1995), training is the second most commonly used TQM implementation practice in the United States. Firms that implement TQM invest heavily in training for employees at different levels. Deming (1986) spoke often of the importance of properly training workers in performing their work. Otherwise, it is difficult to improve their work.

Learning is the ability and willingness of the firm to engage in learning or knowledge seeking activities at the individual, group or team, and organizational levels (Anderson et

al., 1994a). According to Deming (1986), Japanese firms regard their employees as their most significant competitive assets and provide good general orientation as well as training in specific skills.

Education should make a change of behavior; otherwise it would be considered a failure. (Juran and Gryna, 1993).

Participative management:

Participative management refers to the use of skills and expertise of employees to make decisions, solve problems and improve service quality. Employee involvement and participation form the core of TQM.

Since the late 1980s, many managers who were looking for excellence in quality achievement were concerned with employee involvement and participative management in order to be competitive (Rees, 1999). To investigate the practice of employee involvement in TQM, we need to look at the reasons for implementing TQM, the attitudes of the staff and their management style, teamwork, and barriers to employee involvement (Hales and Klidas, 1998).

The reasons for implementing a TQM programme include the desire for improvements in productivity, performance, morale, and employee motivation, as well as skills (Tuffrey, 1997).

Middle management considers a quality improvement process as a threat, as a number of management levels is decreased to improve communication , and their power and responsibilities will be lost to lower level employees, leaving them without anything to do. But the middle managers are keys to process implementation that have important

contributions. First, they must convert companywide strategies, structures and intentions into detailed operational activities, change the overall direction where supplies arrive late, machines break down, and people come to work with a headache (Wimalasir and Kouzmin, 2000).Secondly, they are the representations for the frontline staff.

Strategic quality planning:

An increasing number of organizations, as part of a strategic planning approach to continuous improvement, are starting to use policy deployment, suggested by Lee and Dale (1998).

In western organizations, the interest in policy deployment has primarily been generated by the use of self-assessment against a recognized model for business excellence, such as the European Foundation for Quality Management Model and Malcolm Baldrige National Quality Award (Watson, 1998). In recent years, policy deployment has been a topic in which organizations have shown an increasing interest, but it is still not a well-known technique in many Companies.

Goal clarity:

Employees need to have a clear understanding of their organization objectives. If these change, both need to be able to recognize that this has happened and adjust accordingly. In addition the more the employee understands the organization goals, the easier it is for them to ensure the relationship is mutual. Among the skills of establishing goal clarity are

helping people decide what they don't want, exploring commitment and "chunking" big objectives into smaller, more readily achievable steps.

Most organizations ignore the first critical step of defining strategic business goals, and bringing the goals into the quality improvement initiative (Schaffer, 1993).

Consequently a process may be improved significantly, and still not positively effect the health of the organization. Strategic planning should be the bridge that connects the improvement of internal processes with priorities that support the organization's long term success.

Nevertheless, in spite of all the problems, TQM has not died. It has been revitalized. The revitalized TQM is "driven not by consultants and vendors, but managers, employees, and unions who recognized that employee participation was certainly linked to quality goals and objectives" (End of the road for TQM, 1997, p. 64).

Error prevention:

Mistakes cause many of the problems that limit an organization's effectiveness. The results of mistakes can range from severe financial danger or unproductive downtime and damaging injuries or even a loss of life.

There are two ways to prevent human error from affecting a system: either keep people from making the errors (error avoidance) or stop the errors from reaching the system (error interception). Both techniques require predicting the possible errors, this make both of them ineffective as people are simply too good at finding unpredicted ways to make mistakes.

Error avoidance is achieved through user interface design or training. In the former case, the user interface is constructed to block potential errors. For example, wizards can guide a user through pre-defined tasks, or human input can be removed entirely via automation. These approaches tend not to be very successful in practice, however, since operators often end up bypassing wizards or automated aids to accomplish tasks that went unanticipated by the user interface's designer.

Instead of blocking errors at the interface, an alternative is to train human users not to make errors. Training works by developing the human's mental model of the computer system, thereby preventing the mental-model mismatches that are a major source of error. It is only as effective as it is extensive, however: training must focus on concepts—not just procedures—to help build the broadest mental models and must evolve with the system to ensure that those mental models are kept up to date. The best training programs are extensive, frequent, and designed to force operators out of their comfort zones; technology can help achieve these goals by integrating training periods into a system's normal operation.

When error avoidance fails, an alternative is to let people make mistakes but prevent those mistakes from reaching the system. A good example of this error interception can be seen in the way that many e-mail clients can be configured to batch and delay sending outgoing mail for several minutes, providing a recovery window during which an rashly sent message can be recalled, discarded, or edited. This and similar buffering-based strategies are particularly effective because they force the human ability to self-detect

errors: psychologists report that 70 to 86 percent of errors can be detected immediately after they are committed, even if they cannot be predicted.

Unfortunately, error interception has its limitations. It works only when human operations can be safely delayed to provide a recovery window. It will not work in situations where system state changes quickly; rendering buffered commands obsolete by the time they're executed. Error interception can also create confusion by breaking the immediate-feedback loop that people expect in interactive scenarios—imagine the chaos that a two-minute command execution delay would cause for an operator working at a command line to troubleshoot a system outage.

Top Management steering committee:

The steering committee "SC" is a special committee aims to identify projects and set forth information systems plans and priorities.

The "SC" is a function used by the organizations to guide their planning and achievements efforts.

The purpose of a "SC" is to work with the Chief Information Officer (CIO) or the head of the organization to establish overall organization priorities by identifying and sponsoring projects that support the organization's business plan. The primary role of the "SC" is to identify, prioritize, and oversee the plans and projects.

The mission of the "SC" is to provide guidance to the CEO and the CIO in effectively utilizing the company resources to meet the business and operational needs of the organization. The "SC" serves to resolve conflicts in demand for company services and

resources, and to sponsor major company projects to top management and within the user community.

The success of the project is the responsible of the Project Sponsor and Steering Committee members. They have an important role in defining success measures, and these measures may be assessable throughout the course of the project, not just at the end. Only they can redefine the scope, or decide to close the project if it becomes clear the project objectives are unattainable. They should remember that the Project Manager and Team may be too involved with the project to give adequate advice all the time on this issue, and they should keep a close eye on the project's progress in meeting the success criteria.

Problem Solving:

Problem-Solving is the process that allows a person or team to find desirable action-options to handle complex situations in ways that will benefit all stakeholders. It provided the proper steps that should be taken for effective solution. Quality Improvement is continuously solving of quality problems.

Problem-Solving principles and methods are treated by many researchers and practitioners. Interested readers should consult their works .In addition, many sources in society provide advice on Problem-Solving and handling of dilemmas. Such sources include parental guidance, role models, cultural storytelling, religious texts, laws and legal principles, and cultural rules for good conduct.

Measurement

Failure of TQM is associated with a lack of measurement or incorrect measurements (Tatikonda & Tatikonda, 1996, p. 8). Organizations often focus on financial measures over a short time horizon (Ferris et al., 1998). By adopting TQM, the implied result should be to extend the time horizon for financial success measures (Ferris et al., 1998). In order to improve total quality management firms should greatly consider quality and customer satisfaction measures (Ferris et al., 1998). Organizations must ask their customer or their employees what needs improvement (van de Vliet, 1996). Even when the process is identified, a common mistake it to confuse "input for output, process for outcomes, and activities for results" (Tatikonda & Tatikonda, 1996, p. 8).

Benchmarking is an activity that should never end, but must be a part of a continuous improvement process to have value (van de Vliet, 1996). Staff members involved in the benchmarking process need to understand the value associated with it and that value must be expressed in a meaningful way (van de Vliet, 1996). Meaningful measures help employees know what to focus on, so that the results lead to quality improvement (Tatikonda & Tatikonda, 1996).

• Business Performance Measurement: This measurement is essential for it evaluates whether an entity's performance measurement system contains reliable measures for assessing to which extent the entity's goals and objectives are achieved or how effective is its performance comparing with its competitors.

• Progress measurement. Progress should be measured frequently so to find any problem in an early stage as finding problems in early stages, making them easier to be solved. Progress measurement is also a feedback on the plans overall outcomes.

Problem identification

Problem identification and analysis are critical first steps to good problem solving, since successfully solving the wrong problem is worse than not addressing the real problems at all. Firms should provide training for employees in problem identification and solving skills, quality improvement skills and other technical skills, to witness continuous improvement. This would be achieved by establishing a systematic approach to quality training in order to meet customer requirements by everyone from the most senior manager to the most junior employee. This demands assessing the effectiveness of quality training programmes on a continuous basis and to establish and maintain procedures for the identification of the training needs and the provision of the actual training itself.

This how-to guide presents a format for identifying which problems to attack and how to analyze the impact they are having on your client's organization

Goal setting

Goal setting is central to the process. Well-defined goals allow individuals to work together, to assess progress and success, to choose appropriate methods and relevant data, and so forth. It allows turning pledges and commitment into actions by encouraging individuals to establish improvement goals for themselves and their groups.

It has been believed that motivation is greatest when people focus their attention on achieving clear, specific, and challenging goals (Locke and Latham, 1990).

The goal setting process gets employees energized and excited.

Recognition Programme:

Immediate recognition of early accomplishments helps establish a prevention program. Recognition programs sponsored by upper management help sustain employee motivation.

Many progressive organizations acknowledge the work of their employees through some form of recognition program.

Recognition may come in the form of a monetary reward, the reward-focused recognition is short-lived and not the solution to providing ongoing recognition. This form of reward program can cause anger in Fellow employees.

Even the early work of organizational behaviorists such as Frederick Herzberg, has taught us that money alone does not motivate higher performance, although, we have also learned that dissatisfaction with the level of monetary compensation can demotivate.

In short, what motivates is quality leadership.

A fundamental principle of quality leadership is a clear acknowledgement that people make it happen! Quality leaders see their role as setting the vision and strategic direction, and communicating that vision so that their people know what the future direction is and what key priorities will take them there. Quality leaders set out to create a positive working environment that shapes the organizational culture, so employees find motivation in work and from work.

Quality circles / improvement teams:

A QC circle is a small group of employees, usually from the same department, who volunteer to meet regularly (on working time or their own time) to discuss ways of

improving the quality of their work (Lillrank and Kano, 1989). QC participants need to accept training for problem-solving techniques. The organizational environment should be supportive for implementing QC circles. More importantly, top management and supervisors should support QC circles, provide necessary resources for their activities, and recognize and reward participants. The benefits of QC circles can be measured in economic terms or by improvements of products, processes, and working environments. Implementing QC circles can also bring some intangible benefits, found in the form of improved communication within work groups and between workers and supervisory layers of the firm, increased employee commitment and motivation, and employees' enhanced understanding of the difficulties faced by the firm (Dale, 1999; Juran and Gryna, 1993; Robson, 1992; Vries and Water, 1992). Quality circles QC, link the company's environmental goals with the rest of the organization. They should consist of representatives from variety levels of the company, and should be small enough for all members to participate.

Vendor Partnership

Supplier quality management is an important aspect of TQM since materials and purchased parts are often a major source of quality problem (Zhang et al., 2000).

Companies must build a good partnership with their suppliers to assure that the last will provide them with quality goods and services needed to meet customer satisfaction. This could be achieved by working together, sharing motivation for quality goods, and helping each other to do a good job.

Supplier partnership can be defined as an ongoing relationship between a buying firm and a supplying firm involving a commitment over an extended time period, and entailing a sharing of information as well as a sharing of the risks and rewards of the relationship (Cali, 1993).. In this regard, firms should try their best to establish long term partnership relations with their suppliers. Firms need to treat their suppliers as partners, as an extension of their own firms (Bergman and Klefsjö, 1994; Dale, 1999; Deming, 1986).

Project improvement process

Process refers to a unique combination of machines, tools, methods, materials, and people involved in production. Process control and improvement brings a set of methodological and behavioral practices, which are implemented to control and improve processes that produce products and services (Juran and Gryna, 1993). In fact, process control and improvement can make the manufacturing process operate as expected, without breakdowns, missing materials, fixtures, tools, etc., and despite workforce variability (Flynn et al., 1994). A set of practices of process control and improvement is described in the following paragraphs.

The Japanese believe that an atmosphere of cleanliness adds to quality, thus, shop floor management is highly emphasized by Japanese firms (Deming, 1986). It is a very important practice to keep the firm neat and clean at all times, which can contribute to effective process control and improvement (Ho, 1999).

An important matter in process control and improvement is the maintenance of process capability to meet production requirements. Process capability is largely independent of specification tolerances for parts to be manufactured within the process. It is important to determine these capabilities as fundamental to product-control standards setting

(Feigenbaum, 1991). Process capability study provides a basis for this determination and its related assignment of parts to those facilities that can economically maintain the required tolerances (Gitlow et al., 1989).

According to Feigenbaum (1991), manufacturing equipment certainly wears under constant use, a result of which would be poor-quality products. A program of preventive maintenance is an important quality management practice since it enables a regularly scheduled examination of processing facilities before they break down. According to Deming (1986), Japanese machine operators regularly make minor repairs; perform maintenance work, and record machine performance data.

Deming (1986) stated that improving product quality should not be dependent on mass inspection. Inspection to improve quality is too late, ineffective, and costly. Quality comes not from inspection, but from improvement of the production process. In this regard, a firm should try to implement effective inspection activities in order to reduce any non-value added activities.

A number of quality tools or techniques can be implemented to control and improve processes. These methods include the seven QC tools and the seven new QC tools. The PDCA cycle is essentially the scientific method applied to continuous process improvement (Dale, 1999; Deming, 1986; Mann, 1992).

Managing by process is the key to engaging an organization's employees to take responsibility for what they are doing in relation to satisfying the customers (Guimaraes and Armstrong, 1998). In many big companies, such as Shell Chemicals UK, there is a growing recognition of the need to move away from the traditional functionally-based approach to managing through a set of clearly defined, customer-driven processes.

Appelbaum et al. (2000) say that the process-based approach or managing by process improves customer focus and avoids the limitations of managing by vertical functions.

Publicized successes

Stories of success should be widely publicized both internally and externally. Firm's management should find ways to make everyone aware of their successes, including employees, stockholders, supervisors and the community.

Employees usually feel proud of their accomplishments, and want their families and others to know about the company's successes.

By publicizing the successes of the organization error rate would be reduced, an increase in the effectiveness of individuals and organizations would be achieved and the ultimate goal of the organization would be fulfilled.

Success of the organization could be publicized throughout the entire company (conferences, videos, newsletters, follow up meeting, talk radio…etc).

Statistical process control:

Statistical process control (SPC) is a strategy for reducing variability, part of ever-lasting improvement (Oakland, 2000). It is one of the bases of the model for TQM developed by the European Centre for Total Quality Management (Sinclair and Zairi, 2000).

Statistical process control can be used to achieve process stability, provide guidance on how the process may be improved by the reduction of variation, assess the performance of a process, and provide information to assist with management decision-making (Dale, 1999).

Without statistical control, the process will be in confusion, and all attempts to bring improvement will be failed. (Deming, 1986).

Statistical process control is the application of statistical methods to the measurement and analysis of variation in a process, and can judge the quality of processes. Such information can be used for process control and improvement (Dale, 1999; Kolarik, 1995; Zhang, 2000a).

Statistical process control should be used in order to control the production process. In addition, process capability should be calculated in order to provide sufficient information for designers to determine design specifications.

Cost of quality:

Cost of quality is an important factor of the firm's TQM efforts which is used as a management tool.

The terms cost and quality have drawn the attention of the manufacturing and logistics managers as cost is the core for most firms. Cost considerations involves many of strategic decisions, including global manufacturing rationalization, contracting out and economizing, as firms look always for lower labour and materials costs (Andersen and Moen, 1999). Quality cost measurement has its origin in the early 1950s, and Feigenbaum's classification of quality costs in the familiar categories of prevention, appraisal and failure has been almost universally accepted (Lee and Cunningham, 2001).

Zero defects attitude:

Zero defects planning is required to investigate the various activities that must be conducted in preparation for starting the Zero Defects program.

Phillip B. Crosby Philip B. Crosby is an expert in the area of TQM. He worked in the area of quality for many years, first at Martin Marietta and then, in the 1970s, as the vice president for quality at ITT. He developed the phrase “Do it right the first time” and the idea of zero defects claiming that no amount of defects should be accepted. He was against the idea that a small number of defects is a normal part of the operating process because systems and workers are imperfect. Instead, he confirmed the idea of prevention.

To promote his concepts, Crosby wrote a book titled *Quality Is Free,* which was published in 1979. He became famous for discovering the phrase “quality is free” and for pointing out the many costs of quality, which include not only the costs of wasted labor, equipment time, scrap, rework, and lost sales, but also organizational costs that are hard to quantify. Crosby stressed that effort to improve quality more than pay for them because these costs are prevented. Therefore, quality is free.

Like Deming and Juran, Crosby stressed the role of management in the quality improvement effort and the use of statistical control tools in measuring and monitoring quality.

2.12 Palestinian Study

The Palestinian study(Baidoun; 2003) is concerned with measuring the level of understanding and perception of TQM in the Palestinian context, using the tool developed by Ramirez and Loney (1993), respondents were asked to rank a list of 22 factors critical to a successful TQM implementation.

A questionnaire was built according to Ramirez and Loney, the questionnaire asks respondents to indicate how they perceive each of the quality, as to their level of importance to the successful implementation of TQM.

Two hundred forty two usable questionnaires were returned out of three hundred. That is 80.67 percent response rate.

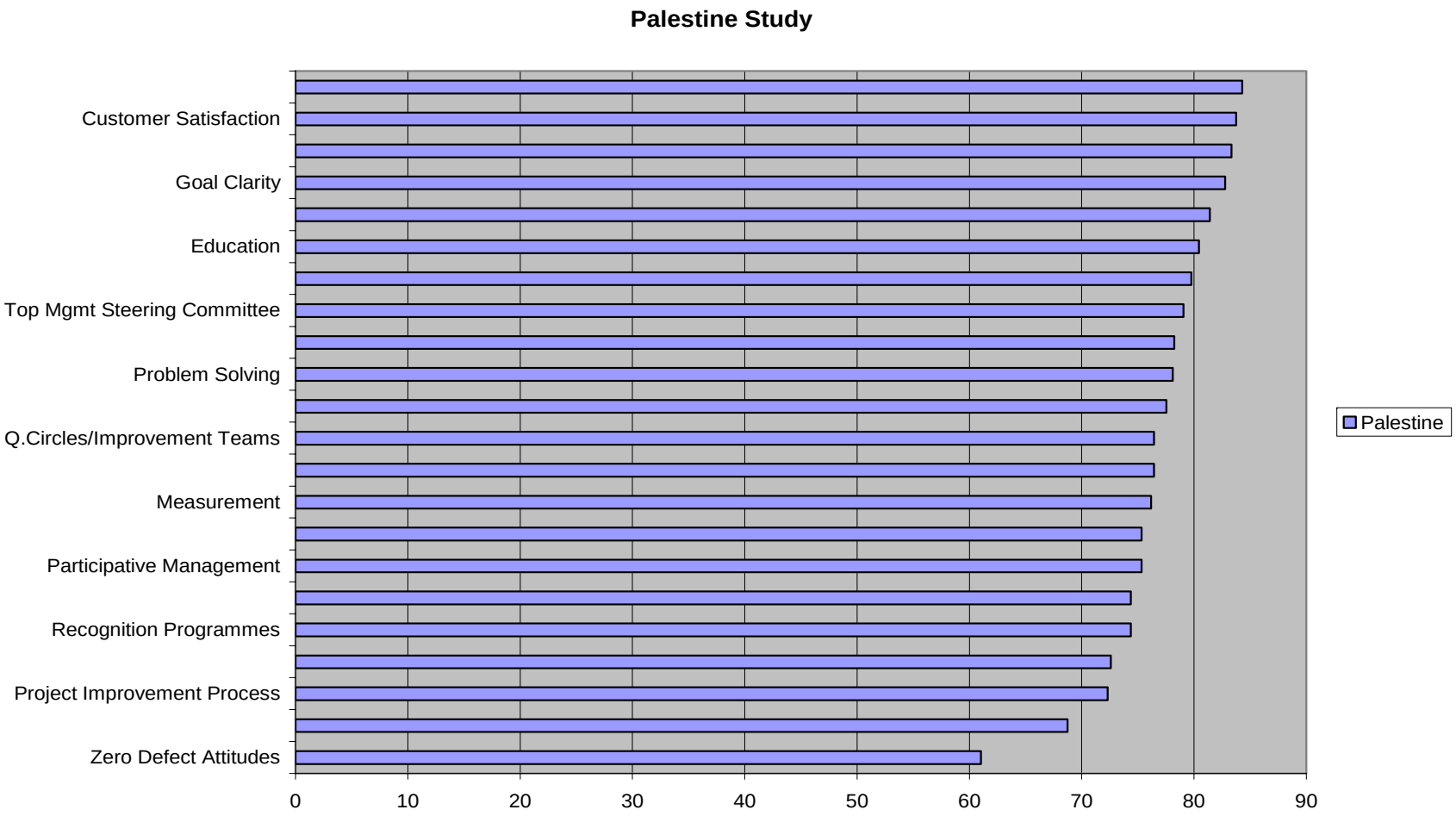
The respondents targeted in that survey represented various types of organizations. The breakdown of these organizations is 57 percent from the service sector and 43 percent from the industrial sector; the results are presented in figure 8.

The analysis of data provided by two hundred forty two respondents is presented in Table 2.5, and the findings are presented in figure 2.3.

Table 2.5 Palestinian Study Survey Data

Quality Factor	Actual points	Percentage %
Management commitment	608	84.30 %
Customer Satisfaction	608	83.75 %
Clear vision statement	559	81.40 %
Cultural Change	499	68.73 %
Education	584	80.44 %
Participative Management	547	75.34 %
Strategic Quality Planning	562	79.75 %
Goal Clarity	601	82.78 %
Error Prevention	555	76.44 %
Top Mgmt Steering Committee	519	79.06 %
Problem Solving	567	78.10 %
Measurement	513	76.17 %
Problem Identification	577	77.55 %
Goal Setting	605	83.33 %
Recognition Programmes	520	74.38 %
Q.Circles/Improvement Teams	509	76.44 %
Vendor Partnership	568	78.24 %
Project Improvement Process	525	72.31 %
Publicized Successes	540	74.38 %
Statistical Process Control	547	75.34 %
Cost Of Quality	527	72.59 %
Zero Defect Attitudes	443	61.02 %

Figure 2.3 Palestinian Study Findings



2.13 Summary

This chapter was dealt with a comprehensive literature review about the definition of TQM and its basics, principles and components.

Many authors and writers such as Deming, Juran and Crosby were introduced with their approaches to TQM, beside emphasis on the main critical success factors that affect any implementation of TQM by discussing the original study of Ramirez & Loney and the Palestinian study passing through their critical factors and findings obtained from their studies and researches.

Chapter 3

Methodology

3.1 Introduction

This chapter is concerned with measuring the level of understanding and perception of TQM in the Palestinian Cellular Communication Company (Jawwal), using the tool developed by Ramirez and Loney (1993), respondents were asked to rank a list of 22 factors critical to a successful TQM implementation. These factors have been identified based on the teachings of three TQM gurus (Deming, Juran and Crosby) and the Malcolm Baldrige National Quality Award (MBNQA).

3.2 Aims of the Survey

The major purpose of the survey is to collect data on how Jawwal managers perceive the critical quality factors of successful TQM implementation. Secondly, the survey aims at creating a basis for benchmarking with other experiences to identify areas of over and under emphasis. Thirdly, to measure how Jawwal managers rank the critical factors for successful implementation of TQM initiatives. Finally to find answers to the study questions mentioned previously in the introduction chapter.

However, the following important issues were considered before the survey was undertaken (Zairi, 1996), If TQM is a "soft-technology", modern philosophy of management and is transferable, organizations would subscribe to the same critical factors regardless of where they are operating and regardless of market conditions, location, etc.

1- If TQM is to be considered as a generic philosophy of management, its applicability will cut across various sectors of industry, service, commerce, and public sector.

2- There are many assumptions made about the cultural influences on TQM implementation. By spreading the survey on an international basis, this assumption could be verified and if cultural influences would be having an impact, this could easily be assessed.

3.3 Survey Questionnaire Design

The questionnaire was taken from the work of Ramirez and Loney (1993). Their questionnaire has a measurement scale, that solicit respondents to explicitly identify whether the quality factor is critical or not. This permits objective judgments to be made for the purpose of this survey. The questionnaire asks respondents to indicate how they perceive each of the quality factors, as to their level of importance to the successful implementation of TQM.

The majority rule was used for data analysis by Ramirez and Loney (1993). Although it is a crude and not very scientific (not precise) it provides an acceptable tool to assess how Jawwal managers perceive and understand TQM principles.

Target Managers will be asked to rate each of the quality factors as to their level of importance to a successful implementation of quality management processes in Jawwal Company, using the following criteria:

• 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.

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

• 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.

3.4 Methodology

The level of measurement used in the survey questionnaire is a three-point ordinal scale with critical, important, and minor importance as categories.

Ramirez and Loney 1993 ordered the quality factors in terms of importance using a factor score computed by assigning arbitrary weights to ordinal scale. This approach was done in the study survey. This weight was giving three-points to the critical answers, two-points to the important answers and one-point to the minor importance answers.

The possible points would be {3 times (valid questionnaire - 51)} = 153 points, then calculating the percentage for each question or quality factor according to its total weight from the three answers.

3.5 Sample Selection

The criterion to select the sample for the survey is to target all managerial levels in Jawwal Company in West Bank and Gaza which consist of nine top management managers, thirty five middle management managers, and eight lower management managers. Therefore the questionnaire will be directed to fifty two managers in Jawwal Company.

3.6 Breakdown of Jawwal Managers

The management hierarchy is composed from three level of management in Jawwal Company, the top management, the middle management and the lower management.

The top management consists of all the chief officers such as:

- Chief Executive Officer (CEO).
- Chief Marketing Officer (CMO).
- Chief Financial Officer (CFO).
- Chief Technical Officer (CTO).

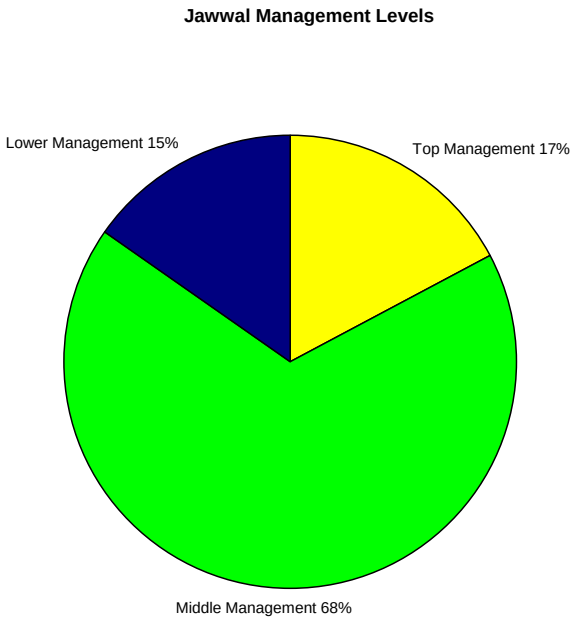
It is also consists of all the Directors of the different units.

The middle management consists of all the Department managers which represent more than 67% of the management share.

The lower management is all the managers whom are team leader or project managers for a limited period until the project finish.

The Jawwal management levels breakdown is found in figure 3.1

Figure 3.1 The Jawwal management levels breakdown



3.7 The Survey Questionnaire.

The Questionnaire is shown in Appendix I.

3.8 Response Rate.

A total of fifty one usable questionnaires were collected from Jawwal Company Managers, achieving 98.07 Per cent response rate which is considered large enough to establish a representation and credible data for analysis.

The questionnaire addressed to the potential respondent explaining to them the purpose and objectives of the survey verbally or by telephone call. It was distributed to each respondent by meeting him or by sending an E mail followed by a conservation call which done with Gaza managers and who are outside Ramallah area. One week was given to collect filled questionnaire.

3.9 Summary

A questionnaire was designed according to the work of Ramirez & Loney and used to collect a data from the respondents of Jawwal managers depending on the methodology discussed above, in order to use it in the next chapter for data analysis and findings. The response rate according to the questionnaire was 98.07%.

Chapter 4

Findings of the Study

4.1 Introduction.

This chapter characterizes a comprehensive analysis and discussion for the results obtained from the questionnaire, taking all the findings and comparing them with the original study by Ramirez and Loney, and also with the Palestinian study Baidoun (2003).

4.2 Data Analysis.

4.2.1 Majority Rule

The majority rule was used for data analysis by Ramirez and Loney (1993). Although it is a crude and not very scientific (not precise) it provides an acceptable tool to assess how managers perceive and understand TQM principles.

The majority rule is used to classify the twenty two critical quality factors into three tiers on the following basis:

1- Critical factors will be classified in tier one if the majority of respondents rate the quality factor as critical.

2- Critical factors will be classified in tier three if less than one third of respondent's rate the quality factor as critical.

3- Critical factors will be classified in tier two if the majority of respondents rate the quality factor as important at the same time more than one third of respondents rate the quality factor as critical. To put it differently, the residual quality factors after classifying the quality factors in tier one and three will be classified as tier two quality factors.

4.2.2 Findings

Fifty two managers were targeted for the questionnaire survey. The analysis of data provided by fifty one respondents is presented in Table 4.1 below. And the finding is presented in Figure 4.1

From Table 4.1 it appears that all the respondents choose one of the three answers in the Questionnaire, critical, important or minor important.

In the next few paragraphs I will show all the finding found for each question in the questionnaire.

Question 1: Employee empowerment, maximizing employee involvement in the quality process, also encouraged and enabled the employee to involve them selves in improvement work beyond their routine work responsibilities?

The first question focuses on the critical quality factor of Participative Management with 27 respondents ranked it critical, 24 respondents ranked it important and no body ranked it minor. This factor got 84.31% put it in Tier one.

Table 4.1 Jawwal Survey Data

Factor Question	Critical (X)	Important (Y)	Minor (Z)	3*X	2*Y	1*Z	Actual	Percentage
Q1	27	24	0	81	48	0	129	84.31%
Q2	30	21	0	90	42	0	132	86.27%
Q3	12	33	6	36	66	6	108	70.58%
Q4	27	23	1	81	46	1	128	83.66%
Q5	29	20	2	87	40	2	129	84.31%
Q6	18	29	4	54	58	4	116	75.81%
Q7	14	25	12	42	50	12	104	67.97%
Q8	37	13	1	111	26	1	138	90.19%
Q9	29	20	2	87	40	2	129	84.31%
Q10	15	30	6	45	60	6	111	72.54%
Q11	10	29	12	30	58	12	100	65.36%
Q12	15	27	9	45	54	9	108	70.58%
Q13	17	30	4	51	60	4	115	75.16%
Q14	27	21	3	81	42	3	126	82.35%
Q15	21	27	3	63	54	3	120	78.43%
Q16	20	28	3	60	56	3	119	77.77%
Q17	24	24	3	72	48	3	123	80.39%
Q18	22	25	4	66	50	4	120	78.43%
Q19	19	29	3	57	58	3	118	77.12%
Q20	20	30	1	60	60	1	121	79.08%
Q21	6	30	15	18	60	15	93	60.78%
Q22	28	21	2	84	42	2	128	83.66%

Question 2: Training for employees in problem identification and solving skills, quality improvement skills and other technical skills?

The second question focuses on the critical quality factor of Problem Identification with 30 respondents ranked it critical, 21 respondents ranked it important and no body ranked it minor. This factor got 86.27% put it in Tier one.

Question 3: Publicize the success of the organization, highlight success more often throughout the entire company (conferences, videos, newsletters, follow up meeting, talk radio…etc)?

The third question focuses on the critical quality factor of Publicized Successes with 12 respondents ranked it critical, 33 respondents ranked it important and 6 respondents ranked it minor. This factor got 70.58% put it in Tier three.

Question 4: All senior executives share the responsibility for evaluation and improvement of all management systems and leading quality drive?

The forth question focuses on the critical quality factor of Management Commitment with 27 respondents ranked it critical, 23 respondents ranked it important and one respondent ranked it minor. This factor got 83.66% put it in Tier one.

Question 5: Training and learning for employees to improve interactive skills (such as communication skills, effective meeting skills, empowerment and leadership skills)?

The fifth question focuses on the critical quality factor of Education with 29 respondents ranked it critical, 20 respondents ranked it important and 2 respondents ranked it minor. This factor got 84.31% put it in Tier one.

Question 6: To turn pledges and commitment into actions by encouraging individuals to establish improvement goals for themselves and their groups?

The sixth question focuses on the critical quality factor of Goal Setting with 18 respondents ranked it critical, 29 respondents ranked it important and 4 respondents ranked it minor. This factor got 75.81% put it in Tier two

Question 7: The use of SPC (statistical process control) to control variability and improve processes?

The seventh question focuses on the critical quality factor of Statistical Process Control with 14 respondents ranked it critical, 25 respondents ranked it important and 12 respondents ranked it minor. This factor got 67.97% put it in Tier three.

Question 8: Identifying of customer satisfaction and customer needs and modifying the process to satisfy the needs by using customer surveys and feedback process, and tracking of other key measures to assess customer satisfaction?

The eighth question focuses on the critical quality factor of Customer Satisfaction with 37 respondents ranked it critical, 13 respondents ranked it important and one respondent ranked it minor. This factor got 90.19% put it in Tier one.

Question 9: Clear, consistent communication of mission statement and objectives defining quality values, expectation and focus?

The ninth question focuses on the critical quality factor of Clear Mission Statement with 29 respondents ranked it critical, 20 respondents ranked it important and 2 respondents ranked it minor. This factor got 84.31% put it in Tier one.

Question 10: Problem solving is the process that allows a person or team to find desirable action – option to handle novel and complex situation in ways that will benefit all stakeholders?

The tenth question focuses on the critical quality factor of Problem Solving with 15 respondents ranked it critical, 30 respondents ranked it important and 6 respondents ranked it minor. This factor got 72.54% put it in Tier three.

Question 11: Long-term relationship and working partnership with key suppliers?

The eleventh question focuses on the critical quality factor of Vendor Partnership with 10 respondents ranked it critical, 29 respondents ranked it important and 12 respondents ranked it minor. This factor got 65.36% put it in Tier three

Question 12: Cost of quality process to track rework, waste, rejects, and for continuous improvement?

The twelfth question focuses on the critical quality factor of Cost Of Quality with 15 respondents ranked it critical, 27 respondents ranked it important and 9 respondents ranked it minor. This factor got 70.58% put it in Tier three.

Question 13: The cultural issues or changing the culture of the organization affect and influences the successful of implement Total Quality Management?

The thirteenth question focuses on the critical quality factor of Culture Change with 17 respondents ranked it critical, 30 respondents ranked it important and 4 respondents ranked it minor. This factor got 75.16% put it in Tier two.

Question 14: Clear understanding of the organization goals and objectives. Able to recognize any change and adjust accordingly?

The fourteenth question focuses on the critical quality factor of Goal Clarity with 30 respondents ranked it critical, 21 respondents ranked it important and no body ranked it minor. This factor got 86.27% put it in Tier one.

Question 15: Improvement measurements systems, assessment and improvement of process or products. Management of data and data gathering cycle. It is also the essential ingredient for goal setting?

The fifteenth question focuses on the critical quality factor of Measurements with 21 respondents ranked it critical, 27 respondents ranked it important and 3 respondents ranked it minor. This factor got 78.43% put it in Tier two

Question 16: Progressive organizations acknowledge the work of their employees through some form of recognition program and motivating them to encourage continued productivity, to create a motivating work environment and to provide individual recognition?

The sixteenth question focuses on the critical quality factor of Recognition Programme with 20 respondents ranked it critical, 28 respondents ranked it important and 3 respondents ranked it minor. This factor got 77.77% put it in Tier two.

Question 17: Continuous improvement process, based on fact and systematic analysis?

The seventeenth question focuses on the critical quality factor of Project Improvement Process with 24 respondents ranked it critical, 24 respondents ranked it important and 3 ranked it minor. This factor got 80.39% put it in Tier two.

Question 18: Comprehensive policy development and effective deployment of goals?

The eighteenth question focuses on the critical quality factor of Strategic Quality Planning with 22 respondents ranked it critical, 25 respondents ranked it important and 4 respondents ranked it minor. This factor got 78.43% put it in Tier two

Question 19: Any possible errors should be anticipated. To produce significant and lasting error rate reduction and to achieve a substantial and continued increase in individual and organizational effectiveness leading to the ultimate goal of any organization (success)?

The nineteenth question focuses on the critical quality factor of Error Prevention with 19 respondents ranked it critical, 29 respondents ranked it important and 3 respondents ranked it minor. This factor got 77.12% put it in Tier two.

Question 20: A team approach (such as quality circles, cross-functional teams) in problem solving and continuous improvement?

The twentieth question focuses on the critical quality factor of Quality Circles/ Improvement teams with 20 respondents ranked it critical, 30 respondents ranked it important and one respondent ranked it minor. This factor got 79.08% put it in Tier two.

Question 21: Zero defects as the quality performance standard?

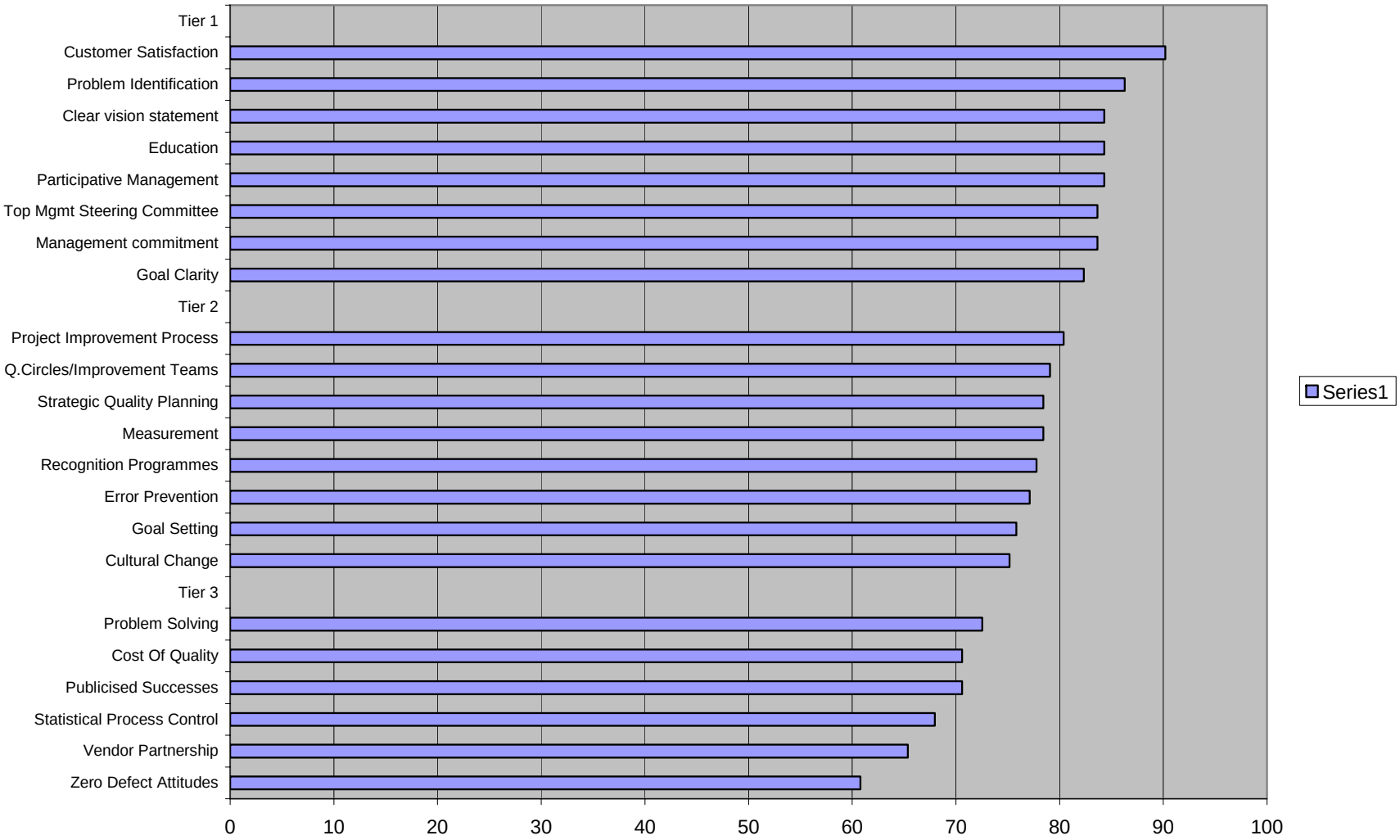
The twentieth one question focuses on the critical quality factor of Zero Defect Attitude with 6 respondents ranked it critical, 30 respondents ranked it important and 15 respondents ranked it minor. This factor got 60.78% put it in Tier three.

Question 22: Identifying projects and setting forth information systems plans and priorities?

The twentieth two question focuses on the critical quality factor of Top Management Steering Committee with 28 respondents ranked it critical, 21 respondents ranked it important and 2 respondents ranked it minor. This factor got 83.66% put it in Tier one.

All of the data are found in Table 4.1, and the distribution of all these quality factors in Tier1, Tier 2, and Tier3 are found in figure 4.1.

Figure 4.1 Jawwal Study Finding



After collecting the entire questionnaire and calculating the findings for each question, the questions response frequency distribution has been shown in Figure 4.2, Figure 4.3 and Figure 4.4.

Figure 4.2 Critical Quality Factor Questions 1 - 8

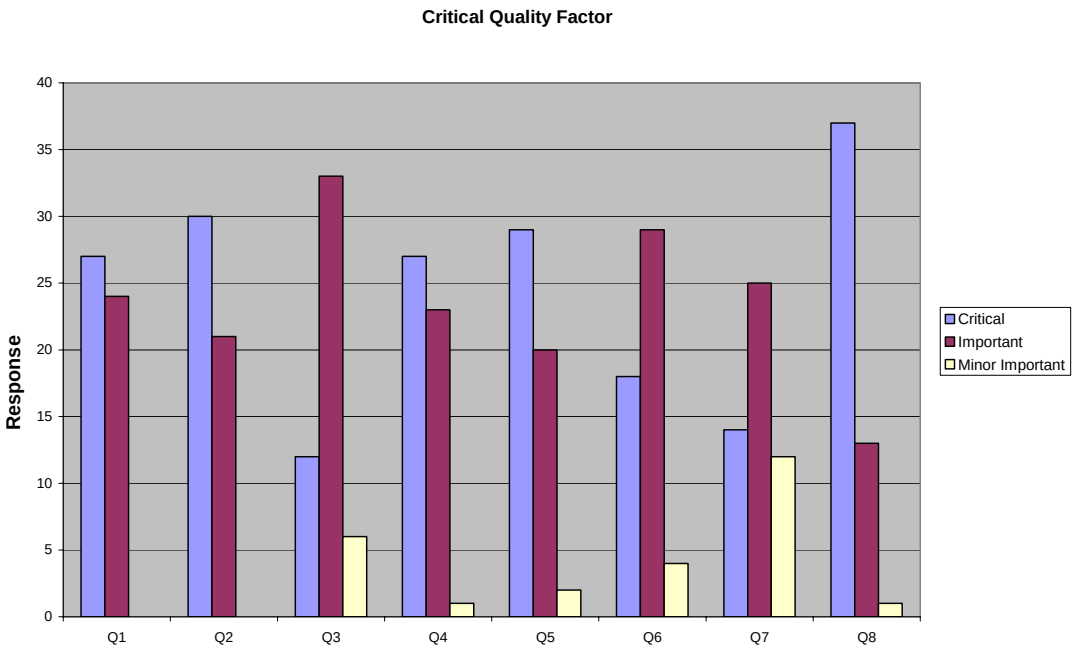


Figure 4.3 Critical Quality Factor Questions 9 – 15

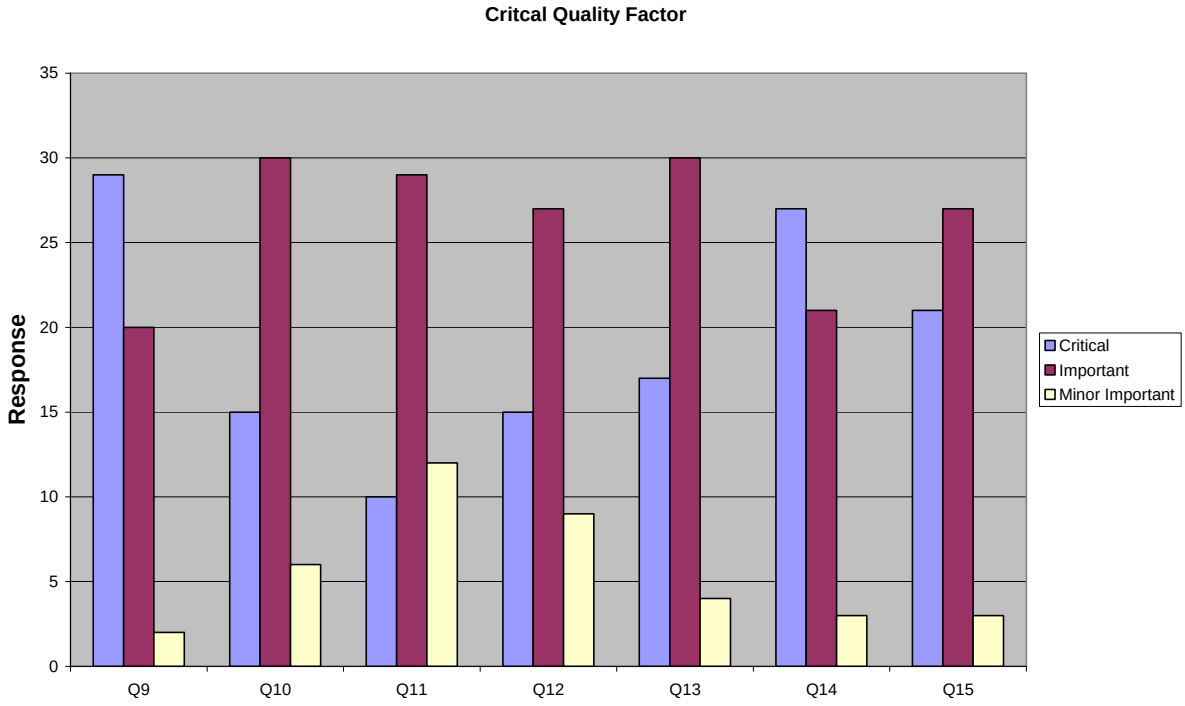


Figure 4.4 Critical Quality Factor Questions 16 – 22

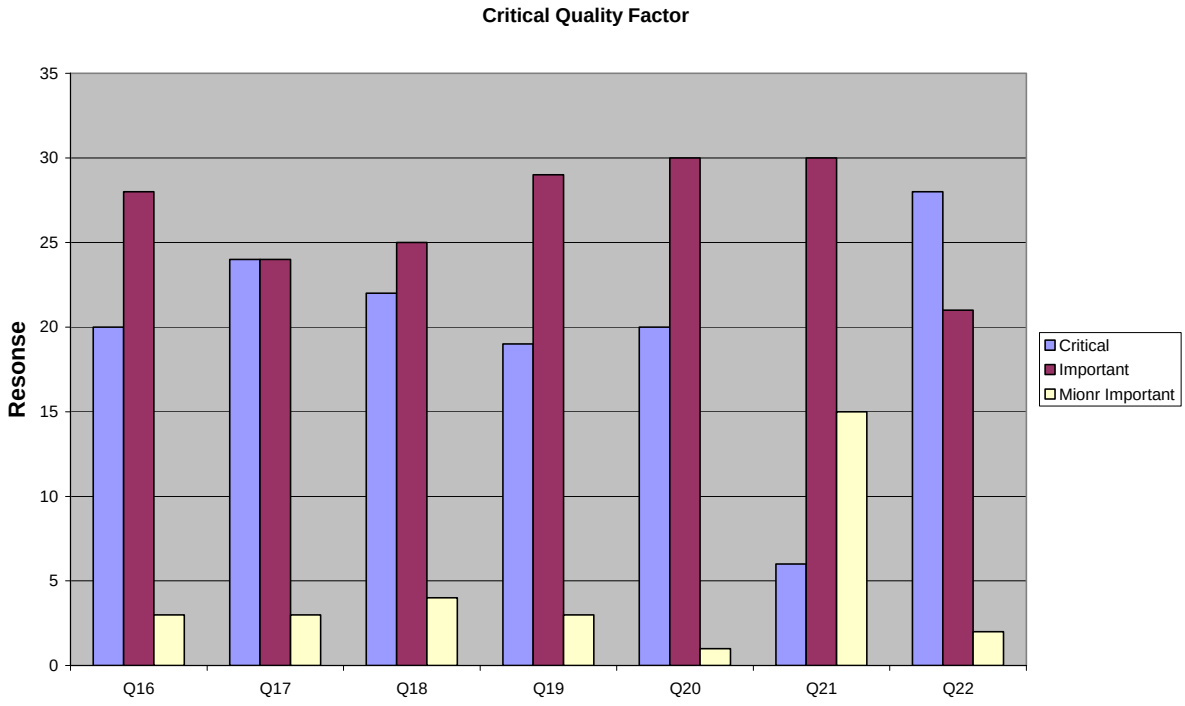


Table 4.2 shows the critical quality factor structure comprising the 22 critical quality factors, sorted in descending order of criticality and stratified into three tiers representing stages of priorities emphasis.

Upon reviewing the findings and calculation of the questionnaire, it has been noticed that eight critical quality factors are absolutely essential to successful TQM implementation as perceived by all respondents to impact on the success of TQM implementation in Jawwal Company, and this answers the second question of the study question.

These eight critical quality factors are:

1- Customer satisfaction
2- Problem identification
3- Clear mission statement
4- Education
5- Participative management
6- Management commitment
7- Top management steering committee
8- Goal clarity

The critical quality factor structure suggests that TQM must begin with customer satisfaction (90.19%) which considered being rational, where MBNQA (1999) and Europe Quality Award (1994) considered as the most important in terms of points assigned. Also Dean and Bowen (1994) believed that customer satisfaction to be the most important major of the firms past and current performance.

Table 4.2
Three- Tier Critical Quality Factors Structure

Tier 1

No.	Question #	Critical Quality Factor	Question:
1.	Q8	Customer Satisfaction.	-Identifying of customer satisfaction and customer needs and modifying the process to satisfy the needs by using customer surveys and feedback process, and tracking of other key measures to assess customer satisfaction
2.	Q2	Problem Identification.	-Training for employees in problem identification and solving skills, quality improvement skills and other technical skills.
3.	Q9	Clear Mission Statement.	-Clear, consistent communication of mission statement and objectives defining quality values, expectation and focus.
4.	Q5	Education.	-Training and learning for employees to improve interactive skills (such as communication skills, effective meeting skills, empowerment and leadership skills).
5.	Q1	Participative Management.	-Employee empowerment, maximizing employee involvement in the quality process, also encouraged and enabled the employee to involve them selves in improvement work beyond their routine work responsibilities.
6.	Q4	Management Commitment.	-All senior executives share the responsibility for evaluation and improvement of all management systems and leading quality drive
7.	Q22	Top Management Steering Committee	-Identifying projects and setting forth information systems plans and priorities.
8.	Q14	Goal Clarity.	-Clear understanding of the organization goals and objectives. Able to recognize any change and adjust accordingly.

Tier 2

1.	Q17	Project Improvement Process.	-Continuous improvement process, based on fact and systematic analysis.
2.	Q20	Quality Circles/ Improvement teams.	-Any possible errors should be anticipated. To produce significant and lasting error rate reduction and to achieve a substantial and continued increase in individual and organizational effectiveness leading to the ultimate goal of any organization (success).
3.	Q18	Strategic Quality Planning.	-Comprehensive policy development and effective deployment of goals.
4.	Q15	Measurements.	-Clear understanding of the organization goals and objectives. Able to recognize any change and adjust accordingly.
5.	Q16	Recognition Programme.	-Progressive organizations acknowledge the work of their employees through some form of recognition program and motivating them to encourage continued productivity, to create a motivating work environment and to provide individual recognition.
6.	Q19	Error Prevention.	-Any possible errors should be anticipated. To produce significant and lasting error rate reduction and to achieve a substantial and continued increase in individual and organizational effectiveness leading to the ultimate goal of any organization (success).
7.	Q6	Goal Setting.	-To turn pledges and commitment into actions by encouraging individuals to establish improvement goals for themselves and their groups.
8.	Q13	Culture Change.	-The cultural issues or changing the culture of the organization affect and influences the successful of implement Total Quality management.

Tier 3

1.	Q10	Problem Solving.	-Problem solving is the process that allows a person or team to find desirable action – option to handle novel and complex situation in ways that will benefit all stakeholders.
2.	Q12	Cost Of Quality	-Cost of quality process to track rework, waste, rejects, and for continuous improvement.
3.	Q3	Publicized Successes	-Publicize the success of the organization, highlight success more often throughout the entire company (conferences, videos, newsletters, follow up meeting, talk radio…etc).
4.	Q7	Statistical Process Control.	-The use of SPC (statistical process control) to control variability and improve processes.
5.	Q11	Vendor Partnership.	-Long-term relationship and working partnership with key suppliers.
6.	Q21	Zero Defects Attitude.	-Zero defects as the quality performance standard.

According to the findings, it is obvious that customer satisfaction is one of the most successes Quality factors which reflect the importance of its impact on organization's level of competitiveness and prosperity.

Another fact about the common finding between Jawwal survey and (Ramirez & Loney 1993) that most of the critical quality factor located in tier one are the same, where we have seven factors from eight which are: (Management Commitment, Customer Satisfaction, Clear Mission Statement, Education, Participative Management, Goal Clarity & Top Management Steering Committee).
These seven factors are also located in tier one in Ramirez & Loney study.

What is amazing that " problem identification" is the second most critical factor in Jawwal study located in tier one but is found to be in tier two in Ramirez & Loney study.
So Jawwal managers consider the problem identification one of the most critical successes factors that is a critical or essential to successful TQM implementation ,this could be attributed to the fact that problem identification considered as a first step to good problem solving.

For the rest of the critical quality factor located in tier one after problem identification, it is noticed and clearly appeared that Jawwal managers considered the same as Ramirez & Loney study.

Clear mission statement becomes third on the list, it considered as the starting point for strategies, structures and processes, so having a clear mission statement will give a clear guidance to all who serve Jawwal organization, and relate to Jawwal current and future customers, besides making a clear and realistic business objectives.

Education is considered one of the main factors which guarantee the successful implementation of TQM (Broadly "quality begins with education") (Ishikawa) and also (Deming, 1986) mentioned the education and self improvements as one of the 14^{th} points of the principles of TQM. For that Jawwal managers chose the education to be one of the critical quality factors that Leeds to success and participative management which empowers the employees maximizes their involvement in the quality process and involves them in improving the work responsibilities to solve problems and improve service quality.

To investigate the practice of employee involvement in TQM we need to look at the reasons for implementation TQM, the attitudes of the staff and their management style, teamwork and barriers to employee involvement (Hales and Klidas, 1998).

Going now to the management commitment which is the most critical factor that Ramirez and Loney study have high score percentage and located at the top of tier one. This factor also located in tier one for Jawwal study but in the sixth place (order), this is because all senior executives share the responsibilities for evaluation and improvement of all management systems and leading quality drive which led that factor to be the first step

and requirement for Jawwal's TQM implementation efforts. On the other side, to implement TQM, top managers at Jawwal are be committed to establishing a company that always considers quality as a major goal, if the Jawwal culture does not embody quality, any quality improvement efforts is probably low and short lived (Dale, 1999; Juran and Gryna,1993).

Continuing with the management factor, the top management steering committee is also located in tier one. It seems that most of the core critical quality factors are either top management related or share some connection which requires top management support. From the literature review all quality gurus and every author of TQM are unanimous on the importance of top management commitment and involvement, and the top management steering committee, management leadership and commitment is also an important category in all major quality awards.

The last critical quality factor in tier one according to Jawwal study is goal clarity which refers to a clear understanding of Jawwal goals and objectives, managers able to recognize any change and adjust accordingly, so they admit that employees need to have a clear understanding of Jawwal objectives. The clear they understand the goals, the easier it is for them to ensure the relationship is mutual.

It is interesting to note that although senior management commitment was recognized as one of the most critical factor, other activities which are associated with the senior

management role were not perceived to be so critical, including, for instance, strategic quality planning, goal setting and culture change.

The second tier lists items that a majority of respondents rated as important but not essential or critical to successful TQM implementation.

Tier two includes eight critical quality factors which are arranged in order of their majority consensus level as follows:

1- Project Improvement Process
2- Quality Circle/ Improvement Teams
3- Strategic Quality Planning
4- Measurement
5- Recognition Programme
6- Error Prevention
7- Goal Setting
8- Culture Change

The middle tier includes the bulk of critical factors all considered to be equally important. It is perhaps surprising to see that a factor such as strategic quality planning which is a very important senior management task is ranked low. This tends to suggest that there is poor understanding of senior management's role in TQM implementation in Jawwal Company, or even perhaps that there is a confusion on the role of TQM. Is it perhaps

thought that TQM implementation is a separate programme from the running of the business?

It is surprising to have cultural change rated very low. This is an indication that cultural change will occur through top management commitment and training. If top management is committed then resources will be allocated to learn new methods and practices to achieve employees buy-in which creates the cultural change.

Four critical quality factors out of the eight which located in Tier two are also located in the same Tier in Ramirez and loney study, which are: Quality circles/improvement team, Measurement, Recognition Programme and Goal clarity.

What has been noticed is that the critical quality factor, project improvement process is located at the top of Tier 2 where it is located in Tier 3 in Ramirez and loney study. It seems that Jawwal managers focus on the comprehensive policy development and effective deployment of goal, more than focusing on the error prevention critical factor.
Error prevention is considered as critical quality factor in Ramirez and Loney study located in Tier 1. it is strange to find this important critical factor rated very low in Jawwal study, where errors should be anticipated to produce significant and lasting error rate reduction and to achieve a substantial and continued increase in individual and Jawwal effectiveness leading the ultimate goal of Jawwal.

The Tier 3 quality factors are those that have the lowest impact on the implementation process of TQM in Jawwal Company, or have minor importance and will not seriously affect the success or failure of the quality management process.

Tier 3 includes the remaining six critical quality factors, which are arranged in order of their majority consensus as follows:

1. Problem Solving.
2. Cost of Quality.
3. Publicized Successes.
4. Statistical Process Control.
5. Vendor Partnership.
6. Zero Defects Attitude.

From the first analysis for the critical quality factors that are located in the third Tier, it is found that four from six of these factors are already included in the same Tier in Ramirez and Loney study. These factors are publicized successes, Statistical Process control, Cost of Quality and Zero defects attitude.

One factor which was considered quite low on the list is vendor partnerships.
This does perhaps suggest that the nature of service projects is such that partnership with suppliers is not considered to be of paramount importance.

The area of vendor partnerships is not considered to be very important. This could be attributed to the fact that there is lack of appreciation on how managing suppliers could impact on quality and business results Zairi (1995).

After discussing all the three Tiers and their critical factors as shown in the previous findings, it is clearly appeared that Jawwal managers are aware of TQM system and its importance of at least 70% of awareness, depending on the findings and the critical factors found in Jawwal study and this answers question one.

According to the study question number three and four, the following findings are shown when making a comparison between Jawwal study and Ramirez and Loney (1993), where some common facts are found.

- Seven Critical quality factors are common in Tier 1 for both studies.

  These factors are:

  1. Management Commitment.
  2. Customer Satisfaction.
  3. Clear mission Statement.
  4. Education.
  5. Participative management.
  6. Goal Clarity.
  7. Top Management steering committee.

- Four Critical quality factors are common in Tier 2 for both studies.

  These factors are:

  1. Measurements.
  2. Goal setting.
  3. Recognition Programme.
  4. Quality circles/ improvement teams.

- Four Critical quality factors are common in Tier 3 for both studies.

  These factors are:

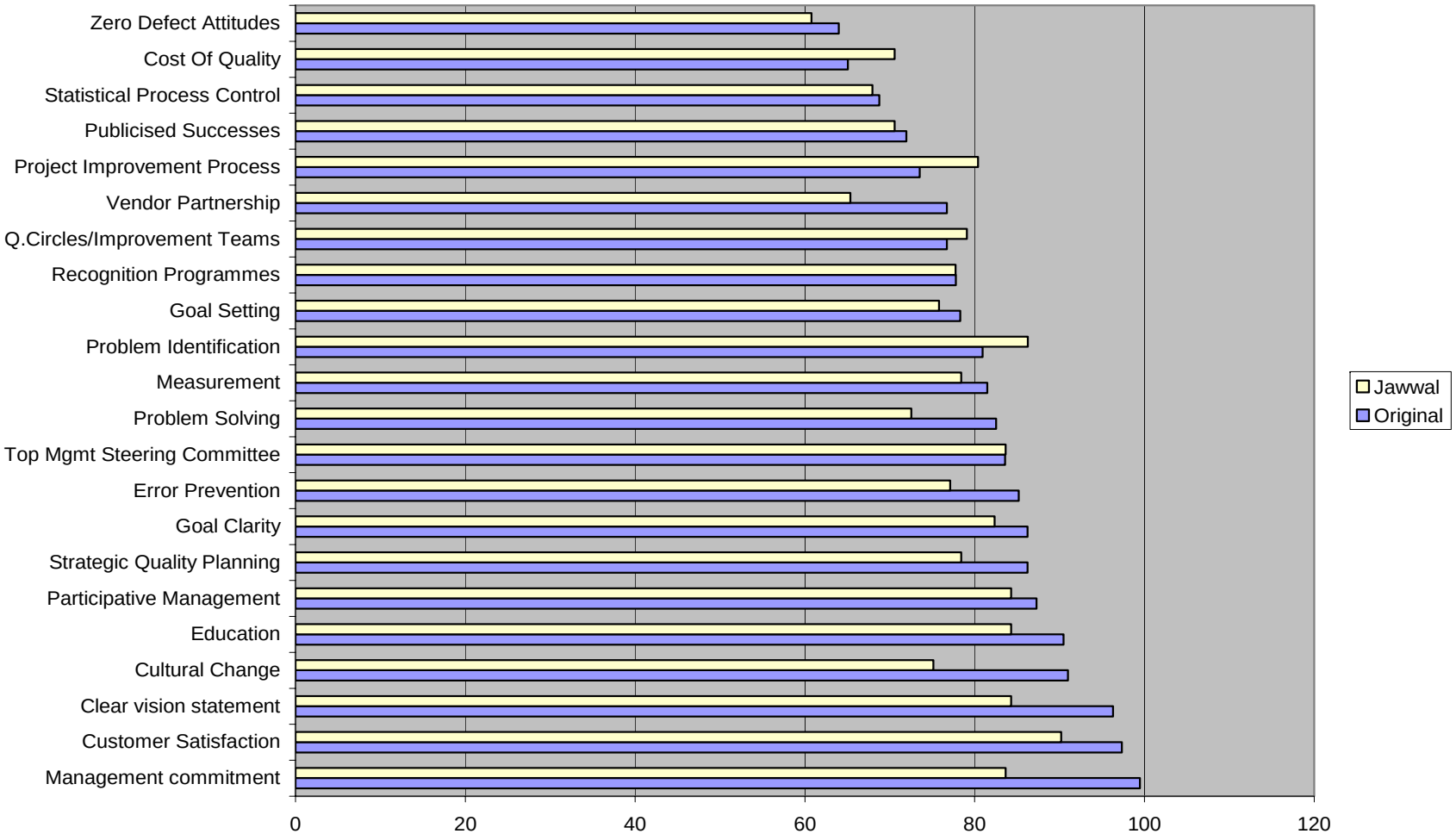
  1. Publicized successes.
  2. Statistical Process Control.
  3. Cost of Quality.
  4. Zero Defects attitude.

- In total we have fifteen from twenty two (15/22) critical quality factors that are common in the same Tiers in both studies.

Figure 4.5 illustrates a chart of the 22 critical factors being compared between the Original study for Ramirez and Loney and Jawwal study. This was an attempt to see whether Jawwal study are overemphasizing or under-emphasizing some of the factors.
As Figure 4.5 indicates, most factors are under emphasized; there are only five critical quality factors that are over- emphasized from the 22 factors.
The areas which are over emphasized:

- Top Management steering committee.
- Problem Identification.
- Quality circles/ improvement teams.
- Project Improvement Process.
- Cost of Quality.

Figure 4.5 Jawwal study versus Ramirez and Loney



When making a comparison between the Jawwal study and Palestinian Study (Baidoun; 2003), some common facts are found.

- Six Critical quality factors are common in Tier 1 for both studies.
    1. Management Commitment.
    2. Customer Satisfaction.
    3. Goal Clarity.
    4. Clear Mission Statement.
    5. Education.
    6. Top Management steering committee.

- Three Critical quality factors are common in Tier 2 for both studies.
    1. Quality circles/ improvement teams.
    2. Error Prevention.
    3. Measurement.

- Two Critical quality factors are common in Tier 3 for both studies.
    1. Cost of Quality.
    2. Zero Defects Attitude.

- In total we have eleven from twenty two (11/22) critical quality factors that are common in the same Tiers in both studies.

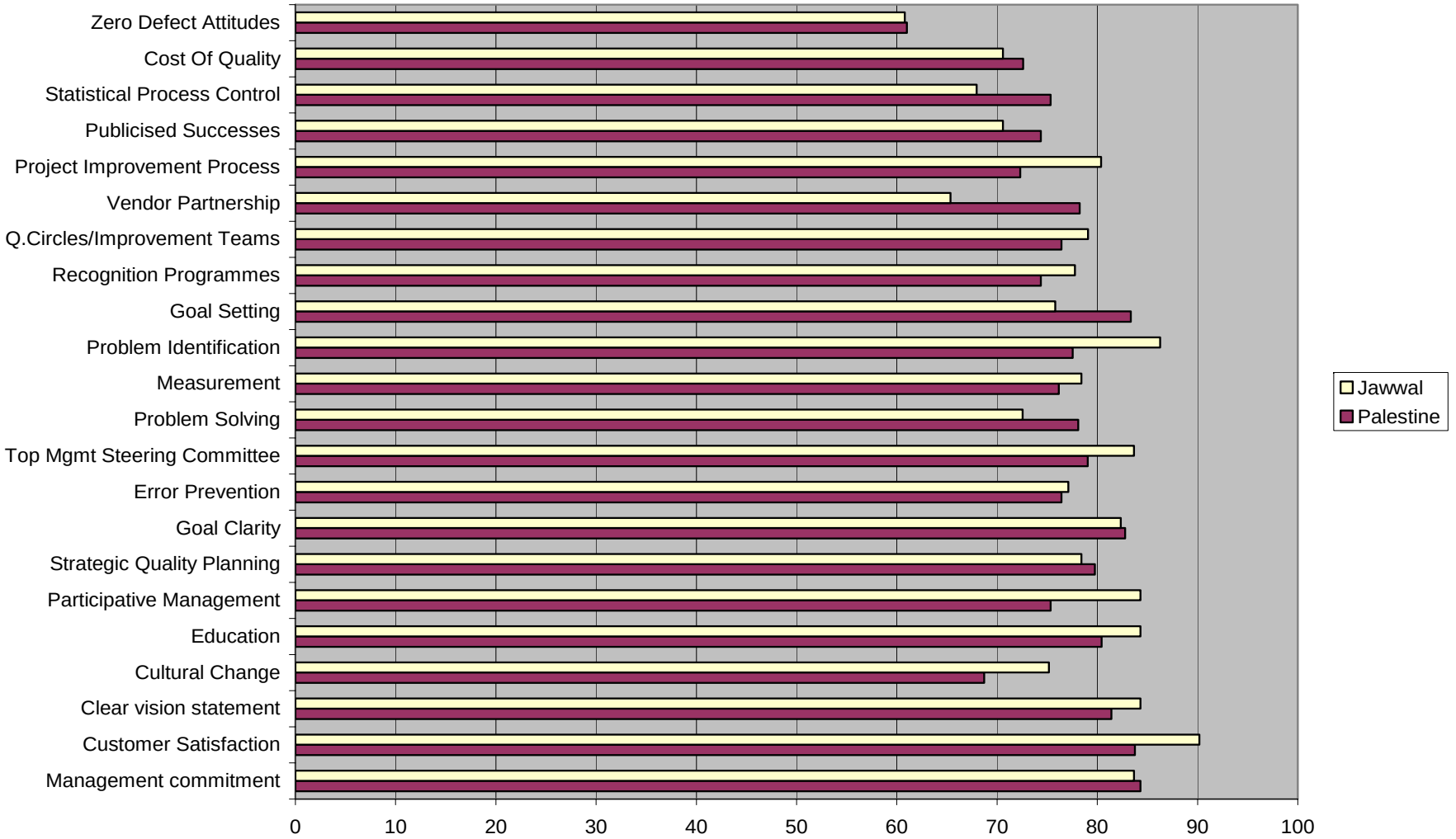
Figure 4.6 illustrates a chart of the 22 critical factors being compared between the Palestinian study and Jawwal study. This was an attempt to see whether the Jawwal study are overemphasizing or under-emphasizing some of the factors.

As Figure 4.6 indicates, most factors are over emphasized; there are twelve (12) critical quality factors that are over-emphasized from the 22 factors.

The following Critical quality factors are over emphasized:

- Customer Satisfaction.
- Clear Mission Statement.
- Culture Change.
- Education.
- Participative Management
- Error Prevention
- Top Management Steering committee.
- Measurement.
- Problem Identification.
- Recognition Programme.
- Quality Circles/ Improvement teams
- Project Improvement process

Figure 4.6 Jawwal study versus Palestinian Study, Baidoun (2003)



After comparing Jawwal study with the original study and Palestinian study, it is obvious that Jawwal Company is in the right track towards successful implementation of TQM compared with all other Palestinian companies and organizations according to the previous findings. So they should continue in the same approach.

4.3 Summary

This chapter summarizes the general findings and questionnaire analysis results for the distributed questionnaire to Jawwal managers. The aim of this was to identify the quality factors that are critical to effective implementation of TQM.

From the findings and calculations for the questionnaire it has been noticed that we have eight critical quality factors that are absolutely essential to successful TQM implementation as perceived by all respondents to impact on the success of TQM implementation in Jawwal Company.

Jawwal study was compared with the original study by Ramirez & loney and the Palestinian study by Baidoun (2003) which showed the factors of over-emphasis and the factors of under emphasis.

Chapter 5

Conclusion and Recommendations

5.1 Conclusion

The twenty two critical quality factors which generated by this study was used to survey Jawwal manager's perception and level of understanding, that survey is considered to be a very useful tool for checking applicability, order of critically and relevance of TQM in Jawwal Company.

Benchmarking the twenty two critical quality factors across the Palestinian study and the original study by Ramirez and Loney, using the result of their studies, was a useful reference to assess the level of awareness and understanding of TQM implementation in the Jawwal Company.

It was clearly shown that the study proved that factors related to customer satisfaction, problem identification, clear mission statement, and continuous learning through education and training are more emphasized than other factors, these factors are classified as tier one factors, which are very critical to successful TQM implementation.

From the previous analysis it could be found that there is a low level of awareness and understanding of TQM implementation in Jawwal Company in spite of the fact that seven

critical quality factors which are classified in tier one are in accordance with the original study.

Most of critical quality factors are under emphasized compared to the original study which reflects that the level of awareness is low. On the other hand, when a comparison between Jawwal study and the Palestinian study (Baidoun; 2003) was made, it was obvious that the level of awareness and understanding of TQM implementation in Jawwal Company is higher than the Palestinian study, where we have twelve critical factors that are over emphasized, seven of them are considered very critical quality factors which classified in tier one in the original study, these seven factors are:

1- Customer satisfaction.
2- Clear mission statement.
3- Culture change.
4- Education.
5- Participative management.
6- Error prevention.
7- Top management steering committee.

Noting that some critical quality factors that corresponding to the strategic level are under emphasized compared to the original study and the Palestinian study too. These include management commitment and strategic quality planning, although management

commitment is the most critical success factor in majority of the previous studies and surveys.

The reasons for this low level of awareness and understanding can be subjective to:

1- TQM concept is considered new in Jawwal Company.
2- There is no quality initiative in Jawwal Company.
3- Not enough experience for some of Jawwal managers.
4- Part of Jawwal managers doesn't have managerial background.

Furthermore, it is clearly noted that there is more emphasis on quality assurance and the control of non conformance of the product related factors.

Cost of quality is more emphasized than the original study but under emphasized than the Palestinian study. This indicates the importance of cost in Jawwal Company but in better shape than the other Palestinian organization.

There is lack of appreciation on how managing suppliers could impact on quality and business results which indicates that Jawwal managers consider the vendor partnership to be of paramount importance, according to low rate of this factor which is under emphasized. This will affect the level of quality assurance and increase cost.

It is amazing to have both education and participative management factors as under emphasized, and in the same time it was found that recognition program and publicized

success are not over emphasized as in the Palestinian study. This shows the fact that Jawwal Company does appreciate the abilities of its staff.

There are many important critical quality factors that are under emphasized; clear vision and customer satisfaction are good example for that.
Jawwal should focus on the need of clear vision, more emphasis on customer satisfaction, even that this factor was located on the top of tier one with 90.19%, but should be more.
There is also a need to deploy TQM goals through strategic quality planning and continuous measurement.

Culture change is very important to TQM, where successful TQM implementation can only come from radically challenging and changing the culture of Jawwal Company. Even that culture change is located in tier two in our study and is under emphasized when compared with the original study, but was found over emphasized compared with the Palestinian study.

Statistical process control and zero defects attitude are under emphasized in both studies (Palestinian and Ramirez and Loney), which gives an evidence that Jawwal managers partially feel of the TQM implementation requirement, because these factors are not the core elements.

Some factors are emphasized with the same degree of criticality including for instance management commitment, having a clear mission statement and a clear commitment

towards customer satisfaction, besides emphasis on continuous learning through education and training to improve employee's creativity, innovation and ability to add value for the benefit of the end customer.

Adding to the above we still have the factors, participative management, goal clarity and top management steering committee in the same degree of criticality.
There is a need for having a quality strategic planning process and senior management structure for driving quality forward and deploying quality goals throughout the Jawwal organization.

On the other side, quality management is a long term process which relies on relative achievements through continuous performance improvement. Problem solving, problem identification, team work and quality circles are all important aspects for driving the improvement ahead and forward.

Moreover, the Benchmarking process revealed that the level of awareness and understanding of TQM success factors in Jawwal Company is low compared to the responses of the original study's sample, and is high compared to responses to the Palestinian study's sample.

Finally, total quality management is a tool that can be used by Jawwal Company to meet its quality goals. The successful implementation of TQM in Jawwal could be achieved if

TQM becomes an integral part of the normal work processes and is no longer discussed as a separate program; it is just part of getting the job done (Cohen and Eimicke; 1994).

5.2 RECOMMENDATIONS

In addition to the above discussed and detailed conclusions, that converge and focus in the implementation of TQM, the following main points may illustrate additional recommendations that should be taken by Jawwal Company if they would like to implement TQM.

Moreover, based on the findings and conclusions of this study, the following recommendations may be addressed below:

- Since some of the Jawwal Managers lack the know-how, awareness and consciousness of TQM System, including its elements, features and characteristics, the expected advantages, benefits and rewards gained from implementing TQM, then the first step is to conquer and overcome this issue prior to any thinking for any implementation. This may be obtained through the following two practices:

    * Establish or create a comprehensive discussion, research, seminar or colloquium for the Jawwal managers that identifies the reimbursement and benefits from implementing TQM or at least what are the advantages and compensations obtained from the implementing some of the elements and features of TQM.

* Training of management and employees in order to create an organizational culture, which is consistent with the TQM organizational philosophy.

- Jawwal top management should concentrate on the error prevention, strategic quality planning and culture change, where these factors are critical to a successful implementation of TQM, this can be done through the short and long term planning strategies for Jawwal Company.

- Analysis for different operations inside the organization in order to identify areas where standardization and simplifications are needed. Operational processes and procedures should be re-engineered based on this analysis prior to the implementation of TQM.

- Organizations must participate their employees in the implementation phases of TQM including (prior, during, and post implementation), in addition of providing good incentives for the employees to support such implementation. Such involvement for the employees in decisions that affect their jobs and provide them with the necessary information; in addition of conducting periodic surveys, and involving employees in planning or special initiatives and allowing them to have input on decisions, which will affect them positively.

- Maintain training programs to enhance the knowledge and awareness of having flexible workforce at all work centers.

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Appendix I

Questionnaire Survey

Name: ……

Position: ……

Years of Experience: ……..

How do you perceive each of the Quality Factor, as to your level of importance to the successful implementation of Total Quality Management in Jawwal Company?

• **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.

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

• **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. Employee empowerment, maximizing employee involvement in the quality process, also encouraged and enabled the employee to involve them selves in improvement work beyond their routine work responsibilities.

☐ Critical ☐ Important ☐ Minor Important (Neutral)

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

☐ Critical ☐ Important ☐ Minor Important (Neutral)

3. Publicize the success of the organization, highlight success more often throughout the entire company (conferences, videos, newsletters, follow up meeting, talk radio,…etc).

☐ Critical ☐ Important ☐ Minor Important (Neutral)

4. All senior executives share the responsibility for evaluation and improvement of all management systems and leading quality drive.

☐ Critical ☐ Important ☐ Minor Important (Neutral)

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

☐ Critical ☐ Important ☐ Minor Important (Neutral)

6. To turn pledges and commitment into actions by encouraging individuals to establish improvement goals for themselves and their groups.

☐ Critical ☐ Important ☐ Minor Important (Neutral)

7. The use of SPC (statistical process control) to control variability and improve processes.

☐ Critical ☐ Important ☐ Minor Important (Neutral)

8. Identifying of customer satisfaction and customer needs and modifying the process to satisfy the needs by using customer surveys and feedback process, and tracking of other key measures to assess customer satisfaction.

☐ Critical ☐ Important ☐ Minor Important (Neutral)

9. Clear, consistent communication of mission statement and objectives defining quality values, expectation and focus.

☐ Critical ☐ Important ☐ Minor Important (Neutral)

10. Problem solving is the process that allows a person or team to find desirable action – option to handle novel and complex situation in ways that will benefit all stakeholders.

☐ Critical ☐ Important ☐ Minor Important (Neutral)

11. Long-term relationship and working partnership with key suppliers.

☐ Critical ☐ Important ☐ Minor Important (Neutral)

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

☐ Critical ☐ Important ☐ Minor Important (Neutral)

13. The cultural issues or changing the culture of the organization affect and influences the successful of implement Total Quality Management.

☐ Critical ☐ Important ☐ Minor Important (Neutral)

14. Clear understanding of the organization goals and objectives. Able to recognize any change and adjust accordingly.

☐ Critical ☐ Important ☐ Minor Important (Neutral)

15. Improvement measurements systems, assessment and improvement of process or products. Management of data and data gathering cycle. It is also the essential ingredient for goal setting.

☐ Critical ☐ Important ☐ Minor Important (Neutral)

16. Progressive organizations acknowledge the work of their employees through some form of recognition program and motivating them to encourage continued productivity, to create a motivating work environment and to provide individual recognition.

☐ Critical ☐ Important ☐ Minor Important (Neutral)

17. Continuous improvement process, based on fact and systematic analysis.

☐ Critical ☐ Important ☐ Minor Important (Neutral)

18. Comprehensive policy development and effective deployment of goals.

☐ Critical ☐ Important ☐ Minor Important (Neutral)

19. Any possible errors should be anticipated. To produce significant and lasting error rate reduction and to achieve a substantial and continued increase in individual and organizational effectiveness leading to the ultimate goal of any organization (success).

☐ Critical ☐ Important ☐ Minor Important (Neutral)

20. A team approach (such as quality circles, cross-functional teams) in problem solving and continuous improvement.

☐ Critical ☐ Important ☐ Minor Important (Neutral)

21. Zero defects as the quality performance standard.

☐ Critical ☐ Important ☐ Minor Important (Neutral)

22. Identifying projects and setting forth information systems plans and priorities.

☐ Critical ☐ Important ☐ Minor Important (Neutral)

Thank you for your cooperation

Maher Barrouk

Appendix II

Jawwal

In this section, a detailed description of Palestine cellular Communications Company, hereinafter called (Jawwal), which will participate in this project.

Jawwal Mission

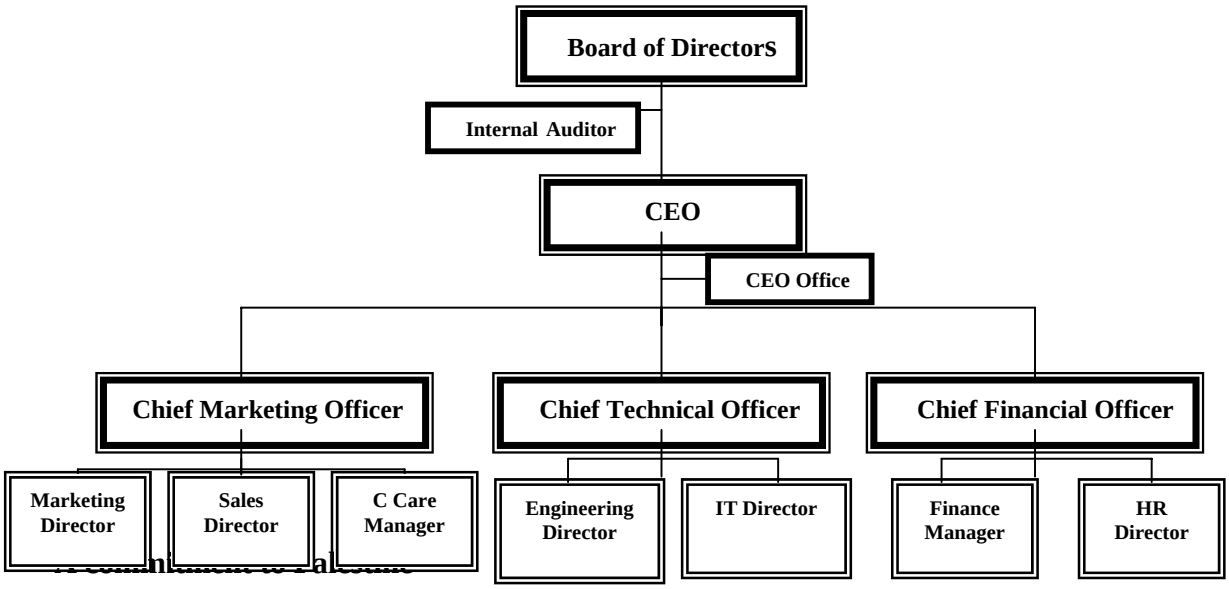
Exceeding customers' expectations in everything we do today, tomorrow and the day after.

Jawwal Structure

Jawwal main building blocks constitute of three main directorates (Figure-1.1):

1) Board of Directors: Five directors are leading Jawwal, Chairman of the board and four members.
2) Chief Executive Officer at the top of a committed team members including:
    a) Chief Technical Officer: Taking care of engineering and information technology directorates.
    b) Chief financial Officer: Taking care of finance, Procurement, and roaming departments, an addition to Human resources directorate.
    c) Chief Marketing Officer: Taking care of Marketing, Sales, and Customer care directorate.

Figure 1.1: Hierarchal structure of Jawwal Company.



Jawwal, Palestine's first cellular service provider, was established in the summer of 1999 as a project of the Palestinian Telecommunications Company (Paltel). In December 2000, Jawwal developed into an independent, private corporation. Jawwal invested over $140 million to establish a cellular network that covers all of the West Bank and Gaza Strip.

Furthermore, Jawwal is the first and the only mobile operator in Palestine so far. This ranks Jawwal as the market leader although it deals with three Israeli illegal competitors providing typical service all through the Palestinian territories and holds a market share not less than fifty percent of the Palestinian mobile services market.

Building Palestine's Infrastructure:

Jawwal is the first company to provide comprehensive cellular coverage in Palestine. Its network expansion plan is divided into four phases including over 370 cell sites serving

more than 570,000 customers. Jawwal has now entered phase five and is preparing to increase the number of transmission stations in order to service 700,000 customers. The core network is be enhanced with the new data platforms (GPRS), which enable Jawwal customers to access to the Internet though this service. In addition to quite a lot of forth coming value added services.

Investing in Human Resources:

Jawwal has attracted hundreds of employees and experts in the fields of engineering and cellular communications. Jawwal people are well trained, enthusiastic and ambitious. Jawwal provides extensive training courses on the latest cellular communication systems and customer service both in Palestine and abroad. Today, Jawwal depends exclusively on Palestinian talent. Jawwal growth is based on its professional team in each of the five main directorates that shape the company. Skilled professionals in Engineering, Human Resources, Customer Service, Strategic Development, Finance, Marketing, and Sales ensure that every building block of Jawwal is rock solid, receiving all the required investments, attention and expertise.

Commitment to the community

Jawwal is an integral part of the Palestinian community. The people it serves, the environment it share are all part of a single "Social Network". It is its responsibility and duty to support and enhance social, cultural and educational endeavors. Jawwal focuses on sponsoring a realm of activities with the theme "Youth and Education". Among the many events sponsored by Jawwal is a telethon to raise money for students. Jawwal is

quick to sponsor educational and cultural foundations or organizations. Jawwal is also building a monument in memory of Palestinian children who lost their lives in the political turmoil forced on the region.

A Commitment to the Customers:

The customer is the focus of all Jawwal plans and endeavors. Jawwal offers customers the ability to communicate with friends and family all over the globe. Jawwal now roams in more than 110 countries, with 231 GSM operators, worldwide. It provides its customers with a seamless, high-quality connection. It guarantees local and international servicing, speedy communication and a secure system, all at competitive prices.

Technology is the future; the future is today:

Jawwal understands the importance of providing Palestinians with innovative technology that meets their evolving needs. Jawwal technology partners around the world are an integral part of our strategic vision. Companies like Ericsson are looked upon as partners and commercial allies. Well-established companies such as Alcatel, Ericsson, Motorola, Semiens and Nokia supply Jawwal with the most modern handsets. All Jawwal partners contribute to Jawwal ability to provide customers with advanced services at competitive prices. A clear voice connection, a seamless data connection is the two strategic cornerstones that constitute Jawwal vision. Today, provide customers with a wide range of data services from entertainment and horoscopes to music and business information. Tomorrow, the sky is the limit.

A vision for the future

Jawwal faces many challenges arising from the volatile socio-political environment. Israeli authorities are persistently attempting to hinder the growth of the company by confiscating equipment and creating obstacles to establishing new radio base stations. This, along with the illegal operation of Israeli cellular companies in the Palestinian territories, may present temporary setbacks, but they will not deter Jawwal from providing customers with the best possible service and technology available. In fact private companies like Jawwal, help facilitate and improve relation between both Israeli and Palestinian societies. Jawwal aspires to make mobile communications accessible to all Palestinians by offering fair prices, constantly improving service, expanding its network and signing international roaming agreements to ensure comprehensive international roaming services. New technology like EDGE is now a reality and Jawwal plan is to incorporate all technological breakthroughs in its service offering.