RESEARCH REPORT

The implementation of total quality management at a tertiary education institution

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Abstract

The purpose of this study was to investigate the total quality management of the academic administration services' post-graduate department within the Potchefstroom Campus of the North-West University, in terms of the following:

- The implementation of TQM at the University
- The organisational profiles of the University
- How the organisation's goals and missions are structured around the needs of its customers
- Total Quality Management is a concept generally used throughout organisations providing tertiary education in South Africa. There are, however, some universities that do not use TQM. This study investigates the use of TQM within a tertiary education institution at the post-graduate administration department.

The results of the problems experienced through the implementation of TQM are reported in this study.

Keywords

Continuous improvement

Customers or students

Higher education

Organisational factors

Products

Tertiary institutions

Total Quality Management

University

1. CHAPTER 1

1.1 Background and introduction

Tertiary education has grown tremendously in the last few decades and more and more students and people are empowering themselves though tertiary education. The topic of quality in tertiary education is worth studying due to the pressure that is exerted on tertiary education institutions to increase the throughput of students. During the first decade of the 21st century, there has been a general concern (Mammen 2007: 888) surrounding the quality of secondary education in South Africa and there is a general lack of trust pertaining to the legitimacy of grade twelve results in the country. A study on quality management at a tertiary institution will benefit the institution at which such a study is undertaken, because it will assist in providing good quality control at tertiary level. This could also be valuable for other similar service industries worldwide.

During the latter part of the 20th century, there was an active debate on the topic of total quality in tertiary education in the world (Lewis 1994: 9). Therefore, some of the literature used for this study is fairly old, as the subject and objectives of this study were concentrated on a while ago and then paused for a while. Due to the dynamics in South Africa since 1994, and the amalgamation of tertiary institutions in the country, the topic became extremely relevant in the country after 2000.

Keeping the above dynamics in mind, the South African tertiary education system is experiencing major changes. According to Woeppel (2001: 6), a new system cannot work adjacent to an old system if the new system is not aligned to the existing system, culture and vision." Therefore, the design of a total quality management (TQM) system, the “changes” it brings to the organisational structure, the cost structure of the organisation, the complexity and diversity of the products, and the human relationships are all factors that can influence the level of success in the organisation.

Woeppel (2001: 6) also elaborated further that there are several factors that can result in implementation problems when implementing a total quality management system, and therefore the implementation process must be well conceived, planned and executed to achieve the desired results within the organisation.

Total quality management contains elements of control and the inspection of quality in a process. Both control and inspection depend on supervision to ensure that minimal errors are made. Inspection, detection and finally correction of mistakes are the approach to ensuring quality. Quality control is a vital technique to prevent recurring errors (Basu et al. 2003: 23).

The above-mentioned facts suggest that the following questions warrant an investigation:

1. Which elements/characteristics of a TQM system are applicable to a tertiary institution?
2. How could one analyse the implementation of TQM as a management tool in a tertiary institution?
3. Is it possible to determine by means of a questionnaire to what extent these TQM elements are being used to ensure quality education at the tertiary institution?
4. What does a TQM system that would be of benefit to the NWU look like?

1.2 Problem statement

***Hypothesis*: By implementing and controlling total quality management answers could possibly be found to increase the amount of throughput of students.**

Total Quality Management (TQM) is a management practice that is designed to improve the performance of organisations. Based on concepts developed by W. Edwards Deming, it is a process whereby techniques in achieving efficiency, problem-solving, imposed standardisation and other business aspects are implemented within an organisation.

Total quality management (TQM) has developed from the initial concepts put forward by Deming, Juran and Crosby to the science that it is today. TQM techniques that are common in the 21st century include problem-solving techniques, standardisation, statistical process control and Six Sigma (Basu *et al.* 2003: 23).

Implementing total quality management (TQM) in the administration department of the tertiary institution could possibly increase the amount of throughput at the institution. Throughput is the number of students who have passed and became qualified at the institution.

The quality of service at the NWU needs to be evaluated. Therefore, there is a need to find ways and means to counter administrative quality problems. In evaluating effectiveness of quality of service at the university, it also needs to be ascertained to what extent does TQM filter through the organisational structure and whether the organisation's missions and goals are structured around the students' needs.

This is the main reason that total quality management in the rendering of administrative services at the NWU needs to be investigated.

1.3 Objectives

1.3.1 Primary objective

Management needs to design and improve the processes within the organisation in order to provide total quality to their clients (Cooper 1989: 77). There are various techniques that have been developed for achieving efficiency, solving problems, imposing standardisation and statistical control (Cooper 1989: 77). These techniques should be employed when implementing and controlling a total quality management system within the organisation.

The primary objective of the study was to determine to what extent the TQM principles are being used to improve quality of administrative services at a tertiary institution. From this, improvements are recommended to ensure the better application of TQM principles at the institution. The study population for the investigation was master's and doctorate students at the North-West University (Potchefstroom Campus).

1.3.2 Secondary objectives

In order to reach the primary objective, the following secondary objectives were pursued:

To determine which total quality management (TQM) principles are applicable to tertiary education institutions through a literature study.

To test the perception of post-graduate students on the degree to which these principles are applied at the North West University.

To make recommendations on how administrative services could be improved through the application of these principles.

1.4 Scope of the study

This study was conducted at a tertiary institution at the administration services of the post-graduate department. All students who have registered over the past two years (2009 and 2010) as well as new or first-year students (post-graduate) will be given questionnaires to complete. Although the number of enrolled post-graduate students at the University is likely to change during this study, the size of the population at the start of the study is 3 000, according to the University's administration department.

1.5 Research methodology

1.5.1 Literature survey

Much has been written about total quality management in general and its application in the field of higher education. In this chapter, the literature is reviewed with respect to quality assurance to higher education regarding the administrative support and services provided by the institution.

The planned literature study will be conducted by means of articles on the subject of determining total quality management at a tertiary institution.

The following sources will be used to conduct the study.

Source: North-West University Library, EBSCOhost and Science Direct.

The literature study will be done to determine and measure the quality of the support and services provided at the tertiary institution to its clients (students). The institution that will be used for this study is the North-West University's post-graduate administrative department.

The literature study will be measured by means of a questionnaire divided into three sections evaluating the services and support provided by the academic administration department of post-graduate studies of a tertiary institution.

This literature study will determine whether the total quality management of the department in question is controlled and assured regularly and if there are any

shortcomings within the department that have to be rectified, reviewed and corrected.

By conducting this research, it can be determined whether students are satisfied with the products, support and services they are experiencing or whether they need to be revised.

1.5.2 Proposed research approach, strategy and schedule

Chapter 1 includes the introduction and background to the study. The purpose and importance of this study are stressed and include a discussion of the limitations and assumptions.

This will be followed by a literature study by means of a questionnaire that will be completed by students who are currently registered at the tertiary institution as well as students who have graduated from the institution. From these results, the total quality management of the administration of the post-graduate department of the institution will be determined and evaluated. It will also provide a clear indication as to whether the services and support received by this department are satisfactory for the post-graduate students.

The empirical study will be done by means of a questionnaire. The results of the literature study will be used to compile the questionnaire. The questionnaire will be handed out personally and via electronic mail to students currently studying at the NWU.

A sample size of a minimum of 350 students across the eight faculties at the NWU will be randomly selected.

The results of the questionnaire will highlight the strengths and weaknesses within the administrative department and should also indicate where training and development intervention would be required.

1.6 Limitations and assumptions of this study

This research project has various limitations – they are:

- Whether the same quality control system is being used at other campuses;
- Whether the total quality management process is applicable only in SA or worldwide;
- The strengths and weaknesses faced by these organisations in applying TQM;
- The empirical study is limited to questionnaires drawn up and sent out to students studying at this institution. The questionnaire might not cover all possible factors influencing TQM;
- The fact that the research is conducted at only one campus of one university in South Africa could limit the value of the study within a broader context;
- The willingness of post-graduate students to participate in this research;
- The fact that many (if not most) post-graduate students study part-time; and
- University employees who are currently studying are biased towards filling in a questionnaire.

However, an assumption is made that all those who participated in completing the questionnaire have a good knowledge of the institute and its education system.

2. CHAPTER 2

Literature survey

Total Quality Management

Definition: "TQM is a process and philosophy of achieving the best possible outcomes from inputs, by using them effectively and efficiently in order to deliver the best value for the customer, while achieving long-term objectives of the organisation"

(Anonymous 2008)

2.1 Introduction

The theory and definition of total quality management TQM are discussed and described in this chapter. There are three main topics in this chapter, namely Total Quality Management, the dynamics of tertiary institutions and the evidence of Total Quality Management at tertiary institutions. These topics are described and discussed within this chapter as well as theoretically explained.

Total Quality Management (TQM) is about providing the customer with what they want. It is about creating a quality culture where the main aim of every staff member is to delight their customers, and where the structure of the organisation allows them to do so. In TQM, the customer is sovereign. It involves moving with changing customer needs and expectations to design products and services that meet and exceed their expectations. The perceptions and expectations of customers are recognised as being short term, so organisations and institutions have to find ways

of keeping their customers and therefore have to be able to respond to their changing needs (Sallis 2003: 23).

There are many different aspects of total quality management (TQM). It is applied in industries, manufacturers as well as service providers. This survey is concentrated on TQM within a tertiary institution. In literature on TQM, the father of total quality management, WE Deming, often appears like a golden thread. TQM has been proven to be successful within many companies when implemented correctly. What is it and how is it implemented within an institution? It is a simple yet very complex concept. This requires great research and understanding before implementation. Therefore, for it to work, an institution must itself want to introduce it. It is about always trying to do things right the first time and every time, rather than occasionally checking if they have gone wrong (Sallis 2003: 23).

2.2 What is Total Quality Management?

Total quality management (TQM) is the enhancement of the traditional way of doing business. It is a proven technique to guarantee survival in global competition. TQM encompasses three words, analysed as follows:

Total – made up of the whole

Quality – degree of excellence that a product or service provides

Management – Act, art or manner of handling, controlling and directing.

Therefore, total quality management (TQM) is the art of managing the whole organisation to achieve excellence. TQM is the application of quantitative methods and human resources to improve all the processes within an organisation and to exceed customer needs now and in the future (www.totalqualitymanagement.com).

Literature suggests (Goetsch 1994: 6) that quality plays a major role in an industry and institution as far as competitiveness is concerned. However, many people are confused about total quality management (TQM) and how to use it in management as a tool. Many people find TQM to be complicated and confusing. This can be explained by evidence that people do not understand and grasp the idea of TQM and how it works. By understanding TQM within industries and institutions can lead to competitiveness within that environment.

There are many works focusing on TQM. According to Sallis (2003: 23), all these works stem from the works of the founder of this concept, W Edwards Deming, the man who taught the Japanese how to produce high quality goods at the lowest cost possible.

2.3 History of TQM

In the last decade of the 20th century, the applicability of TQM in education attracted the attention of various authors such as Edwell (1993: 58), Sherr and Lozier (1991: 3) and Bonser (1992: 9). They pointed out that educational institutions have turned to TQM for the same reasons that businesses have instituted quality programmes (Kwan, 1996: 25) – the escalating number of students, lack of consistent leadership style, increasing need for accountability to the public and changing attitudes towards tertiary institutes. The adaptation of TQM in education was due to resource constraints and increasing pressures (Sallis, 2003: 23). The 1990s was the period that total quality management (TQM) was a highly discussed topic in the USA and the changing dynamics in South Africa in the last few years make this research topical to us now.

The following is a description of the progression of total quality management (TQM) The managerial skills that pertain to controlling, representing, staffing, structuring, setting goals and communicating besides handling budgets, costs, information flow,

employee relations, external funding and relations with evaluating bodies., according to Berkhout (2006: 919):

- 1930s – Walter Shewhart developed control charts.
- 1940s – US was in World War II and standardisation, statistical control and best manufacturing practices were brought into practice. ISO 9000 standard.
- 1950s – Edward Deming taught statistical methods and Dr Juran taught quality management techniques to the Japanese.
- 1960s – Douglas McGregor formed the Theory X and Theory Y leadership models.
- 1970s – Japan became the world quality leader in Total Quality Control.
- 1980s – TQM spread like wildfire.
- 1990s – TQM evolved. New methods that supported TQM were introduced.
- 2000s – ISO 9001 revised. More focus on business planning and quality management.

2.4 The concepts of Total Quality Management

An approach to quality that emphasises continuous improvement, a philosophy of "doing it right the first time" and striving for zero defects and the elimination of all waste. It is a concept of using quality methods and techniques to gain strategic advantage within institutes (Murad et al., 2010: 9)..

Total Quality Management (TQM) refers to the methods that management uses to enhance quality and productivity within organisations. It is a comprehensive system approach that works horizontally across an organisation, involving all departments and employees extending backward and forward to include suppliers and clients/customers (Murad et al., 2010: 9).

According to Murad *et al.* (2010: 9), TQM is a practiced concept in many institutions and industries and there are many experts and followers of this concept. Each has defined TQM in different ways. Although there are various ways of defining this concept, the idea and concepts remain the same.

Murad *et al.* (2010: 9) also state that TQM is a management concept whereby the basis is to reduce the errors produced during manufacturing or service processes and to increase customer satisfaction. In order to achieve this, companies have to aim for the modernisation of resources and have to ensure that workers have the highest level of training. Total Quality Management is often associated with the development, deployment and maintenance of organisational systems that are required in the various business processes.

TQM is a holistic management philosophy that harnesses the efforts of everyone in the organisation in order to achieve continuous improvement and ongoing innovation. Quality is a people business and without the commitment and involvement of every manager and employee, it will be unattainable. Total Quality Management is the ultimate tool that organisations should use in order to achieve the goals that they must strive for (Murad *et al.,* 2010: 9).

Stahl (1998: 347) quoted the definition of total quality management (TQM) as contained in the ISO 8402 Quality Management and Quality Assurance Vocabulary as “A management approach of an organization, centred on quality, based on the participation of all its members and aiming at long-term success through customer satisfaction and benefits to the members of the organization and to society.”

Similarly, Gilbert (2004: 205) states that TQM is a management philosophy focusing mainly on the expectations of customers, preventing problems, building commitment to quality in the workforce, and therefore promoting open decision-making.

There are four basic elements that are involved in TQM. The four P's:

- Performance
- Planning
- Processes
- People

These four P's come together in the sense that the organisation will improve its performance if its planning is good, processes are capable and people are involved and allowed to actively participate. These elements have remained the same in all the years and remain the basic elements of TQM (Basu & Wright, 2003: vii).

Total Quality Management (TQM) can be taken as separate words and analysed whereby all three words, namely 'total' and 'quality' and 'management' can each be explained on their own (Flood, 1993: 41).

Flood (1993: 42) states that to define 'quality' first, and then to further explain what 'total quality' and later adding 'management' mean, will provide a fundamental understanding of TQM. This will lead to a definition of the whole TQM expression.

Total – 'Total' is a very important word in the expression as it states that the entire or whole sets of interacting issues are being dealt with. These involve everyone at all levels within the institute so that all major issues can be addressed.

Quality – There are various ways to define quality (Flood, 1993: 42), which also shows the focus of the major drivers of total quality management through the last half century.

1. Quality is a predictable degree of uniformity and dependability, at low cost and suited to the market – Deming (1996)
2. Quality is a fitness to use – Juran (1989)
3. Quality is conformance to requirements – Crosby (1992)
4. Quality is the (minimum) loss imparted by the product or service to society from the time the product is shipped –Steyn (2000)
5. Quality is in its essence a way of managing the organisation – Feigenbaum (1993)
6. Quality is correcting and preventing loss, not living with loss – Fullan (2002)
7. Quality is the totality of features and characteristics of product, service or process, which bear on its ability to satisfy a given need from the customer or client's viewpoint – British Standard Definition

Each of the above explanations and definitions of quality from each author holds a strong vision.

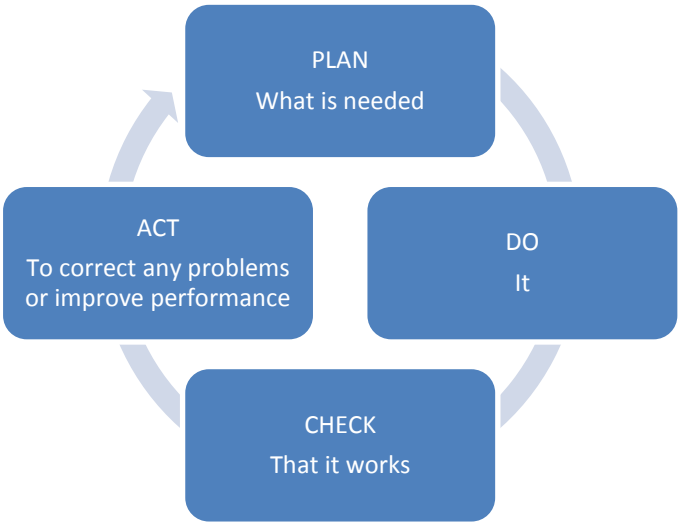
Quality as innovation: customers must be loyal and return again and again for leading-edge products and services. Ultimately, management should embrace holistic initiatives to anticipate the customer's needs and wants and in so doing, "make the leap from continual improvement to continual innovation" (Gabor, 1990: 10).

W Edwards Deming (dti 2011) reported on Deming the following: Deming was an American statistician, who was invited to help the Japanese improve their quality because they wanted to have a larger export market. Deming went beyond traditional statistical control techniques and developed a management philosophy. He taught on problem-solving and team work. He taught that the problems faced should be focussed on improvement and not on blaming the workers. Deming placed great responsibility and importance on management, at the individual and company level, believing management to be responsible for most of the quality problems. His fourteen-point plan is a complete philosophy of management that can

be applied throughout any organisation – large or small – in the public, private or service sectors:

* Create constancy of purpose towards improvement of product and service;
* Adopt the new philosophy. We can no longer live with commonly accepted levels of delay, mistakes and defective workmanship;
* Cease dependence on mass inspection. Instead, require statistical evidence that quality is built in;
* End the practice of awarding business on the basis of price;
* Find problems. It is management's job to work continually on the system;
* Institute modern methods of training on the job;
* Institute modern methods of supervision of production workers. The responsibility of foremen must be changed from numbers to quality;
* Drive out fear, so that everyone may work effectively for the company;
* Break down barriers between departments;
* Eliminate numerical goals, posters and slogans for the workforce asking for new levels of productivity without providing methods;
* Eliminate work standards that prescribe numerical quotas;
* Remove barriers that stand between the hourly worker and their right to pride of workmanship;
* Institute a vigorous programme of education and retraining; and
* Create a structure in top management that will push on the above points every day.

Deming believed that the adoption of, and action on, the fourteen points was a signal that management intended to stay in business. He encouraged a systematic approach to problem-solving and promoted the widely known Plan, Do, Check, Act (PDCA) cycle (Lewis *et al.,* 1994: 9).



The cycle basically expects planning what is needed to be done as well as assessing what the requirements and tools needed for the changes are. Then put the planning into action or make the changes. Thereafter, the plans should be checked and put into action. Once the action takes place and there are problems, they should revise the plans and repeat the cycle once again (Lewis *et al.,* 1994: 9).

It is a universal improvement methodology, and the idea is to constantly improve, and thereby reduce the difference between the requirements of the customers and the performance of the process. The cycle is about learning and ongoing improvement, learning what works and what does not in a systematic way; and so the cycle repeats – after one cycle is complete, another cycle is started (Lewis *et al.,* 1994: 9).

Deming also said that quality is to achieve fitness for purpose on time and within budget (Deming, 1986: 21).

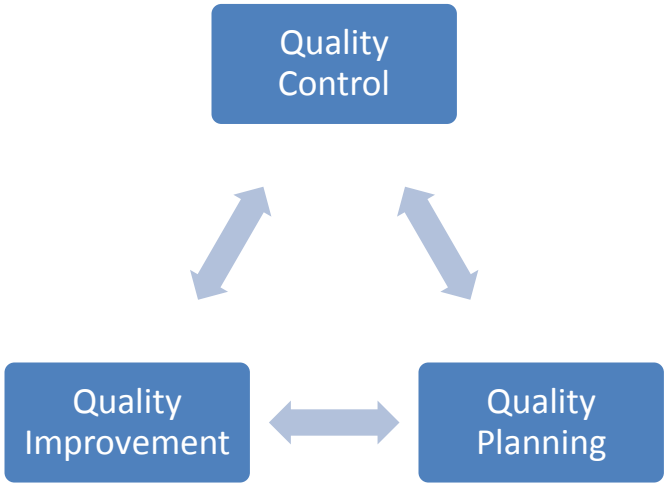
Deming also argues that organisations need to move forward toward a long-term relationship with their suppliers on a basis of loyalty and trust. This kind of approach

makes total sense for a tertiary institution in its many business operations (Deming, 1986: 22).

According to Deming (1986:22), quality improvement is hard work. It is the responsibility of the leaders and managers of a higher education institution to design the systems to work with the personnel. Managers and leaders need to motivate and direct human resources in the system towards quality improvement. This must be done bearing in mind the needs of the consumers or clients to whom the services are provided. He also states that organisations too often blame workers for quality problems, when a lack of quality and efficiency is caused by a lack of in-depth training and inadequate design of the production system. These are the responsibilities of management, not the workers. Trainees must understand the organisation and the systems, and all should understand the need to reduce variability and improve quality. Management needs to eliminate problems that prevent people from doing their job with satisfaction. They need to find ways to use the best abilities of their people. It is the leader or manager who is responsible for developing the employee to achieve his/her potential. However, higher education institutions place the responsibility for performance of their most important outputs solely on the employee. Nor do the higher levels of most tertiary institutions give managers any help or training in carrying out their roles. In order for organisations to improve and supply quality services and products, it is necessary for all managers, leaders and employees to work as a team.

Deming (1986: 24) rejects measures that are totally incompatible with never-ending improvement and insists that numerical data and evidence should be gathered wherever possible to identify important areas for improvement. Total quality management advocates that determining customers' needs through empirical data provides data for making effective decisions. According to him, experience and intuition are not sufficient to base decisions on.

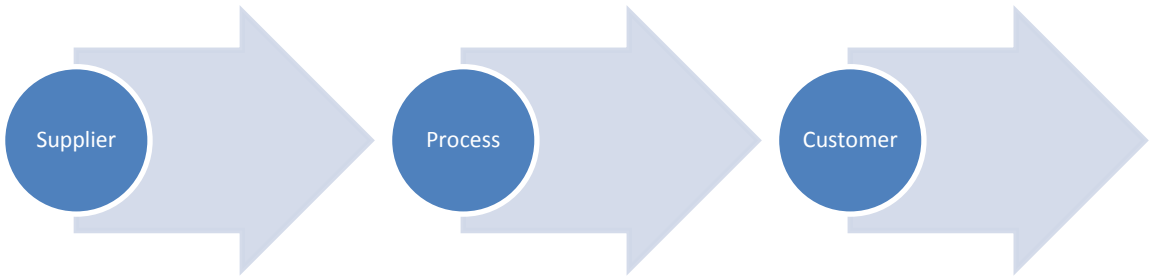
Joseph Juran, as described by Basu *et al.* (*2*003: 51), was a seminal figure in the history of quality management. Juran did more than teach the Japanese about quality management. He also was the first quality expert to emphasise that no quality management system works unless people are empowered and committed to take responsibility for quality – as an ongoing process – effectively for quality to become part of people's behaviour and attitudes. He developed a quality trilogy – quality planning, quality control and quality improvement. Good quality management requires quality actions to be planned out, improved and controlled. The process achieves control at one level of quality performance, and then plans are made to improve the performance on a project-by-project basis, using different tools and techniques, such as Pareto analysis. This activity achieves breakthrough to an improved level, which is again controlled, to prevent any deterioration.



Juran believed that quality is associated with customer satisfaction and dissatisfaction in a product or service. He emphasised the necessity for ongoing quality improvement through a succession of small improvement projects carried out throughout the organisation (Basu *et al., 2*003:59).

His ten steps to quality improvement are:

* Build awareness of the need and opportunity for improvement
* Set goals for improvement
* Organise to reach the goals
* Provide training
* Carry out projects to solve problems
* Report progress
* Give recognition
* Communicate results
* Keep score of improvements achieved
* Maintain momentum



Juran concentrated not only on the end customer, but also on other external and internal customers. Each person along the chain, from product designer to final user, is a supplier and customer. This person will also be a process, carrying out some transformation or activity (dti 2011), as illustrated above in the diagram.

Armand V Feigenbaum was the originator of “total quality control”, often referred to as total quality (dti 2011). His definition is as follows:

“An effective system for integrating quality development, quality maintenance and quality improvement efforts for the various groups within an organisation, so as to enable production and service at the most economical levels that allow full customer satisfaction” (dti 2011).

He saw it as a business method and proposed three steps:

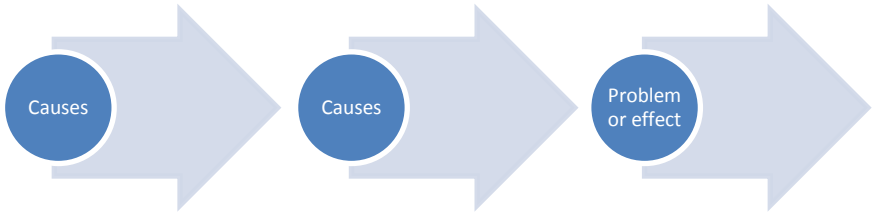
* Quality leadership;
* Modern quality technology; and
* Organisational commitment.

Dr Kaoru Ishikawa made many contributions to quality, his most noteworthy being his total quality viewpoint, companywide quality control, his emphasis on the human side of quality, the Ishikawa diagram and the assembly and use of the “seven basic tools of quality” (dti 2011):

*	Pareto analysis	-	which are the big problems?
*	Cause and effect diagrams	-	what causes the problems?
*	Stratification	-	how is the data made up?
*	Check sheets	-	how often does it occur or is it done?
*	Histograms	-	what do overall variations look like?
*	Scatter charts	-	what are the relationships between factors?
*	Process control charts	-	which variations to control and how?

Dr Ishikawa believed that these seven tools should be widely known, if not by everyone, in an organisation and used to analyse problems and develop improvements. Used together, they form a powerful quality control kit (dti, 2011).

One of the most widely known of these is the Ishikawa (or fishbone or cause-and-effect) diagram.



Like other tools, it assists groups in quality improvements. The diagram systematically represents and analyses the causes behind a problem or effect. It organises the major and minor contributing causes leading to one effect (or problem), defines the problem, and identifies possible causes by narrowing down the possible ones. It also helps groups to be systematic in the generation of ideas and to check that it has stated the direction of causation correctly. The diagrammatic format helps when presenting results to others (dti 2011).

Philip B Crosby (dti, 2011) is known for the concepts of "Quality is free" and "Zero defects", and his quality improvement process is based on his four absolutes of quality:

* Quality is conformance to requirements;
* The system of quality is prevention;
* The performance standard is zero defects; and
* The measurement of quality is the price of non-conformance.

His fourteen steps to quality improvement are (dti, 2011):

* Management is committed to a formalised quality policy;
* Form a management level quality improvement team (QIT) with responsibility for quality improvement process planning and administration;
* Determine where current and potential quality problems lie;
* Evaluate the cost of quality and explain its use as a management tool to measure waste;
* Raise quality awareness and personal concern for quality among all employees;
* Take corrective actions, using established formal systems to remove the root causes of problems;
* Establish a zero defects committee and programme;
* Train all employees in quality improvement;
* Hold a zero defects day to broadcast the change as a management recommitment and employee commitment;
* Encourage individuals and groups to set improvement goals;
* Encourage employees to communicate to management any obstacles they face in attaining their improvement goals;
* Give formal recognition to all participants;
* Establish quality councils for quality management information sharing; and
* Do it all over again – form a new quality improvement team.

“Quality means meeting customer’s or client’s requirements, formal and informal, at the lowest cost possible, first time every time” (Flood, 1993:42).

The above statement can be broken up into several parts and ideas that have their own meaning according, to Flood (1993: 50):

- *Customers/clients* are supplied with the services or products. Within the institution there are various departments and the clients can be internal or external and both have to be treated equally.

- *Agreed* means that all parties concerned should agree on the ideal they want to accomplish. Clients have their own demands and needs and the decision-makers within the institute must make the final decision about what they will supply and provide, taking into consideration the client’s needs.

- *Requirement* is the measurable specifications and contains issues like durability, reliability, accuracy, speed, methods of delivery and price. The assessment of quality will be guided by these measurable specifications as the basic parameters. This makes measurable specifications important and critical. Within the service providing sector it is very difficult to quantify, but in a manufacturing industry, it is easily achievable.
  In quality management, it is crucial that the set requirements are as accurate as possible in order for them to be met favourably on both sides.

- *Formal and informal* refer to agreements that are made in a business-like manner and those informally formed through interaction. Agreements developed through interaction are formed and should be positive; therefore, they need to be assessed and managed. Informal kinds of expectations are referred to as attitudes that help to develop and maintain a good quality and image over time.

- *At lowest cost* is a vital component of the quality aspect. This is the company or institute’s main aim to deliver a good service or produce goods with no unnecessary loss of time, money, effort or material. Companies should,

however, be careful that when implementing lowest cost, quality and profit should not decrease or be side lined.

- *First time, any time* is the final component that is related to quality and refers to the ideal set to keep up to the company or institute's expectations. The component *first time, any time* implies that the customer's requirements should be met first time, any time. When these expectations are met, the client or customer will not accept any service or goods without these standards.

The above-mentioned ideas are the basic and core topics that capture the notation of quality. However, this is just the explanation for quality and not 'Total Quality'. Total Quality means that everyone at all levels and across all functions within the institute be involved in quality, ensuring that the ideal quality will be achieved and maintained, according to the requirements, in everything that they carry out and do. 'Total' also suggests the meaning of a systematic wholeness to quality. It is also vital to remember that every job is very crucial and can have a direct influence on quality; be it positive or negative. Therefore, quality cannot be guaranteed without involving the whole organisation, across all functions and through all levels (Flood, 1993:44).

The following definitions for 'Quality' are also appropriate when it comes to tertiary institutions:

- Juran's definition of quality: "…fitness for use as perceived by the customer" (as quoted by Lewis *et al.,* 1994: 9);

- Lewis *et al.* (1994: 9) define quality as follows: "Quality is more than just the degree of congruence with the standard or the product of craftsmanship. Quality is rather the degree of consumer satisfaction or fitness for use, in other words the consumer determines whether or not quality has been attained in totality."

- Berry *et al. (*1991: 8) state that "…customers are the sole judges of service quality."
- Goetsch *et al.* (1994: 60) define quality as follows: "Quality is a dynamic state associated with products, services, people, processes and environments that meets or exceeds expectations."

The client occupies the central position with regard to quality. It is therefore necessary to query the fitness for use in tertiary education. Seymour (1995: 184) applies it as follows regarding tertiary education: "Developing a lot of happy, satisfied customers – whether they are students, parents of students, alumni, professors, or industry employers – should be a primary goal of causing quality in higher education."

According to Murad *et al.* (2010: 9), quality in education has various dimensions, namely consistency, fitness to purpose, value for money, and transformative.

Consistency – This is where the education process involves the specifications through a zero defect approach and the quality and culture are recognised. There are some limitations in achieving consistent standards and conformity to those standards.

Fitness to purpose – This is to meet the needs and requirements of the customer's specifications, minimum-based fitness for purpose and to gain customer satisfaction.

Value for money – This can be accomplished through efficiency and effectiveness.

Transformative – The education process is ongoing and transformation is continuous, which includes the empowerment and enhancement of the client or customer.

Management – The term management is also integrated with 'total quality'; the value of management's responsibility is projected into the meaning of quality as the wholeness that has already been established. This refers to the whole or total responsibility of all employees or all that are involved in the products or services and not only that of the managers. Management within this context refers to the need for everyone to be responsible for managing their own jobs, which incorporates managers with workers and anyone else associated with the organisation, as indicated by Flood (1993: 47).

TQM is a whole system view of quality management and emphasises the idea that an institute or organisation is an interactive network of control and communication. The network highlights the interaction between the suppliers and clients, with the institution transforming itself between the two with quality in mind (Flood, 1993: 47).

Gilbert (2004: 12) states that TQM should be as visible as a doormat with quality messages, framed messages, posters, flags, product packaging stickers, quality pins, recognition certificates on walls and corporate clothing. Every opportunity is a chance to drive TQM, even putting messages on blotters, diaries, visiting cards, payslips and envelopes. Many companies have their entrances filled with notices such as: "This department has assisted 100 students in the last week". Why not use the same type of thinking and approach for quality improvement?

A summary of the quality guru's (Deming) teachings (Gilbert, 2004: 19):

- Involvement and obligation of management to lead the quality process are essential.
- Relevant measurements, which depict the state of the current situation and set goals, should be made.
- Simple quality improvement tools should be used and people should be trained and developed in teamwork and problem-solving. The advantage of having trained people to work in teams allows for the barriers to be broken down in different departments. Using the various problem-solving methods allows for quality improvement and open decision-making within an institute.

- Systems-based tools such as questionnaires and feedback measurements can also add to the improvement of quality and productivity.
- Products and services should be designed in such a way that the possibility of faults occurring is less each time or totally omitted.
- It is therefore important to bear in mind that both internal and external customers and clients should be satisfied with the products or services that they receive. It is therefore very important to focus on the improvement of quality on the customer or client.

The objective of TQM is to build an organisation that produces products or performs services that are considered as quality by those who use them. The quality of a product or a service is the customer's perception of the degree to which the product or service meets their expectations (Coetzee, 1995).

Coetzee (1995) also states that generally students are considered to be end consumers. According to Coetzee (1995), Harvard University defines its customer as "one to whom we provide information or service". Students who use the institute's service and employers who are consumers of students are regarded as customers. Therefore, the customers are students, employers or both.

TQM is not an imposition. It cannot be done to you or for you. It is not something that senior managers do and then pass down the line. The *total* in TQM dictates that everything and everybody in the institution are involved in the enterprise of continuous improvement. The *management* in TQM likewise means everyone, because everyone within the institution, whatever their status or position, is a manager of their own responsibilities (Sallis, 2003: 23).

2.5 TQM in higher education in various countries

Some developed countries have progressed in some way in implementing total quality management initiatives in higher education. It was to these countries that South Africa turned in the mid 1990s, in order to learn from their experiences (Singh, 2001).

A brief overview of total quality management in some of the developed countries is discussed below.

Europe

In Europe, there is a wide variety of total quality management (TQM) in higher education with more than a decade's experience in the field. The Bologna Declaration of 1999 aims to attain comprehensible and similar degree structures across all European universities, which is expected to further spread to the international universities in higher education. The Bologna process assigns a network of national quality assurance agents whose main aim it is to compare and recognise the quality and management thereof in other member states (Berkhout, 2006:919).

United Kingdom

The United Kingdom has the UK Quality Assurance Agency (QAA) for their higher education and this is a well-established agency. They publish a comprehensive set of Learning Guidelines on their website (QAA, 1999). Randall (2002: 188) reports that this was the major factor that shaped the total quality management system by the UK QAA.

United States of America

Randall (2002: 188) reported that “the earliest instance of the phenomenon of external quality assurance (EQA) is provided by the USA, where higher education became a big operation at an early stage”. The Council for Higher Education Accreditation (CHEA) is a non-profit organisation, established in 1996, which evaluates, co-ordinates and promotes total quality management in institutions and programmes offered through voluntary, non-governmental self-regulation.

Most states in the USA have regional accrediting associations to determine and measure the quality of the services, curricula and programmes. (Randall 2002: 188).

Universities and regional associations have developed their own guidelines for the best practices in higher education. The American Federation of Teachers has published Guidelines for Good Practice in Distance Education (American Federation of Teachers, 2000).

Australia and New Zealand

Australia has been having continuous education reform for more than two decades, since the Williams report in 1979 (Candy *et al.,* 1997). They also reported that in the early 1990s, Australia established national total quality management agencies and committees based on similar structures as in the United Kingdom, namely the Australian Committee for Quality Assurance in Higher Education (CQAHE) and the Higher Education Council (HEC).

Like South Africa, New Zealand too has Qualifications Authorities, i.e. the New Zealand Qualifications Authority (NZQA), a National Qualifications Framework (NQF) and National Standards Bodies (NSBs). These were all established around the 1990s. The New Zealand Universities’ Academic Audit Unit (AAU) takes responsibility for the institutional quality audits in higher education (Candy *et al.,* 1997).

South Africa

Total quality management in higher education is emerging in South Africa. There is an urgency to form and recognise an acceptable mechanism to improve the quality of teaching and learning in higher education in South African universities (dti, 2011).

The cornerstone of higher education policy development is the National Commission on Higher Education (NCHE) of 1995, which laid the foundations for the Higher Education Act of 1997 (dti, 2011). Various acts of parliament were passed in the mid 1990s, which represent part of South Africa's attempt to standardise and legitimise their education and training system.

There are a few Acts that are relevant to the field of higher education in South Africa in total quality management assurance, in particular (South Africa, 2002):

- South African Qualifications Authority Act (SAQA), No.58, 1995;
- National Education Policy Act, No 27, 1996;
- Higher Education Act, No 101, 1997; and
- Further Education and Training Act, No 98, 1998.

The purpose of the SAQA Act of 1995 is to provide a framework for the development and implementation of a National Qualifications Framework (NQF) (South Africa 1995). There are two key elements of the NQF and they are quality and standards. They are reflected in two of its objectives, namely to create an integrated national framework for learning achievements and to enhance the quality of education and training in South Africa (SAQA, 2001a).

The Higher Education Act of 1997's main objective is to provide quality control and assurance as well as quality promotion in higher education in South Africa (South Africa, 1997). It makes provision for the establishment of the Council for Higher Education (CHE), a statutory body formed to advise the Minister of Education on matters pertaining to higher education.

The Committee for University Principals (CUP) established a Quality Promotion Unit (QPU) in 1995 to perform external total quality management audits in the university sector. However, they closed down due to a lack of resources (Smout *et al.,* 2002: 197). They reported that, due to this, the higher education sector in South Africa has a limited experience of an external total quality management and assurance.

To address the need for direction and responsibility for total quality management at higher education level, the Higher Education Quality Committee (HECQ) was formed and constituted in March 2001. The HECQ is a permanent part of the CHE committee and together they are responsible for programme accreditation, quality and management control, quality promotion and institutional auditing (Singh 2001).

The HECQ's approach is one of capacity-building and encouraging excellence (http://www.che.org.za/heqc). They make use of a four-stage model used in Europe and the United States. This model consists of four stages (Randall 2002: 188):

- Establishment of procedures and methods to be used by the national quality assurance agency;
- Regular institutional self-evaluation;
- Peer review visit by the national agency; and
- Published report containing the findings of the peer review visit.

2.6 Why implement TQM in institutions and companies?

TQM is an important culture that should be adopted by companies and institutions in order to improve the quality of their services and products on a daily basis. By adhering to this culture, all involved – management, employees and customers – are satisfied with the end results Flood (1993: 14).

According to Flood (1993: 14), Deming identified 'five deadly diseases' in companies and organisations that do not implement TQM. They are:

1. A general lack of purpose and constancy.
2. Management is too mobile
3. A lack of unsuitable evaluation of performance, merit rating, or annual performance rating and review.
4. Too much emphasis is put on costs and profits.
5. Management decision-making relies on quantitative data without being reliable due to hidden factors.

2.7 Methodology and processes of TQM

According to Stairs (2005: 7), it is important for management to plan how they are going to implement TQM within the organisation. If the correct and proper planning and organisation are used, TQM will be easier to incorporate. A TQM system is a great tool against competitors as it can also act as marketing tool by producing better, reliable and customer satisfied services. Steps need to be taken when implementing TQM. The first step in this process should be the vision and realisation of management to see what should be achieved to improve the quality of the services they provide to their customers, be it internal or external.

Deming also created other points in his ‘action plan’. These points deal more with the methodological principles rather than forming a clear method (Flood, 1993: 16):

- Management must tackle the five deadly diseases and any other relevant issues to agree to a meaning for the organisation or institute and a plan to direct it.
- Management must take pride and have courage to develop a new direction if necessary to achieve better results.
- Management must also be able to control and explain to people within the organisation why the changes and action plans are necessary.’
- All the activities within the department should be divided into stages. Each stage should be improved and those working in each stage should work unitedly in order to improve the quality of the service they provide.
- Each employee should work and participate as a team to improve the input and output of each stage.
- The institute will embark on and strive towards the construction of organisation for quality.

Taking all the above points into consideration, it remains management’s responsibility to have pride in this belief and to motivate all parties concerned to embark on this journey together as a team. They should put in all effort in providing quality services and improving their service quality each day (Flood, 1993: 16).

A strategy is therefore required to promote and implement the TQM process within an institution. This will determine the mission, vision, guidelines and infrastructure that will encourage employees to focus and move on into a new common direction. It is also those driving forces within the institution’s strategy that, taking into consideration the external environmental factors, the impact on client’s needs (internal and external) and quality-related organisational ability, continuously reflect the TQM principles with the objective of gaining quality within the institution and improving on it (Flood, 1993: 16).

Flood (1993: 16) also states that the student (as one of the clients) is regarded as a partner in the development and delivery of quality training (the product or service). As a result of the nature of the products or services that are offered by tertiary education institutions, where the costs of the services provided or offered play a less important role, it can be maintained that regardless of their present quality level, institutions wish to thrive on one level only, and that is excellence. The level of quality could therefore be the ultimate objective in tertiary education – which would be in contrast with the intentions of manufacturing enterprises, where they would not necessarily strive for "excellent/best" quality, but rather for specific niche markets of a certain quality level. Furthermore, contrary to manufacturing enterprises (degree-worthy), tertiary education institutions could possibly not perform on a quality level where, in particular, delivered needs are significantly inferior to stated needs, as indirect mechanisms such as occupational councils are in place to monitor and ensure minimum standards in tertiary education.

Coetzee (1995) links the dimension of quality to the domain of the organisation. In his opinion, the "required client needs are the input needs of the core process, while the delivered client needs represent the output of the core process. Both the required and delivered client needs refer to the agreements already entered into in respect of required inputs from and outputs to the firm's environment."

A true leader embodies the whole institution by winning commitment of others to organisational goals, obtaining resources and presenting corporate image to the external world. Leadership will be the politic for the institution, gaining support and using resolving conflicts to achieve its means. The managerial skills that pertain to controlling, representing, staffing, structuring, setting goals and communicating besides handling budgets, costs, information flow, employee relations, external funding and relations with evaluating bodies should be aligned with the job in order to increase positiveness and motivation within an organisation. A leader's academic role includes being a leading professional, leading others in a collegiate style, recognising and encouraging quality, fostering and developing talent and skills, intervening, couching, being a role model of exemplary behaviour, taking risks and

an acting agent of change. Top leadership is the key to any total quality management (TQM) programme and is the driving force behind success and failure. The TQM programme must be sold and not forced onto employees. Leadership must make the programme attractive and necessary to employees. Good communication, adequate training and using benchmarking and research on TQM philosophies and programmes can enhance its success rate (Koch, 2003: 325).

Koch (2003: 325) also considers the education system as a transformation process comprising of inputs of students, teachers, administrative staff, physical facilities and processes. The processes include teaching, learning and administration. Outputs include examination results, employment, earnings and satisfaction. Due to open competition, students are becoming more customers as well as consumers and are expected to pay a growing share of the costs of higher education. This leads to competitive forces that generate different programmers for different student groups. His criteria include customer satisfaction, people satisfaction and the impact on society and key performance results for measuring the effectiveness of total quality management.

2.8 Strengths and weaknesses of Deming's work

When implementing any strategy in an organisation or institute, technique and action plans can bring about various strengths and weaknesses. Deming's philosophy and TQM is not as easy and simple as it is written and understood, and also has many barriers in its way. The main strengths and weaknesses are discussed below (Flood, 1993: 17).

2.8.1 Strengths of Deming's philosophy:

- A clear prioritisation that management comes before technology.
- The work is strongly based on statistical and quantitative methods that are needed only in some circumstances and not all.
- A systematic functional logic that provides an insightful way of reasoning about the organisation or institution.
- Leadership and the motivation of the employees are recognised and regarded as important.
- Different contexts are recognised, like that of Japan and North America, and based on those findings, there have been various responses.

2.8.2 Weaknesses of Deming's philosophy

- There is no stipulated or clear 'Deming method'. The action plans and methodological principles are too vague or far off to be readily put into practice or action plans.
- As far as interventions in certain situations that are political and coercive, nothing is said about principles and methods for these situations, even though Deming recognised the difficulty of this area in his philosophy.
- Literature on dealing with leadership and motivation has not been clearly drawn up or explained.

Although Deming's work has many weaknesses, TQM should not be seen in a negative sense. Weaknesses are seen as hurdles that slow down the process and provide reasons to improve on the principle (Flood, 1993: 17).

2.9 The importance of TQM in companies and institutions

Meyer *et al.* (2008: 1229) state that “The purpose of the institute’s quality system and importance can be described as the most appropriate quality system with which the firm’s strategic quality intention can be implemented, measured and maintained.”

Successfully implementing total quality and continuously improving the activities required make it necessary for management to acknowledge the importance of the quality system. This starts off once again with W Edwards Deming: “The people work in a system. The job of a manager is to work on the system, to improve it continuously, with their help” Meyer *et al.* (2008: 1229).

Total Quality Management is an approach to doing business where management systems can guide the effective achievement of the organisation’s objectives to ensure customer/client satisfaction (external and internal) and maximising shareholders’ interest in a changing environment. This is achieved by the continuous improvement of the quality system, consisting of the social, technical and management systems (Meyer *et al.,* 2008: 1229).

The system starts where the management of the tertiary institute (academic and administrative) identifies and recognises, subject to aspects such as leadership, knowledge, experience and acceptance, certain external environmental factors that are related to the client’s requirements (external and internal) and institutional improvement. Management must decide on a strategic TQM intent to satisfy client requirements. This strategy and the reaction of the managers will determine the effectiveness and importance of the institution’s level of quality that it will operate (Meyer *et al.,* 2008: 1229).

Basu *et al.* (2003: 18) state that there exists a hierarchy of quality management. There are four levels in this hierarchy, namely inspection, control, assurance and TQM.

Quality and control should be a supervised process to ensure that no mistakes are made. Inspection, detection and the correction of errors are the most basic approach of quality. The next level is quality control, whereby there is inspection, correction, investigation and the causes of problems are found. Action is taken to prevent the same errors occurring again. Quality assurance is the third level and at this level standards are set and documented and also compared with other specified standards. Then there is TQM, which includes all the previous levels of setting standards and measuring them. A culture is required to implement TQM in which every member of the institute or organisation believes that there should be continuous improvement of quality of its goods or services on a daily basis (Basu *et al*., 2003: 19).

Top management must have the TQM vision. The following figure shows an institute where the top management has the vision and communicates it to all levels below within the organisation. Once this vision and quality culture are created and accepted within the organisation, the driving forces are ‘bottom up’.

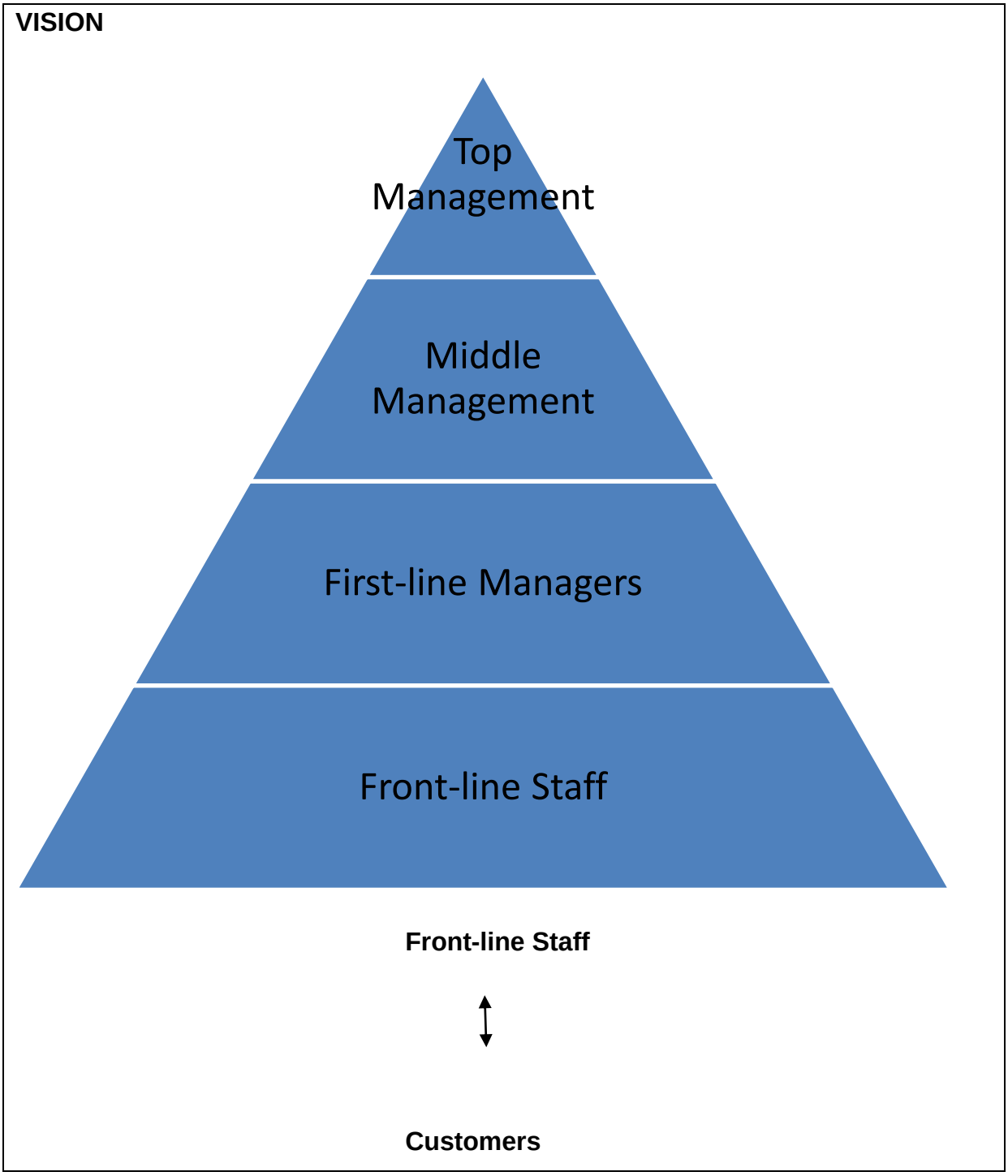


Figure 1: Quality and the driving force

(Source: Basu *et al*., 2003: 18)

The front-line staff (lower-paid employees) of the institute will be in physical contact with the customers. From this service, the customer will have a perception of the quality of the assistance and attitude of the front-line staff. This will lead to the customer's opinion of the organisation and therefore the front-line employees must

rely on continuous improvement of quality. If TQM is implemented successfully within the institute, quality will be driven from the bottom upwards rather than being controlled from top management. Training and obtaining resources for the front-line staff to do their jobs efficiently are the responsibility of management; however, these employees must be committed to improving quality, otherwise TQM will never take place or be successful (Basu *et al.*, 2003: 19).

According to Basu *et al.* (2003: 19), TQM is a management philosophy that places emphasis on the interest of the customer, providing them with the services that they require. TQM eliminates unnecessary waste during the process. Employees are motivated to produce and present better services and products. Management's passion is to get the work done as best possible.

2.10 The customer

In the challenging world of today we are faced with more demanding customers, more competition and slower growth in economies and industries. Due to these factors, companies and organisations are forced to focus their attention towards their customers (Stahl, 1998: 24).

But who is the customer? The customer, as defined by Menon (1992: 14), is a person or an organisation that is on the receiving end of goods and services provided. Customers can be sub-divided into two types, namely the internal customer and the external customer.

Menon (1992: 14) explains and refers to the internal customer as "the next person in the manufacturing line who handles the product or the person who utilizes the services provided." An understanding between the service provider and customer is

that the customer will not accept any defects or errors in the service process. This also suggests that the services provided must meet the quality requirements.

The external customer refers to the type that society would call “the end-user”. End-users are usually not involved in any way during the process of the services or products provided. They are the actual reason why an organisation runs (Menon, 1992: 14).

Organisations and institutions need to build relationships with their customers so that their customers’ needs can be fulfilled. A partnership relationship is an ideal and healthy one. In this type of relationship, the supplier and the customer are both expected to learn from each other. They meet on a regular basis so that any differences and problems can be discussed and solutions can be found (Gilbert, 2004: 14).

TQM has indicated the need for organisations to learn more about the customer and their requirements before producing or providing a service that the customer is not satisfied with. Suppliers or industries should not assume that they know what customers want. Organisations and institutions are now first learning about customers’ requirements and needs when implementing TQM through direct contact (Stahl, 1999: 8). Customer value is very important to a company when evaluations and quality control take place.

When the standard of the service provided meets the expectation of the customer’s perceived standard, the customer will be satisfied with what he/she received. Institutes and organisations should create a service-providing system where the customer will always be satisfied with the service he/she received as well as the end products. Therefore, it is important for companies and institutes to know the needs and requirements of their customers to prevent complaints and negative relationships (Stahl, 1998: 8).

Educational institutions tend to be conservative and resistant to change, both internationally as well as in South Africa (Fullan, 2002: 15).

The higher education field has experienced dynamic changes, growth, reflection and self-evaluation, both nationally and internationally (Hope, 2001; Newton, 2002; Smout, 2002).

According to Xingxing *et al.* (2008: 630), a few factors that are influencing the higher education institutes are clients' needs and expectations, scarce resources, rapid technological change and quality assurance.

2.11 Kaizen

Kaizen [http://www.businessballs.com/qualitymanagement.htm] (usually pronounced as 'kyzan' or 'kyzen' in the western world) is a very significant concept within total quality management (TQM). It is a Japanese word for 'continuous improvement'. It is a core principle of TQM and the methods of TQM. Kaizen was originally developed and applied by the Japanese industry and manufacturing in the 1950s and 1960s. It is a way of thinking, working and behaving, embedded in the philosophy and values of an organisation. The aims of a Kaizen organisation are defined as:

- Being profitable, stable, sustainable and innovative;
- Eliminating waste of money, time, materials, resources, effort and to increase productivity;
- Making incremental improvements to systems, processes and activities before any problems arise rather than to correct them afterwards; and
- Creating a harmonious and dynamic institute or organisation where every employee participates and is valued.

Every is a key word in Kaizen – improving everything that everyone does in every aspect of the organisation in every department, every minute of every day. Everyone is expected to participate, analyse, provide feedback and suggest improvements to their area of work. Every employee is empowered to participate fully in the improvement process; taking responsibility, checking and co-ordinating their own activities. Management practice enables and facilitates this process. All employees are involved in running the organisation; they should be trained and informed about the company. This encourages commitment and interest, leading to job fulfilment and job satisfaction. Kaizen is a carefully nurtured philosophy that works smoothly and steadily, and helps organisations with their inputs and aims with soft management issues such as motivation and empowerment (http://www.businessballs.com/qualitymanagement.htm).

However, like any methodology, poor interpretation and implementation can limit the usefulness of Kaizen practices, or worse, cause them to be counter-productive.

Kaizen is typically unsuccessful where:

- Kaizen methods are added to an existing failing structure, without fixing the basic structure and philosophy.
- Kaizen is poorly integrated with processes and people's thinking.
- Training is inadequate.
- Executive leadership does not understand or support Kaizen.
- Employees and managers regard Kaizen as some form of imposed procedure, lacking meaningful purpose.

Kaizen works best when it is people owned, by people who see the concept as empowering of individuals and teams within an organisation, and a practical way to improve total quality and performance; thereby leading to job satisfaction and quality productivity. Kaizen uses various quality tools to improve total quality management (http://www.businessballs.com/qualitymanagement.htm).

The main quality tools are:

- The ‘5 Whys’ – asking “Why?’ at least five times to uncover the root cause of a problem.
- Flowcharts – box-and-arrow method of examining activities; potentially used in brainstorming.
- Fishbone/Ishikawa diagrams – fishbone-structured diagram to identify cause/effect patterns, in which primary categories are generally pre-determined according to context.
- Run charts – a graph that plots data/change along a timeline.
- Pareto charts – a line and bar graph displaying cause/effect ratios, especially biggest relative cause.
- Histograms – a bar graph displaying data in simple categories that together account for a total.
- Checklists/Check sheets – pre-formatted lists for noting incidence, frequency, etc, according to known useful criteria.
- Control/Shewart charts – a standard pattern of performance/time for a given process, often in Run Chart format, which acts as a template to check conformance and deviation.
- Scatter diagram/Scatter plot – a graph that plots points (typically very many individual instances) according to two variables, which produces a useful visual indication of the relationship between the two variables.

Some of these quality measuring tools have become part of the mainstream of top management (http://www.businessballs.com/qualitymanagement.htm).

2.12 Functions of tertiary education

Bitzer *et al.* (2008: 278) have described the functions of tertiary education as follows:

- To bring higher education institutions closer to society and communities through the extension of knowledge and its application when it comes to problem-solving.

- To provide society with people who are competent and trained in all professions and as cultivated individuals that are inclined with a sense of social purpose.
- To foster in teachers and students, and via them in societies generally, the necessary attitudes and values required to develop the 'good life' in individuals and in society.
- To seek and cultivate new knowledge, to seek and engage in the pursuit of the truth and to interpret knowledge fearlessly, and beliefs in the light of needs and discoveries.
- To strive and promote equality and justice within societies, and to reduce the cultural and social differences within communities through the diffusion of education.
- To provide the right kind of leadership in all professions and walks of life by assisting and educating individuals and developing their potential.

Teaching forms the backbone of the education system. The objective of teaching is the transmission of knowledge from the teacher to the students. Teaching methods should be synchronised with the main objective of learning and this will lead to better teaching-learning processes. Many tertiary institutions offer funding for students so that they can learn and develop their skills and knowledge (Bitzer *et al.,* 2008: 278).

The Deputy President of South Africa, Phumzile Malmbo-Ngcuka, also stressed the importance of aligning curricula with the economy's requirements so that graduates are employable immediately after completing their studies (Khanyile, 2007: 21).

The demand and requirements for higher education at tertiary institutions are also influenced greatly by the ability of the customers to afford this type of education. In the challenging economic crisis, price is an important criterion in determining access to higher education. As in any other organisation, the higher education sector relies greatly on quality management to remain competitive. The main concerns for tertiary institutions are to keep up with enrolment rates and to create opportunities for cross-boundary learning and collaboration. A quality education goes beyond the definition

of academic rigor with a clear benchmark of standards; it encompasses a person as a whole with their experiences from the start or growth path of their experience. As such, quality in higher education does not only refer to the tangibles such as course work and materials, but also relies on human touch as well to produce excellent service. Being student-centred is a key component in achieving great service quality in higher education (Murad *et al.,* 2010:9).

3. CHAPTER 3

3.1 Survey and questionnaire

There are various means and instruments that can be used by researchers in order to capture data and information needed. There are two groups into which these methods can be grouped, namely qualitative and quantitative approaches. Qualitative research is a subjective approach (Neill: 2007). He also states that when using this approach, the individual's interpretation of events is important. In this situation, an in-depth interview with the participant is a good example. The qualitative approach is less time consuming and the information is in the form of numbers and statistics. The results obtained from this type of data can establish relationships and hypotheses can be tested. Models can also be derived from this approach.

Quantitative research involves the analysis of data and information. This approach is an objective approach (Neill: 2007). This method requires precise measurement and analysis of the feedback from the targeted segments. Researchers usually use tools such as surveys and questionnaires to gather the data and information required. This approach is usually chosen by a researcher to meet objectives and aims of a research report, according to Neill (2007). This is the approach that will be used in this research.

To do an analysis and survey of the study, a questionnaire was set up and distributed to students who have studied at a tertiary institution. The advantages and disadvantages of using a questionnaire method were considered and were justified for use in this study. The tertiary institute chosen to do the study at was the North-West University (Potchefstroom Campus).

The purpose of the survey is to determine whether the quality of the services and support provided by the master's and doctorate degrees department of the North-West University (Potchefstroom Campus) are of a high standard and quality, as perceived and experienced by students currently registered and students who have completed their post-graduate studies at the institution.

The first section of the questionnaire deals with biographical questions.

The reason this type of population for this study was used was to get an accurate determination of the services provided and total quality management of the department in question. The use of e-mail and hand distribution was used as a means of distribution to the students who have completed or are currently busy with their post-graduate studies at the NWU. This means was used because it is available and it is easy to achieve results, as well as because master's and doctorate students are often part-time students and are therefore geographically dispersed.

The questions used in the questionnaire were based on the literature study of this dissertation.

Students were reminded that the questionnaire is totally anonymous and voluntary. They were also informed that the information gathered from the questionnaire is for statistical purposes only.

This questionnaire was distributed during September 2011.

The questionnaire was issued and distributed to 350 students. A response was received from 202 students.

3.2 Findings and discussion

The definition on TQM highlights the needs and expectations of the clients/students and the continuous improvement of all the processes involved in achieving these goals. The questionnaire is attached as Annexure A.

The following results were obtained from the questionnaire distributed to post-graduate students from the North-West University (Potchefstroom Campus) who are currently registered and who have completed their post-graduate studies.

Analysis of the statistical findings from the questionnaire

Analyses A and B

This part of the report provides an indication of the number of people choosing which options.

The mean is read as follows: 1 = *good* and 4 = *more negative*.

Table 3.1

Question	Text	%1	%2	%3	%4	Missing	Mean	Std Dev
Q1	**Academic Administration Services (AAS)**							
1.1	Applying for a post-graduate degree is quick	39.6	53.5	5.4	1.5	0	1.69	0.644

1.2	Applying for a post-graduate degree is easy	35.1	58.9	5.9		0	1.71	0.572
1.3	Easy to follow admission procedures	39.1	57.9	2.5	0.5	0	1.64	0.557
1.4	Clear and accurate information about the admission process	38.6	58.9	2.5		0	1.64	0.531
1.5	Quick and convenient registration procedures	34.7	59.9	5.4		0	1.71	0.563
1.6	Quick and convenient re-registration procedures	39.6	53.5	5.4	1.5	0	1.69	0.644
1.7	An effective and quick system for resolving administrative issues	39.1	57.9	2.5	0.5	0	1.64	0.557
1.8	Adequate catering for the needs of international students	39.6	54.0	5.0	1.5	0	1.68	0.638
1.9	Information regarding current programmes is accurate	39.6	54.0	5.0	1.5	0	1.68	0.638
1.10	Communication with students is done well and in a professional manner	34.7	59.9	5.4		0	1.71	0.563
1.11	I know exactly what is required from me during the administrative process	39.1	56.9	3.5	0.5	0	1.65	0.572
1.12	Information is captured accurately on to the system	39.6	53.5	5.4	1.5	0	1.69	0.644
1.13	Feedback is acknowledged so that	39.6	56.9	3.0	0.5	0	1.64	0.566

	the services can be improved							
1.14	I am aware of the electronic survey system	39.6	54.0	5.0	1.5	0	1.68	0.638
1.15	The electronic survey system is adequate	39.6	56.9	3.0	0.5	0	1.64	0.566

Question	Text	%1	%2	%3	%4	Missing	Mean	Std Dev
Q2	**Student Services and Support (SSS)**							
2.1	Multiple languages are supported on the Campus	39.6	54.5	4.5	1.5	0	1.68	0.631
2.2	Study skills and guidelines are supported	34.7	60.4	5.0		0	1.70	0.556
2.3	Adequate services supported for persons with disabilities	39.6	56.9	3.0	0.5	0	1.64	0.566
2.4	Efficient security services on Campus	39.6	57.4	2.5	0.5	0	1.68	0.558
2.5	Adequate parking facilities for students	39.6	54.0	5.0	1.5	0	1.68	0.638
2.6	The academic services provided are of a good quality and are managed well	39.6	57.4	2.5	0.5	0	1.64	0.558
2.7	Students receive good and professional support throughout the duration of their studies	39.6	54.0	5.0	1.5	0	1.68	0.638

2.8	I am aware of the electronic survey system used to assess the services provided with regard to the quality of the programmes	39.6	57.4	2.5	0.5	0	1.64	0.558

Question	Text	%1	%2	%3	%4	Missing	Mean	Std Dev
Q3	**Programme-Related Services (PRS)**							
3.1	If you decide to further your studies would you apply at this Campus again?	39.6	54.0	5.0	1.5	0	1.68	0.638
3.2	Did the quality of the services provided meet your expectations?	39.6	57.4	2.5	0.5	0	1.64	0.558
3.3	Quality of the programmes offered are up to standard	39.6	57.4	2.5	0.5	0	1.64	0.558
3.4	Study guides are useful for the programmes	39.6	56.4	4.0		0	1.64	0.557
3.5	Material regarding the current programmes is relevant	39.6	57.4	2.5	0.5	0	1.64	0.558
3.6	Material regarding the current programmes is up to standard	34.7	59.9	5.4		0	1.71	0.563
3.7	The resources available are of a good standard	39.6	56.9	3.0	0.5	0	1.64	0.566

	and quality							
3.8	The programme meets all the expectations that I had prior to my enrolment thereof	34.7	59.9	5.4		0	1.71	0.563
3.9	I am aware of the electronic survey system to assess the programme-related services	39.6	57.4	2.5	0.5	0	1.64	0.558

The data collected by means of the questionnaires have been used primarily for determining the relationship between the different dimensions of the post-graduate services and support given to post-graduate students.

The above results prove that most of the students have the same feelings towards the services and support given to them by the post-graduate department of the NWU.

Most of the results prove that the services and support were positive. Most of the respondents are therefore satisfied with the service and support they receive from this department.

This also proves that the department's total quality management is of a high standard and quality. In these results, the mean in all questions is below 2, which indicates that there is a general satisfaction among the students. The standard deviation is also relatively small, which indicates that the students have a relative agreement on their answers

Analyses C and D

This analysis test for reliability and/or internal consistency.

Reliability means that a scale should consistently reflect the construct it is measuring. In statistical terms, the usual way to look at reliability is based on the idea that individual items (or sets of items) should produce results consistent with the overall questionnaire. The simplest way to do this in practice is to use split-half reliability. This method randomly splits the dataset into two. The problem with this method is that there are several ways in which a set of data can be split into two and the results could be a product of the way in which the data were split. To overcome this problem, Cronbach (1951) came up with a measure that is loosely equivalent to splitting data in two in every possible way and computing the correlation coefficient for each split. The average of these values is equivalent to *Cronbach's alpha,* which is the most common measure of scale (Field 2009: 667).

Cronbach's alpha is:

$$\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N-1) \cdot \bar{c}}$$

Which looks very complicated but is very simple. For each item on the scale, two aspects are calculated, namely the variance within the item, and the covariance between a particular item and any other item on the scale. The top half of the equation is simply the number of items *(N)* squared multiplied by the average covariance between items. The bottom half is just the sum of all the item variances and item covariances (Field, 2009: 667).

According Field (2009: 667), Cronbach's alpha notes that the generally accepted value of 0.8 is appropriate for cognitive tests such as intelligence tests, and for ability tests, the cut-off point of 0.7 is more subtle. It goes on to say that when dealing with psychological constructs, values below even 0.7 can, realistically, be expected because of the diversity of the constructs being measured.

Table 3.2

	CA (Cronbach Alpha)	**MEAN**	**STD DEV**
AAS	0.92	1.67	0.41
SSS	0.85	1.66	0.41
PRS	0.93	1.65	0.46

The results for the means were all below 2, which means that the test was reliable.

All the means of all three categories being less than 2 suggests that it is good and that the majority of students agree that the services and support they received were of a good and high quality and standard. This is positive as the mean that is closer to 1 is positive and the mean that is closer to 4 is negative. It indicates that the students experience all three sections within the academic administration services of the post-graduate department of the North-West University very positively and are satisfied with the services they experienced.

This part of the analysis measurement assesses how reliably the survey questions were answered. The use of questionnaires is to extract information and to gather data from certain population groups or samples and to achieve a consensus (Leontitsis & Pagge, 2006: 336).

According to the above authors (Leontitsis & Pagge, 2006: 336), we use the coefficient in the Cronbach alpha test. This coefficient ranges from 0 to 1. If the answer is closer to 1, then the answer is very reliable. As a rule, if the Cronbach alpha is greater than 0.8, then the answers are considered reliable, as in the results of the analysis of this study. It was decided to use the Cronbach alpha test to measure the reliability of the questionnaires in this study.

In the above results, in all three the categories of the questionnaire, the Cronbach alpha values were calculated to be above 0.8, and therefore the respondents' views can be used to draw conclusions regarding their views on the perception of total quality management in the post-graduate department of the North West-University (Potchefstroom Campus).

Analysis of question 2 and question 7 (E)

Cohen or d-value shows the practical significance of the statistical analysis

0.2 shows a small variance; so no practical significant difference

0.5 shows a medium variance; so there is a practical visual difference

0.8 shows a great variance; so there is a practical significant difference

Q2

In the table:

ASS - Academic Administration Services

SSS - Student Support and Services

PRS - Programme-Related Services

Table 3.3.1

	UNDERGRADUTE		NON-UNDERGRADUTE			
	YES		NO			D value
	Mean	Std Dev	Mean	Std Dev	P Value	Effects
ASS	1.65	0.41	1.70	0.40	0.462	0.10
SSS	1.66	0.42	1.67	0.41	0.904	0.02
PRS	1.67	0.46	1.63	0.47	0.493	0.10

From the above results achieved, it is evident that there is a statistical significance in the results.

There is no visual difference in the mean for students who have not completed their undergraduate studies at the NWU and the students who have completed their undergraduate studies at this institution. The results are slightly positive because all the means are below 2, which states that it is slightly positive.

In the academic administration services the d-values have a practically significant difference. This difference can be due to the fact that students who have previously studied at this institution have knowledge of and insight into the Campus. Whereas students who come to study their post-graduate degrees here for the first time, are not familiar with the offices and processes.

However, the feelings towards the support services show that there is no practically significant difference in how the students find the services and support given to them at the academic administration department. All the students, whether they completed their undergraduate degrees at this institution or not, are satisfied with the support and services they received.

According to the d-value for the programme-related services, the results indicate a practically significant difference in the programme-related services. This could be due to the fact that students are not aware of the processes and study material used in the programmes. It is new to students and they have to familiarise themselves with the guidelines for the programme-related services.

Q7

Table 3.4

	PART-TIME		FULL-TIME			
						D value
	Mean	Std Dev	Mean	Std Dev	P Value	Effects
ASS	1.67	0.41	1.70	0.42	0.719	0.07
SSS	1.66	0.41	1.67	0.43	0.916	0.02
PRS	1.66	0.46	1.62	0.46	0.643	0.09

The means of all the sections are below 2, which indicates that the results were slightly positive. The results indicate that both the part-time and full-time students feel the same way about the academic administration department and that they have a positive outlook towards the department.

The Cohen d-value shows that there is no practically significant difference.

Should there have been a visible practically significant difference in the d-values, this could be due to the fact that with full-time students there is more contact with lecturers and more time to do in-depth literature studies. Students can focus more on their studies than part-time students, who are usually full-time employed, can.

Although there is a slight visual significant difference it does not make a great difference in the way that the part-time or full-time students evaluated the services and support provided.

Analysis of Question1 and question3 (F)

In this analysis we use the ANOVA and the Welch (P-value):

In this report, the following applies for the P-value:

0.2, small – no practically significant difference

0.5, medium – visible practically significant difference

0.8, large – practically significant difference

Q1

Table 3.5.1

						Cohen value	
		Mean	Std Dev	ANOVA P-value	Welch P-value	Effect size	
						20-29	30-39
Academic Administration Services (AAS)	20-29	1.68	0.40	0.12	0.06	-	-
	30-39	1.60	0.33			0.19	-
	40 and above	1.87	0.59			0.33	0.46

In the above results, we can see that the means are below 2, which means it is slightly positive. The age groups 20-29 and 30-39 do not have a large difference, which indicates that they felt the same about the administration services and support received from the post-graduate department. In this result, one can see that there is

a visible practically significant difference in the 40 years old and above students, as their means are slightly higher.

According to the d-values, the younger students have no practically significant difference, as the results are below 0.2. However, from the results of the 40 years old and above, one can clearly see that the d-value is closer to 0.5. This could be because older students (40 and above) find it more difficult to complete administration and necessary documentation. The older the student the more difficult they become and require more attention and support to complete administration.

This could be because students do not want to be burdened with a load of administrative work and want to get the ball rolling when they want to study. Most older students are also permanently employed and decide at the last minute that they wish to study.

This leads to them to wanting to get the administration done as quickly as possible so that they can get confirmation as to whether they have been accepted for the programmes they have applied for or not.

Table 3.5.2

						Cohen value	
		Mean	Std Dev	ANOVA P-value	Welch P-value	Effect Size	
						20-29	30-39
Student Services and Support (SSS)	20-29	1.66	0.40	0.33	0.13	-	-
	30-39	1.61	0.35			0.19	-
	40 and above	1.85	0.58			0.33	0.46

The above results show that the means are below 2, which again are slightly positive. The overall result is that students are satisfied with the student services and support given by the institution.

The d-value for the younger groups is closer to 0.2, indicating that there is no practically significant difference and that the students are happy with the services received from the post-graduate department.

However, the d-value results for the 40 years old and above are slightly higher and are closer to 0.5. This indicates that there is a visible practically significant difference. This could be because the parking facilities are very far from the academic administration department and students have to walk a distance to access the offices. Younger students find walking easier than older (40 and above) students and this could be the result of the difference in the d-value.

Although there is a slight difference in the d-value, the results indicate that the student services and support are satisfactory to the post-graduate students.

Table 3.5.3

						Cohen value	
		Mean	Std Dev	ANOVA P-value	Welch P-value	Effect Size	
						20-29	30-39
Programme Related Services (PRS)	20-29	1.64	0.47	0.27	0.45	-	-
	30-39	1.63	0.39			0.19	-
	40 and above	1.79	0.61			0.33	0.46

These results also indicate that the mean is closer to 2, stating that the results are slightly positive, considering that 1 is good and 4 is negative. This means that in

general the majority of the students slightly agree that the programme-related services are satisfactory.

The d-value indicates that the younger groups of students are below 0.2, so there is no practically significant difference in the results.

The d-value for the 40 years old and above group is slightly higher and closer to 0.5, which indicates that there is a visible practically significant difference. This could be because resources are mostly available electronically. There is no or little direct communication with students who are registered. Communication is mostly done electronically. Some students, especially the older ones, prefer to have personal contact with a specific staff member to deal with throughout the duration of their studies, and want personal contact with this person. Therefore, they do not feel as comfortable or feel the contact is impersonal via electronic communication. This could be a possible result of the higher d-value.

Q3

Table 3.6

In this table, we use the d-value (Welch):

0.2 - no practical significant difference

0.5 - visible practical significant difference

0.8 - practical significant difference

Academic Administration Services

						Cohen value		
		Mean	Std Dev	ANOVA P-value	Welch P-value	Effect Size		
						3-4	5-6	7-8
Academic Administration Services (AAS)	3-4	1.64	0.34	0.02	0.1	-		
	5-6	1.62	0.45			0.03	-	
	7-8	1.69	0.41			0.13	0.15	-
	9 and above	1.89	0.50			0.52	0.54	0.41

The results show a visible difference in feelings between students who have graduated a longer time ago (9 and above) than students who graduated recently. This could be because they lose touch with administrative documents and do not want to go through long processes.

Students who graduated recently find the services and support more up to standard than students who graduated a while back. This, again, can be because younger students are more understanding and comfortable with the services and support compared to older students.

The respondents, however, do not have a great difference in their opinions or experiences as can be seen in the results. The d-value is relatively small, which proves that in general the students are all satisfied with the services they receive at the academic administration services.

The results received from the respondents on the questionnaires give the idea that the total quality management of the department is of a high quality and standard. Furthermore, the services and support are efficient.

Student Support Services

						Cohen value		
		Mean	Std Dev	ANOVA P-value	Welch P-value	Effect Size		
						3-4	5-6	7-8
Student Support Services (SSS)	3-4	1.61	0.35	0.03	0.07	-		
	5-6	1.62	0.46			0.03	-	
	7-8	1.70	0.41			0.13	0.15	-
	9 and above	1.87	0.49			0.52	0.54	0.41

Once again, in the above results, the means are below 2, which are slightly positive in most of the groups.

However, we can see a slight increase in the means for the older (9 and above) group as it is higher than the means of the other three groups. This can be due to the physical structure and geographic position of the administration building, as it is on the second floor of the building. There are stairs going up to the offices and no wheelchair or disability provisions are made. This makes access to the academic administration offices more difficult for older students and students with disabilities.

Between the younger students, there is no visible significance as all the d-values are below 0.2. This means that they are satisfied with the support provided to the students.

Programme-Related Services (PRS)

						Cohen value		
		Mean	Std Dev	ANOVA P-value	Welch P-value	Effect Size		
						3-4	5-6	7-8
Programme-Related Services (PRS)	3-4	1.61	0.42	0.25	0.36	-		
	5-6	1.64	0.49			0.03	-	
	7-8	1.67	0.45			0.13	0.15	-
	9 and above	1.81	0.54			0.52	0.54	0.41

In the above results, the means for all the groups are below 2, which suggests that the feelings are slightly positive, as 1 is positive and 4 is considered as negative.

The students who completed their degrees more recently find the programme-related services more positive than those who completed their studies longer ago.

Also, the d-values for the other three who have more recently completed their studies are below 0.2, which statistically means that there is no practically significant difference. This states that they find the programme-related service satisfactory.

The 9 and above group has a slightly higher d-value, closer to 0.5, which states that there is a visible practically significant difference. This could be because technology has been updated and most of the material and support offered at the institution are now more advanced. The guides and programme material are now available on the WEB and the older generation of students prefer hard copies to study with. Communication with students is now more via e-mail and not letters anymore. The

difference in preference could also be because older students prefer personal attention and communication.

Although there is a slight difference, the feelings towards the programme-related services are satisfactory towards the administration services of the post-graduate department of the North-West University.

Summary

In summary, the total perceptions and feelings from all the respondents are slightly or visually positive towards the NWU's post-graduate department. The means are less than 2, so it provides a positive feeling from the students.

Most of the students are very satisfied with the services and support they received when they applied to study at the North-West University (Potchefstroom Campus).

Certain students were not satisfied or completely happy with the service and support, but that can be justified due to their age, familiarity with the Campus and also administrative processes.

The results were also affected by the students who have disabilities, because the post-graduate department is situated on the upper level of the building and is not easily accessible.

The response received from the questionnaires has provided a clear indication that the total quality management is satisfactory at this department of the NWU.

The next chapter is the last chapter of this study. In this chapter, the researcher will conclude and summarise the findings of this study. It will also provide an indication of whether the objectives of the study have been met.

4. Chapter 4

Conclusion and recommendations

4.1 Introduction

In Chapter 1, a topic was proposed and the purpose of this study was clearly outlined.

Chapter 2 focused on the literature study and historical background of Total Quality Management in higher education. It discusses how TQM started and who the gurus involved in the development thereof were. It also explained the advantages and disadvantages of TQM. It compared views from the earlier researchers who helped develop and bring TQM into the spotlight.

In Chapter 3, the introduction of how the research for the study was conducted was introduced. It dealt with how the data was collected. It explained how the questionnaire was set up and designed. It then explained the interpretation of the results received from the questionnaires.

In Chapter 4, the conclusion drawn from the study, in line with the objectives set in the beginning of the study, is discussed and evaluated to conclude whether the objectives have been met or not.

4.2 Conclusion based on the objectives of the study

The primary objective of this study was to determine whether management controls and pays attention to the level of TQM according to the experience of the students who are currently registered or who have completed their studies at the tertiary institution at the post-graduate academic department. The second objective was to determine whether the students are satisfied with the services and support provided by this department.

The questionnaire was distributed among previously registered students and also currently registered post-graduate students. These participants were chosen because they would provide the best feedback to the support and services provided. The majority of the respondents felt the same that the service and support were totally satisfactory. In other words, the objective was met that the Total Quality Management is efficient, because the students were satisfied with the quality of the service.

From the responses received from the students, a few points were highlighted that need attention:

- Foreign students have to go through a long administrative process before they can gain access and registration into this institution.
- Students who are physically disabled (e.g. wheelchairs etc.) cannot gain access to the post-graduate offices, as they are situated on the second floor of the building and no provision is made for these types of students.
- Students who have studied a while back find the administration process too complicated and long.
- Older students also find the processes of applying to study at the NWU long and tedious.

4.3 Recommendations

Deming identified a few points that leaders can use to implement TQM. Management needs to execute these points to improve the performance of employees and the quality of the services rendered. The points are as follows (Flood, 1993:13):

- Create constancy of purpose toward improvement in products and services.
- Refuse to accept defects.
- Cease dependence on mass inspection.
- Find problems.
- End the practice of awarding business on the basis of price tags.
- Drive out fear, so everyone can work effectively.
- Eliminate numerical goals, posters and slogans that ask for new levels of productivity, without providing specific improvement methods.
- Institute methods of training while on the job.
- Break down barriers between departments.
- Eliminate work standards that prescribe numerical quotas.
- Provide ongoing education and training.
- Give all employees all the right tools to do the job right.
- Remove all barriers that rob the worker of the right to pride of workmanship.
- Clearly demonstrate management commitment to all of the above every day.

The following recommendations will assist managers dealing with TQM within tertiary institutions.

- Effective communication between employees and students at the post-graduate department of the NWU would always provide total customer

satisfaction, as suggested by Deming, that managers and leaders should be responsible for the performance of the employees.

- Regular feedback from students (clients) will provide the managers with the required skills and shortfalls of the department, as stated in the literature study by Juran, that all products and services should be evaluated by the receiver and in that way the suppliers can learn of any shortfalls within the organisation.

- Surveys should be regarded as an important source of evaluation. This provides feedback from the clients. This feedback can help determine how to please your clients and customers so that they remain loyal and satisfied with the services they are getting.

- The department should be situated in an easy-to-access location so that all kinds of students can gain access to the building and department. This ensures that clients come back, because clients feel secure when they are familiar with their surroundings. They are also more willing to come back because they know where to go and what is expected of them.

- The administration process should be shortened as far as completing documents is concerned, because lengthy documentation makes people become irritated and frustrated.

- Foreign students should be assisted with a special office that gives them full assistance on how to apply for all their visas and documents separately. This process is long and time consuming and if students have difficulty with these processes, they are negative towards studying here. This can lead to them not coming back to the institution.

- On-line applications should be accepted so that the application process can be more efficient and effective, cutting down on the lengthy administrative process. It can lead to applications being processed quicker and students

knowing whether they have been successful or unsuccessful. It saves time and money, also pertaining to e-mail rather than postal messages.

- If a student was studied at the University before, there should be a quicker way of gaining his/her details, like scanning a thumb print, and their details would appear, saving them the time of completing a whole new application form to continue studying. This method will encourage students to continue studying at this institution, as the completion of documentation is quick and easily completed, because their details are already captured on the University's database.

- Staff should be provided with training and development all the time to improve the quality of the services provided by them to the students. This is a very important factor, according to Deming (1986), as it involves the quality and support provided to the students. If staff is trained correctly and efficiently, they will provide quality services and support to the students. By having the right training and development required to do the job, their performance will be of a high quality.

- Employees should be encouraged to provide good services by having a reward system (e.g. employee of the month). Managers and leaders should provide employees with incentives and rewards in order to motivate and direct them to better performance.

4.4 CONCLUSION

As can be deduced from the results obtained from the questionnaires, it is evident that the primary objectives have been met, as most of the post-graduate students are satisfied with the services and support they experienced at the administrative department of the North-West University's post-graduate department.

Students are very pleased and satisfied with the processes and feel that the quality and service provided are of a high standard.

The secondary objectives are met, and high customer satisfaction has been achieved by the institution. From the results, it is clear that most students will apply at this institute again should they wish to further their studies, as the quality of the service and support is good and of a high standard.

In order to keep students from applying at other institutions, managers have to look at TQM all the time. TQM has to be reviewed and implemented carefully so that misunderstandings between managers and staff do not take place or that miscommunication does not occur.

The principles of TQM should be reviewed by managers together with staff to get the full effect of the TQM system.

TQM should be implemented and adopted from management right through to front-line staff.

Another important point that managers and institutions should pay attention to, is to apply business communication strategies within an institution or organisation. To achieve this, it is essential to build and develop teamwork. If staff is happy to work with each other, they will provide high levels of excellent work and quality service and support to their students. They will also enhance their co-operation with each other and students.

Staff should be motivated to improve their services and should also be provided with all necessary training and development required to produce quality services, as this proves to be an important factor for TQM.

Then, finally, this chapter serves as a conclusion to this study. A literature review was conducted to address the research objectives.

This forms the basis for performing primary empirical research. This was done in Chapters 2 and 3. This chapter therefore concludes the study by means of a formulated recommendation and conclusion drawn from the research.

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Annexure A

Questions of questionnaire:

Total Quality Management in post-graduate education questionnaire

The first section dealt with factors concerning the Academic Administration Services. In this section, the questions are based on the services that are provided to the students at the specific department.

The second section dealt with Student Services and Support and here information is obtained with regard overall support towards students.

The third section dealt with the services and support provided in relation to the programmes offered at the institution.

Answer the following questions by making a cross in the appropriate space next to the statement:

Fully agree	1
Agree slightly	2
Disagree slightly	3
Disagree	4

Total Quality Management in post-graduate education questionnaire.

Introduction

The compilation of the questionnaire was for the purpose of gathering information on the services, support and processes of the post-graduate department and whether these are adequate for students. The questionnaire is divided into three distinctive sections.

This survey is strictly confidential and voluntary.

The survey will take only 5-10 minutes of your time.

Answer the following questions by making a tick/cross in the appropriate space next to the statement:

Biographic questions: (Please make a tick/cross in the correct space provided)

Please choose one option only.

	Q1. AGE:	
20-29	1	
30-39	2	
40-49	3	
50-above	4	

	Q2. Did you obtain your undergraduate degree at this institution?	
YES	1	
NO	2	

	Q3. How long ago did you obtain your undergraduate degree?	
3-4 years	1	
5-6 years	2	
7-8 years	3	
9 years - over	4	

	Q4. GENDER	
Female	1	
Male	2	

	Q5. Language	
ENGLISH	1	
AFRIKAANS	2	

		Q6. Was your post-graduate degree obtained at this institute a master's or doctorate degree?		
Master's	1			
Doctorate	2			

	Q7. Were you studying part time/ full time?

Part time	1	
Full time	2	

	Q8. In which faculty did you complete your post-graduate studies?	
LAW	1	
NATUAL SCIENCES	2	
ECONOMIC SCIENCES	3	
THEOLOGY	4	
EDUCATION SCIENCES	5	
ENGINEERING	6	
ARTS	7	
HEALTH SCIENCES	8	

Please complete the following questions by making a tick/cross in the relevant box.

Please choose one option only

Strongly agree 1

Agree 2

Disagree 3

Strongly disagree 4

1	**ACADEMIC ADMINISTRATION SERVICES**				
		Strongly agree	**Agree**	**Disagree**	**Strongly disagree**
1.1	Applying for a post-graduate degree is quick				
1.2	Applying for a post-graduate degree is easy				
1.3	Easy to follow admission procedures				

1.4	Clear and accurate information about the admission process				
1.5	Quick and convenient **registration** procedures				
1.6	Quick and convenient **re-registration** procedures				
1.7	An effective and quick system for resolving administrative issues				
1.8	Adequate catering for the needs of international students				
1.9	Information regarding current programmes is accurate				
1.10	Communication with students is done well and in a professional manner				
1.11	I know exactly what is required from me during the administration process				
1.12	Information is captured accurately on to the system				
1.13	Feedback is acknowledged so that the services can be improved				
1	**ACADEMIC ADMINISTRATION SERVICES**				
		Strongly agree	**Agree**	**Disagree**	**Strongly disagree**
1.14	I am aware of the electronic survey system				
1.15	The electronic survey system is adequate				

2	**STUDENT SERVICES AND SUPPORT**				
		Strongly agree	**Agree**	**Disagree**	**Strongly disagree**
2.1	Multiple languages are supported on the Campus				
2.2	Study skills and guidelines are supported				
2.3	Adequate services supported for person with disabilities				
2.4	Efficient security services on Campus				
2.5	Adequate parking facilities for students				
2.6	The academic services provided are of a good quality and managed well				
2.7	Students receive good and professional support throughout the				

	duration of their studies				
2.8	I am aware of the electronic survey system used to assess the services provided with regard to the quality of the programmes				

3	**PROGRAMME-RELATED SERVICES**				
		Strongly agree	**Agree**	**Disagree**	**Strongly disagree**
3.1	If you decide to further your studies would you apply at this campus again?				
3.2	Did the quality of the services provided meet your expectations?				
3.3	Quality of the programmes offered are up to standard				
3.4	Study guides are useful towards the programmes				
3.5	Material regarding the current programmes is relevant				
3.6	Material regarding the current programmes is up to standard				
3.7	The resources available are of a good standard and quality				
3.8	The programme meets all the expectations that I had prior to my enrolment thereof				
3.9	I am aware of the electronic survey system to assess the programme related services				

Thank you for completing this questionnaire. Your valuable time spent is highly appreciated.

Regards

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