EXPLORING THE TOTAL QUALITY MANAGEMENT(TQM) PRACTICES APPLICATION ON EMPLOYEES' WORK-RELATED ATTITUDES AT AN ENGINEERING COMPANY IN SECUNDA SOUTH AFRICA

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DECLARATION OF AUTHENTICITY

DECLARATION

I, the undersigned, hereby declare that the following work in this dissertation is my original work, and I have cited all additional sources I have used and those I have quoted directly.

Signature.

Date: 19 December 2022

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ABSTRACT

The study explored Total Quality Management (TQM) practices application on employees' work-related attitudes at an engineering company in Secunda South Africa. The issue of TQM practices application on employee work-related attitudes is important considering the contribution of these practices towards improving the quality of products and increasing employees' morale. A qualitative research approach was followed in this study. Data were collected from a sample of 9 participants. In this study, non-probability sampling was used. The sampling technique that was used in this study is purposive sampling. Semi-structured interviews were used in this study. Data were collected using online interviews. Thematic analysis was employed for data analysis.

Regarding the first objective about identifying employees' perceptions of TQM practices, the study concluded that TQM practices that affect employees' attitudes are customer focus, continuous improvement, teamwork and continuous training. The study identified ISO 9001 quality management system, critical path analysis and organisational commitment as means of implementing TQM practices in mechanical, electrical, control and civil engineering project services in the second objective. The third objective concludes that TQM practices affect job satisfaction, job involvement, organisational commitment and career satisfaction of employees. The study also identified the following conditions: top management commitment, quality culture and communication to influencing the implementation of TQM practices.

Keywords:

Total Quality Management (TQM), TQM practices, employees' work-related attitudes, engineering project services.

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LIST OF ACRONYMS

ANN	Application Neural Network
CDIO	Conceive, design, implement, operate
CEO	Chief Executive Officer
CPA	Critical path analysis
EFQM	European, Foundation for Quality Management
EPCM	Engineering, Procurement, and Construction Management
ISO	International Organisation for Standards
JIT	Just In Time
MIE	Ethiopia's Manufacturing Industry
PDCA	Plan, do, check, act
PPE	Person Protective Equipment
QA	Quality assurance
QC	Quality control
QMS	Quality Management System
SIPOC	Supplier, input, process, output, customer
SPC	Statistical Process Control
TQM	Total Quality Management

CHAPTER 1

1.1 INTRODUCTION AND BACKGROUND

The objective of this study is to explore the Total Quality Management (TQM) Practices application on employees' work-related attitudes at an engineering company in Secunda. The company's core business is to offer professional engineering services in mechanical, electrical, control and civil engineering through maintenance projects. The TQM philosophy and its principles were introduced into the United States around 1980, primarily in response to the severe competitive challenge posed by Japanese companies, and initially, the focus was on the manufacturing industries (Talib & Rahman, 2021). According to Slack and Brandon (2021), TQM lays specific organisation on elements such as meeting the needs and expectations of customers and improvements.

TQM practices include every person in the organisation getting things right the first time, that is, designing in quality rather than inspecting it and developing the systems and procedures that support improvement (Slack & Brandon-Jones, 2021). Total quality management can be referred to as modern management thinking and guiding principles that improve organisational performance (Amane *et al.*, 2018).

According to Butler (1996), companies that used TQM practices attained improvements in employee satisfaction, attendance, turnover, safety and health. When fully implemented, TQM practices benefit organisations and bring quality, productivity and employee development through better teamwork, creativity, innovation, training, communication, trust, market share, competitiveness and decision-making (Lawler *et al.*, 1995). Total quality management practices play both soft and hard roles, and the soft practices include leadership, customer/supplier focus and relationships, employee relations, product and process management, continuous improvement and teamwork in engineering performance (Ng, Goh & Eze, 2010).

Total quality management appears as a tool that assists organisations in maintaining high-quality standards of products and services that satisfy customers and promote organisational competitiveness (Kaur, Singh & Singh, 2019). TQM is an efficient system for combining the quality development, quality maintenance and quality improvement efforts of various groups within an organisation to enable production and

service at the most affordable levels that allow complete customer satisfaction. Quality is viewed as continuous conformance to customer expectations (Slack & Brandon-Jones, 2021).

Total quality management involves the commitment of all employees in all divisions and levels of the organisation for the delivery of quality products with continuous improvement in them (Khan, Malik & Janjua, 2019). To achieve and boost employee morale, there is a need for TQM practices. TQM soft practices under study that have been found to improve employee morale include continuous improvement, training employees, a teamwork approach to problem solving, a focus on problem prevention rather than correction and a focus on customer needs (Slack *et al.,* 2021). Hence, this study explored the Total quality management practices application on employee work-related attitudes at an engineering firm (referred to as an Engineering Company).

1.2 Background of the company

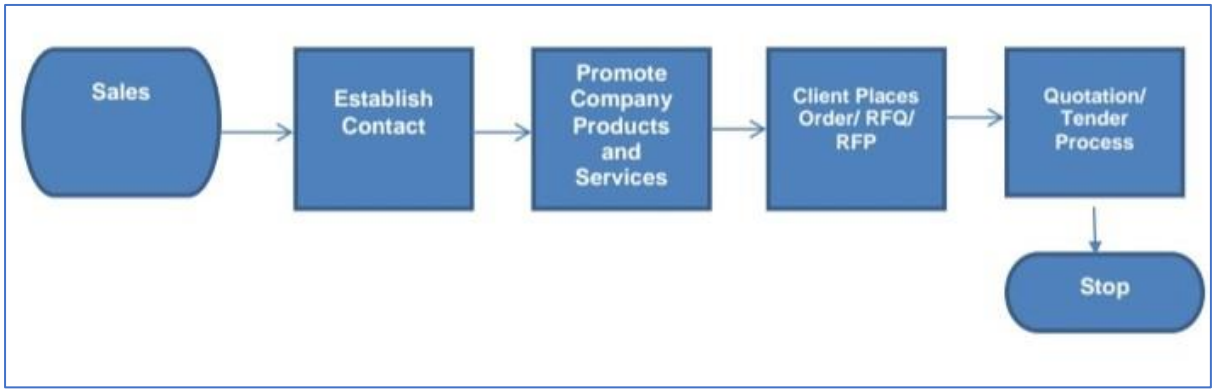
The company is an engineering South African company certified by the South African Bureau of Standards. It was founded in 2007 and is based in Secunda, Mpumalanga. The company commenced operating fully in 2009 with several projects at Eskom Power Stations. The company was founded to offer engineering services through maintenance projects in mechanical engineering, electrical engineering and civil engineering. The vision includes being a leading engineering service provider and championing skills development through a reputable training centre (Engineering Company internal report, 2015). Its missions include being customer oriented, committed to meeting the needs of clients through empathy and integrity and emphasising quality whilst promoting environmental safety (Engineering Company internal report, 2019). The company takes control of various policies, including ISO 9001:2015 in terms of its quality management system (Engineering Company internal report, 2019). The organisations' operations are in mechanical engineering, electrical engineering, civil engineering and control engineering.

According to the internal report issued by the organisation, it has been facing several challenges from its human resources department, which include scarcity of labour due to high labour turnover, complaints from customers for poor customer services and documentation management system problems (Engineering Company internal

report, 2021). Thus, this study seeks to explore the effect of TQM practices application on employee work-related attitudes at an engineering firm

Figures 1:1 and 1:2 below show the sales process and tender quotation process of how the organisation does its project cycle (Engineering Company internal report, 2021).

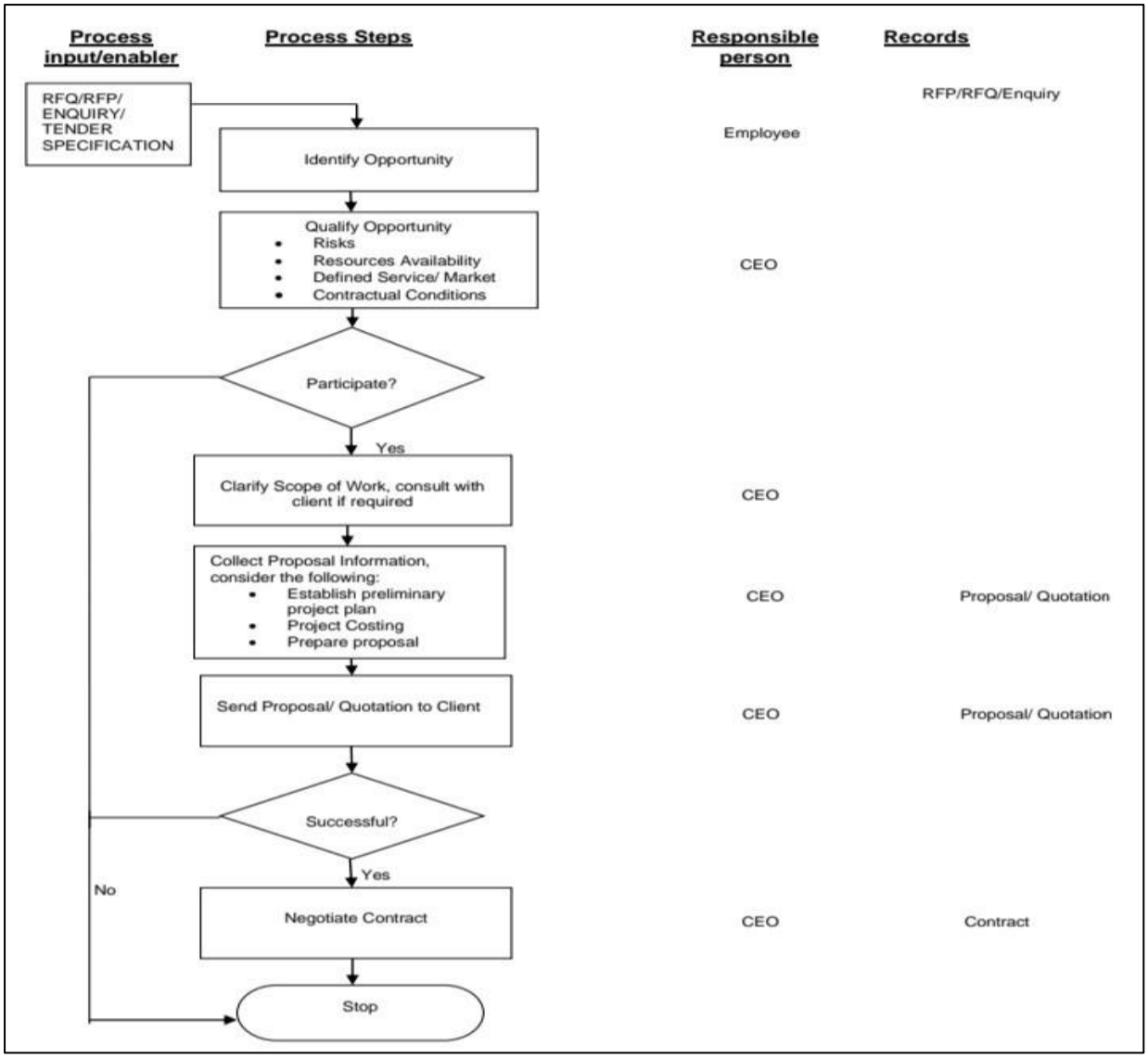
Figure 1:1 Sales Process of the Engineering Company



Source: Engineering Company, 2021.

The figure above shows the sales process of the engineering company. The purpose of sales and marketing of the engineering company is to turn opportunities into generating more revenue for the company. The company establishes its contact by making sure that the company profile is reviewed, and the company website is accessible to everyone to assist in communication with external parties. The Chief Executive Officer makes sure that the company is registered on proper databases. The company carries out client surveys whereby they establish questionnaires, and the survey is completed before the end of the budget year. The results are analysed and reviewed by the management. The company activities are promoted through word of mouth, the directory and the yellow pages. Records generated by the process include request proposals and requests for quotations and contracts. The client, therefore, places an order and follows the tender process as shown below:

Figure 1:2 Tender process of the Engineering Company



Source: Engineering Company, 2021.

1.3 TQM practices

TQM practises are going to be discussed in the following sections according to how they are viewed globally, in Africa, in South Africa and the engineering sector.

1.3.1 TQM practices globally

In the engineering global market, training and education are vital elements of making sure that practices are fully fulfilled (Abu-rumman, 2018). Total quality management practices around the world help these organisations improve (Durairatnam, Chong & Jusoh, 2019). Over the past few decades, TQM has been recognised as a significant

advantage in engineering managerial performance and profitability over the long term (Van Kemenade & Hardjono, 2018). In today's hyper-dynamic global business environment where customers are becoming more demanding, and international competition is becoming tenser, it is clear that only organisations that deliver quality prosper (Bajaj, Garg & Sethi, 2018).

TQM and Just In Time (JIT) production practices can be used to improve flexible performance (Kaur, Singh & Singh, 2019). Both JIT and TQM are related, as they both seek to improve quality in the organisation. Overally, JIT is a pull system that focuses on producing what is necessary, when it is necessary and in the necessary quantities, thus allowing for the pursuit of quality, cost minimisation, delivery time and waste reduction, whereas TQM aims to improve quality through continuous operations improvements to ensure defect-free products (Slack *et al.,* 2021). Since the 1990s, firms that must deal with changing demand in the global market needed to be flexible in their global manufacturing (Phan *et al.*, 2019).

The key barriers to the TQM practices being fully utilised in engineering firms are insufficient resources, a lack of systems and structures to support the TQM and a lack of training (Abu-rumman, 2018). Many studies have been done on the TQM implementation and competitive advantage globally (Bajaj *et al.,* 2018). Debatably, there are limited studies that have been done about the effects of TQM practices on employee work-related attitudes at an engineering firm, and this study seeks to fill that gap.

Several studies have been done in the TQM area. One of those studies was on the development of TQM in Steel Manufacturers' Production by Tervonen, Pahkala & Haapasalo (2009). The objective of this study was to examine the development of quality management in Rautaruukki Plc's Production division. The goal was to describe significant occurrences in the development of quality management considering historical development, status and theoretical framework and to assess whether this description follows the developmental pattern outlined in the literature. Another goal of this research was to continue the quality management growth route by creating three scenarios for the organisation's development.

The most significant contribution of this research was to describe the whole growth route of quality management in the production division. From the perspective of future

production quality professionals, the research provides a comprehensive assessment of recent history, actions implemented, development attempts and appraisal of the status. Knowing history might help you avoid making the same mistakes repeatedly. It also helps to analyse whether anything might have been done differently and whether one can succeed better in the future. This study has shown TQM and performance correlation. However, this study did not strictly prove that TQM caused performance to increase but only that a positive correlation existed.

Another study was done by Karia and Asaari (2006) on the influence of TQM on employees' work-related attitudes and behaviour in Malaysia's randomly selected five public and five private firms. The purpose of this study was to examine the impact of TQM practices (customer focus, training and education, empowerment and teamwork and continuous improvement and problem prevention) on employees' work-related attitudes (job involvement, job satisfaction, career satisfaction and organisational commitment).

The study findings concluded that training and education, empowerment and teamwork and continuous improvement and problem prevention have a positive effect and impact job involvement, job satisfaction and organisational commitment (Karia & Asaari, 2006). In contrast, TQM practice on customer focus was found not to contribute to any studied work-related attitudes (job involvement, job satisfaction, career satisfaction and organisational commitment). However, the limitations of this study included not covering wider dimensions of TQM practices and failure in the understanding of customer focus as a cornerstone of TQM by individuals and firms which participated in the survey (Karia & Asaari, 2006).

The other study was done by Juan José Tarí (2005) on components of successful total quality management in Spain. The purpose of this study was to identify the components of total quality management to make them known to managers, thus facilitating successful quality management implementation and showing the situation of 106 ISO 9000 certified firms concerning these components. On the one hand, the study found that TQM components must be considered by managers who want to successfully adopt TQM inside their organisations. These TQM components, in order of criticality, included: customer focus, customer satisfaction, staff indicator, process management, leadership, supplier management, learning, quality performance, quality

planning, social impact, continuous improvement, employee management and employee satisfaction. Managers can utilise a variety of approaches to implement TQM's important criteria. On the other hand, it has investigated TQM features in ISO 9000 certified companies. The findings can be used to identify the situation of many certified firms and show that to progress towards TQM, these firms must improve their people orientation and use quality improvement techniques and tools to a greater extent, even if the factors related to the difficult part are more implemented.

If the goal is to keep the ISO 9000 certificate, they will remain at a basic TQM level and show little interest in further developing quality management components. However, if these companies want to move beyond ISO 9000, they must enhance all these characteristics to increase their competitiveness. The next step may be to define improvement activities using the European Foundation for Quality Management (EFQM) paradigm. Then, after management is aware of the TQM components, actions for their implementation may be devised. Such activities will comprise the previously described processes, tools and methodologies, as well as a person accountable for implementation and completion date, to ensure that the implementation was appropriate.

The other study was on employee attitudes towards TQM implementation and job satisfaction in the public health sector by Škarica and Vrtodušić Hrgović (2021). The study shows that in the public health sector, service quality is a key factor that determines patient happiness. Quality in the public health sector implies providing healthcare that is inexpensive, safe and effective, with the least risk and harm to patients. In other terms, it implies meeting and exceeding patients' expectations. Numerous public health organisations establish quality standards to give patients with high-quality and pleasant service, which has many benefits and advantages, one of which is staff happiness. The study's goal was to assess employees' attitudes towards job satisfaction aspects and their evaluation of the level of TQM implementation, considering the employees' socio-demographic factors.

The findings indicate that education level and length of service have a significant influence on the variations in assessments among employees, whereas position in the workplace affects some dimensions of job satisfaction, as well as their impression of TQM implementation. The findings also revealed a statistically significant association

between work satisfaction and the amount of TQM adoption. As this study focuses specifically on Institutes of Public Health, the current study identified a gap as the current look at TQM in the engineering field.

The literature on TQM practices and work-related attitudes in a globally context has painted the components which should be considered. The studies applied to manufacturing companies and public organisations. The study by Karia and Asaari (2006) is unclear if engineering companies were part of their study.

1.3.2 TQM practices in Africa

One of the studies in TQM was done by Addis (2019), which was an exploration of quality management practices in the manufacturing industry in Ethiopia. Total quality management has long been seen as a means of achieving company excellence. However, in emerging economies, it is a recent idea (Addis, 2019). This is especially distant from reality in the case of African countries in general. The goal of the study was to investigate the present condition of TQM adoption in Ethiopia's manufacturing industry (MIE). The research also compares the adoption of TQM methods in big and medium-sized businesses, as well as ISO and non-ISO firms.

It has been discovered that supplier quality management is a component of TQM that significantly and direct impacts on the organisation’s ISO 9001 operational performance in Ethiopia (Addis, 2019). Although the study yielded fascinating results, additional research in TQM is required. Based on the findings of this study, more research may be undertaken to identify TQM hurdles and design a thorough implementation framework for the MIE. Further studies have indicated that TQM practices are correlated to operational performance and can assist managers in realising the important improvements by the synergy among the TQM factors in the African manufacturing industries, thereby providing significant support to measure employee performance (Magova & Kessy, 2020). TQM research has strategic implications for organisations in terms of gaining a competitive advantage and improving firm performance in African organisations (Vihari, Yadav & Panda, 2021).

The literature on TQM practices and work-related attitudes in an African context were applicable to manufacturing companies.

1.3.3 TQM practices in South Africa

According to Aghimien and Thwala (2019), TQM practices are used in the delivery of the South African civil engineering projects. Engineering projects in most countries, including South Africa, are delivered beyond their schedule, over budget and below quality, thus leading to the clients not being satisfied. Despite this substantial contribution, caution should be exercised in generalising the study's findings due to the highlighted shortcomings. Because the study was confined to a single area within the country, more research in other provinces within the country is needed to compare outcomes. There is also a need for more research with a considerably bigger sample size than what is available in this current study.

TQM is usually affected by a general lack of support from leaders, which, in turn, affects the quality of organisations' products (Aghimien *et al.*, 2019). This lack of support emanates from leaders, be it top management, middle management or lower management, as long as they do not support it financially, physically or emotionally, the employees' TQM practices will be unsuccessful (Dilawo and Salimi, 2019). TQM practices in the engineering sector are concerned about the delivery of quality products. This is through the adoption of TQM practices which are customer focused and about supplier quality management, strategic planning and employee relations (Magova *et al.,* 2020).

Another research study was conducted by Njenge, Vermeulen and Pretorius (2015) to investigate TQM implementation in process engineering design firms in South Africa. The objectives of this study were to investigate how TQM was adopted by process engineering design firms and the perception of the importance of TQM. The study findings concluded that about 70 % of firms surveyed adopted TQM; those not formally adopting TQM confirmed that they are implementing TQM principles. They also found that TQM implementation improves employee satisfaction, customer satisfaction and financial performance.

The literature on TQM practices and work-related attitudes in the South African context was limited to civil engineering projects and process engineering (Aghimien *et al.*, 2019). Therefore, there is a need to do studies specific to mechanical, electrical and instrumentation/control project services. This study focused on TQM practices in the

engineering companies like continuous improvement, training, teamwork problem prevention focus and employee attitudes.

1.3.4 TQM practices in Engineering

Deployment of TQM and TQM tools in engineering organisations has an impact on the quality of products offered and improved delivery performance (Ramesh, Ravi & Suganthalakshmi, 2016). Ramesh et al. (2016) further suggest that employees of the organisation help it improve product quality by reducing rejects and reworks, which improves employees' knowledge level and leads to job satisfaction (Ramesh *et al.,* 2016). Because of employee empowerment, the appropriate selection and implementation of TQM tools and techniques improve the workforce's capabilities in terms of their ability to solve problems systematically and deal with issues of knowledge levels, creativity and a sense of job satisfaction (Bai, Satir & Sarkis, 2019). It is estimated that most construction projects face significant overruns and delays, thus resulting in a bad reputation (Habibi, Kermanshachi & Safapour, 2018). Cost and schedule performance must be identified.

The engineering company has powerful competitors. The competitors have a competitive advantage over the engineering company in terms of product quality, engaged and motivated employees, skilled labour and the ability to meet customer requirements (Engineering Company internal report, 2019).

The engineering company under study is facing challenges with compliance during document management, as the documents need to be kept on both soft and hard copies as archives for future generations or in case of emergencies like fire (Engineering Company internal report, 2019). There is a lack of sufficient workforce, and sometimes not meeting specific customer requirements because of unskilled labour. The company is ISO credited. This means that the organisation has been audited by an independent third party and proved that the company meets the criteria of the most recent quality process standards established by the International Organisation for Standardisation.

ISO accreditation enables businesses and organisations to become more productive while also increasing consumer satisfaction (Habibi *et al.,* 2018). ISO standards serve as a solid foundation for the formulation of national and international regulations, thus saving time and lowering obstacles to international trade. The capacity to implement

growth, profitability and cost reductions is enabled by having an ISO certification. Reduced waste helps your employees to be more productive and develop continuing QMS standards for improvement and long-term client success (Ramesh *et al.,* 2016).

Most of the literature on TQM in South Africa focused mostly on the construction phase budget and time overruns, while quality management practices application on employee-related attitudes in the engineering/design sector was rarely studied, thereby leading to this study becoming more exploratory.

1.4 Problem statement

The issue of TQM practices application on employee work-related attitudes is important considering the contribution of these practices towards improving the quality of products and improvement in employee morale. Surprisingly, several engineering organisations in most countries, including the engineering company under study, are delivering products to clients beyond their schedule, over budget and below quality, thus leading to the clients not being satisfied. This has been a challenge to many organisations, and the engineering company under study has not been spared this challenge.

According to the internal report by the engineering company, the organisation has received several complaints from customers for poor services and delays in delivering engineering services to the customers (Engineering Company internal report, 2019). This is despite the organisation implementing several policies that seek to improve its operations, such as creating a standard operating procedure that employees must follow in serving customers (Engineering Company internal report, 2020).

Therefore, the challenges discussed above of the engineering company can be attributed to a lack of application of TQM practices, like pieces of training and employee-related attitudes, thus leading to low employee morale and delays in the production and delivery of goods and services (Engineering Company internal report, 2020).

Preliminary literature on TQM practices and work-related attitudes studies explored globally, in Africa and South Africa, in particular, indicate no studies or limited studies have been conducted on businesses offering project services in mechanical, electrical,

instrumentation and civil engineering. This study, therefore, seeks to explore the effect of TQM practices application on employee work-related attitudes at an engineering firm.

1.5 Research Question

After analysing the research problem, the succeeding research question is as follows:

- What are the effects of total quality management practices on employees' work-related attitudes at an engineering company that offers project engineering services?

This question is aimed at establishing the link between quality management practices and employees' work-related attitudes and how these contribute to the improvement of employee morale. According to the internal report issued by the organisation, it has been facing several challenges from its human resources department, which include scarcity of labour due to high labour turnover, complaints from customers for poor customer services and documentation management system problems. Given the level of effort, the organisation has put in place to improve the morale of employees financially and still there is low employee morale, the question of how total quality management practices can be employed to improve employee work-related attitude is necessary.

The following are the sub-research questions of the study:

1) What are the employees' perceptions of Total Quality Management practices?
2) How are Total Quality Management practices implemented in mechanical, electrical, control and civil engineering project services?
3) Which TQM practices affect employees' work-related attitudes in mechanical, electrical, control and civil engineering project services?
4) What are the work conditions that influence the implementation of TQM practices on employee work-related attitudes at the engineering company?

1.6 Research Objectives

The following are the research objectives.

1.6.1 Main objective

The purpose of this study is to explore the effect of total quality management practices on employees' work-related attitudes at an engineering company in Secunda South Africa and how it can contribute to the improvement of the morale of employees. Thus, two constructs are utilised in this study, whichare total quality management practices and employees' work-related attitudes.

The following are the sub-research objectives of the study:

1) Identify employees' perceptions of TQM practices.
2) Explore TQM practices implementation in mechanical, electrical, control and civil engineering project services.
3) Determine TQM practices that affect employees' work-related attitudes in mechanical, electrical, control and civil engineering project services.
4) Understand the impact of the work conditions on the implementation of TQM practices on employee work-related attitudes in the engineering company.

1.7 Significance of Research

For the engineering company to break the negative employee attitudes prompted by a lack of application of TQM practice, this study will be significant, as it will proffer recommendations on how TQM can improve employee morale. Exploring the TQM practices application will help one understand more about its relevance to the employees' work-related attitude and perceptions. According to the literature in this study, it is evident that organisations that use good TQM processes have higher worker morale than those that do not.

This research will be beneficial to the company and other engineering organisations, since it will highlight the importance of TQM practices and their influence on improving employee morale. This study will be extremely useful as a reference for improving its TQM practices.

This research will be useful for anybody who wants to perform more research on the issue, notably researchers and academics, as there are limited studies that have been studied on the effects of TQM practices on employee attitudes on businesses offering project services in mechanical, electrical, control and civil engineering. In terms of epistemology, the study will provide some knowledge to the existing understanding of TQM and employee morale.

1.8 Abbreviated literature Review

The following headings are going to explain the important aspects of TQM.

1.8.1 Definition of TQM

Total quality management is management thinking to attain customer satisfaction and better performance (Ramesh *et al.,* 2016). TQM is a set of practices that point to continuous improvement and frequent measures of outcomes (Basheer *et al.*, 2019). Besides, Total quality management is defined as a manufacturing and production approach that entails the policies and technicalities focused to lessen imperfections in the process of production on effective service delivery (Osoko & Muda, 2021).

According to Alzoubi and Ahmed (2019), total quality management is a philosophy more focused on the company's objective of serving customers' demands by offering maximum service to consumers through enhanced employee work motivation. The ongoing and demonstrated success of TQM, particularly employee engagement in that success, may lead to a notable boost in staff morale, which, in turn, decreases employee turnover and hence the cost of acquiring and training new personnel (Permana, 2021).

1.8.2 Understanding the nature of TQM practices

TQM involves all members of an organisation taking part in improving processes, products and services and the norms and values in which they work (Osoko & Muda, 2021). Supporting TQM practices involve top management commitment, teamwork and participation, process management, customer focus and satisfaction, resource management, organisation behaviour and culture, continuous improvement, training and education (Talib, Rahman & Qureshi, 2011).

TQM practices serve both soft and hard roles. Soft practices include leadership, customer/supplier focus and relationships, employee relations, product and process management, continuous improvement and teamwork on engineering performance, while the hard roles include the tools for total quality management (Ng, Goh & Eze, 2010).

A brief overview of TQM practices is discussed below. They include continuous improvement, customer focus, training engineering employees, teamwork, and problem prevention focus.

- **Continuous improvement**

A maximum maturity model for continuous improvement in engineering departments needs to be adopted (Hoe & Mansori, 2018). Commonly, departments need to stick to standards. Deming PDCA cycle is used in engineering companies to identify actionable improvement in the engineering sector, and it was confirmed to be effective in continuous improvement (Damaj & Yousafzai, 2018). However, this was only done in electronic and computer engineering therefore the need for more studies on continuous improvement in other parts of engineering like mechanical and other sections of engineering.

- **Customer focus**

Organisations are more committed to customer focus through the implementation of new ideas in management ideas, examples and models, including the principles of TQM, as they improve the quality of the engineering goods and services. According to Guest (2011), TQM involves putting the customer as the focal point of operations. Customer focus will affect customer satisfaction, and positive satisfaction will lead to higher customer loyalty in engineering companies (Hoe & Mansori, 2018).

- **Training employees in engineering**

According to Ian Anh Vu (2019), further studies on the training of employees in the engineering sectors have been done. Regular assessment and improvement in the training programmes help to meet the current preferences of enterprises and also foresee future changes in the engineering labour market (Vu & Le, 2019). Approaching CDIO (conceive-design- implement- operate) helps to formulate a framework for developing engineering training programmes. Unfortunately, this approach has not

been introduced to most South African (SA) engineering companies (Aldawood & Skinner, 2019).

- **Teamwork**

From an organisational point of view, the implementation of a model based on teamwork in manufacturing workshops is characterised by using workers in the processes, which is the lean model (Rydenfält, Borell & Erlingsdottir, 2018). This was done to integrate 400 new workers into the new production with the industry 4.0 features by linking the new and old workers so that they work as a team in the model. However, this type of innovation in teamwork needs more updating each time on the control systems, user models and sense making, which is only available in developing countries (Mazali, 2018).

- **Problem prevention focus**

The problem prevention focus is designed to prevent defects by doing the job right. Quality management is concerned with making sure that problems are prevented by developing attitudes that make the prevention possible (Culp, Smith & Abbott, 1993). In engineering projects, the customer is included at all the stages of the processes by giving information, responding to certain questions and finally accepting the end work, this, therefore, helps to prevent problems thereby promoting quality management (Ramesh *et al.* 2016).

TQM has been seen as an organisation-wide knowledge in need of all the employees at every level in the organisation to focus his/her ability in assisting in improved activities in the business, and this does not need certain people in the organisation, but it requires everyone. It is the responsibility of everyone in the organisation to make quality as the culture of the organisation, and adequate information must be provided to all employees so that they can make good decisions (Mehra, Hoffman & Sirias, 2011).

A company achieves all the requirements when it equips all employees in every department so that high standards are maintained for continuous improvement (Boon, Arumugam & Hwa, 2015).

1.8.3 Lean thinking tools and techniques

The lean concepts have discovered significant applications in manufacturing structures, as well as in the process industries to attain advanced productivity, cost and quality (Panwar *et al.,* 2015). Specific lean thinking tools such as 5 S models offer the organisation value and remove those processes which are not adding value. Acquiring the 5 S principles has been seen as a sign among others that effectively eliminates product quality issues and increases the chances of customer satisfaction (Radhawa & Ahuja, 2018).

5S model emerged from the Japanese in the mid-1950s. It is a method for formulating a well-defined organisation, neat and clean, highly efficient, productive and quality workplace. It has been recognised as the foundation for improvement in quality programmes, which improve the organisational working environment and industrial management processes (Dahlgaard-Park, Reyes & Chen, 2018).

1.8.4 Perceptions of employees on TQM practices

Positive perceptions of individual employees on the TQM practices will lead to improved customer satisfaction and less employee turnover (Boselie *et al.*, 2018). Employee perception is the process by which people arrange and interpret their sensory perceptions to make sense of their environment (Al Ahbabi *et al.,* 2018).

- **Job involvement**

Job involvement is one of the important features of TQM whereby employees are empowered to be more involved and take part in TQM decision-making activities. According to Luthans (1995), TQM needs the full participation of all the employees at every level of the organisation to have more diverse skills and tasks. Employees' involvement in TQM practices leads to satisfaction and improvement in their performance (Abu-rumman, 2018). A person who has a high level of job involvement usually obtains major life satisfaction from the job (Demir, 2018).

- **Job satisfaction**

Job satisfaction is the level of contentment employees feel with their job, and it also refers to a perceptual reaction by individuals to their jobs (Forsyth, 1995). There are also important factors that are conducive to job satisfaction, mentally challenging work, equitable rewards and working conditions that are supportive and helpful to colleagues

(Pazim, 2021). Empowered employees have increased authority and responsibility, which allow them to be innovative in implementing their ideas to problems (Hoff, Song, Wee, Phan & Rounds, 2020).

- **Career satisfaction**

According to Greenhaus (1990), career satisfaction refers to the overall successful reaction of individuals to their careers. TQM practices form a very favourable managerial environment that increases employee motivation and the successful accomplishment of goals (Aghimien *et al.,* 2019). It helps employees to achieve their career goals by using their abilities and skills to improve their work (Butler, 1996).

- **Organisational commitment**

Organisational commitment refers to the extent of closeness and loyalty felt by the individual employees to the organisation (Pazim, 2021). Implementation of TQM will increase their chances of remaining in the company. Employees who are highly attached to their organisations effectively contribute to company growth and success (Arasanmi & Krishna, 2019).

1.9 Research Methodology

Research involves quantitative and qualitative research. Quantitative research is grounded on the measurement of quantity or amount (Blumberg, Cooper & Schindler, 2014). Qualitative research is of vital importance in the behavioural sciences, as it aims to discover the fundamental motives of human behaviour (Cr, 2020).

This study focused on qualitative to analyse the varied factors that motivate people to behave in certain ways and which make them dislike a particular thing. Looking at the current study topic about exploring TQM practices application on employees' work-related attitudes, qualitative research analysed numerous factors and employees' perceptions in terms of TQM practices, the TQM practices that will lead to the employees behaving in certain ways and how employees will perform if the TQM practices are present in the organisation. Qualitative research is concerned with judging attitudes, opinions and behaviour (Flick, 2016). The techniques also involve focus groups, interviews, projective techniques and depth interviews (Cr, 2020).

1.9.1 Population and sample framework

The study targeted the personnel at the engineering company, which amounts to twenty-two individuals that include the management and non-management employees. The study adopted a non-probability sampling approach to select the sample that was used in the study. Non-probability sampling is a sampling strategy in which the researcher chooses samples based on his or her subjective assessment rather than random selection (Maree, 2017).

The sampling technique that was used in this study is purposive sampling. In the purposive sampling approach, researchers choose samples only based on their expertise and credibility.

1.9.2 Data collection method

The process of obtaining and measuring data on certain variables in an established system, allowing one to answer important questions and measure outcomes, is known as data collection (Maree, 2017). The data collection was done through semi-structured interviews in this study. An interview is a data collection tool that involves the researcher asking the respondents questions related to the study face-to-face or online and the respondent replying thus proving his or her point of view.

1.9.3 Data analysis methods, techniques and instruments

According to Cera (2020), data must be analysed, measured and evaluated after collection. According to Cera (2020), obtained data is only useful once it has been analysed. The acquired data were examined and coded to represent the whole problem context and breadth (Kiger & Varpio, 2020). As a result, the data were represented using theme analysis in the study. The thematic analysis involves looking for and re-coding trends in results (themes).

1.10 Validity and Reliability

This section will discuss elements of validity and reliability which are credibility, transferability, conformability and dependability.

- **Credibility**

Credibility relates to trust in the data's authenticity and interpretation (Mare, 2017). Its goal is to boost the credibility of research findings. It also assesses the reliability of

foreign readers. A synopsis of the study methods and protocols, as well as participant credentials in the form of demographic information, was provided.

- **Transferability**

There is a need to ensure that the results are transferable and applied to unusual backgrounds and populations. Researchers are accountable for giving adequate descriptive data in research reports so that consumers may assess the data's use in various situations (Cera, 2020).

- **Confirmability**

Confirmability is a quality that ensures fairness or the possibility of data accuracy, correlation or meaning between two or more independent persons (Cera *et al.,* 2020). The study ensured that all data used came from individuals rather than researchers to measure conformability. For people to understand how and why decisions were taken, the researcher used markers like the justifications for theoretical, methodological and analytical choices throughout the entire investigation.

- **Dependability**

Data collected were dependable in terms of context and time, such that if study results are duplicated in the same (or similar) setting, survey results will also be replicated in the same (or similar) environment. The responsibility of researchers to give readers information, that is, the research method is rational, traceable and recorded, is referred to as credibility (Mare, 2017).

1.11 Limitations and Exclusions

Given the size of the engineering field, researching one business only provided leads to what other organisations were doing and may not be an acceptable representation of the whole sector. Although there is an abundance of research on TQM, arguably, there is a scarcity of information regarding the research topic, hence the literature review was undertaken using the few sources accessible to the researcher.

1.11.1 Delimitations

The study is only limited to the private sector and is about engineering organisations. The study focused on the engineering organisation and was undertaken at the engineering company headquarters, and some representatives were based on sites.

The research concentrated on both the management and non-management levels, allowing the collection of both unbiased opinions in the firm.

1.12 Ethical Considerations

Ethics are norms and standards of behaviour that give a guideline to moral choices about peoples' behaviour and relationship with others (Blumberg, Cooper & Schindler, 2014). The main aim of ethics in research is to make sure that no one is mistreated or harmed or suffers consequences from the research activities (Mare, 2017). Many ethical problems can be eliminated by careful planning and constant attention, and it also needs personal integrity from the researcher (Bougie & Sekaran, 2019). The researcher adhered to the following ethical considerations:

- **No harm**

If there is a chance that the data could harm the participants or if the researchers offer only insufficient protection of confidentiality, a signed form detailing the types of limits should be attained (Bougie & Sekaran, 2019). The research did not have the potential to harm anyone.

- **Privacy**

Privacy is critical not only for the validity of the research but also for the participants' safety. As a result, ethical researchers can obtain permission to conduct interviews, schedule interviews, limit the time required for participation and limit observations to public behaviour only (Blumberg, Cooper & Schindler, 2014). The researcher got permission to carry out online interviews thus limiting the time required for participation.

- **Confidentiality**

This involves the researcher coming up with signed non-disclosure documents, limiting access to participation identification, disclosing participants' information only with written consent and not revealing data subsets (Bougie & Sekaran, 2019).

1.13 Research report chapters outline

The study has the following chapters:

Chapter 1: Introduction and background

Chapter one is an introductory chapter that shows the background of the research, research problem statement, research questions, research objective and the aim of the research and its significance.

Chapter 2: Literature review

Chapter two provides the literature review related to the study that includes the theoretical framework and conceptual framework on TQM practices and employee attitudes.

Chapter 3: Research methodology

This chapter describes the qualitative research approach adopted in this study and all the other research methodologies related to the qualitative approach.

Chapter 4: Results, discussions, and analysis of findings

This chapter presents the study results and a discussion of the results. The results of the study were also analysed in the same chapter.

Chapter 5: Discussion, recommendations and limitations

The last chapter reviews and interprets the findings, resulting in recommendations for further research.

1.14 Conclusion

This chapter reflected upon the introduction to total quality management practices and ponders on the background of the topic and company and the TQM practices globally, in Africa and South Africa and the engineering company under the research study. It gives an overview of the research questions, research objectives and abbreviated literature review. The type of research methodology is qualitative. Lastly, it explains some of the ethical considerations.

CHAPTER TWO: LITERATURE REVIEW

In this chapter, a comprehensive literature review will be presented. This chapter includes empirical literature related to TQM practices. Various definitions and concepts of TQM and employee work-related attitudes will be discussed. The chapter evaluates what other researchers have said in the area under study.

2.1 Introduction

Total quality management (TQM) is fundamentally a management concept that has become the preferred technique for increasing organisational quality, and efficiency and improving employee morale (Wani & Mehraj, 2014). The general notion of TQM has been described using a variety of terminologies, such as total quality control, total quality leadership, total quality improvement programme, continuous quality improvement and total quality service. This literature study focused on TQM and its many component functions, with a particular emphasis on its influence on employee work-related attitudes. Because there has been a lot of research and literature on these concepts, the emphasis will be on meaningful contributions to the problem under study. In the same chapter, the literature gaps in TQM practices and employee-related attitudes will be discussed, which will stand as a foundation for this research study.

2.2 TQM principles

This section is going to provide the principles that form TQM practices. These principles include statistical process control, continuous improvement and teamwork amongst others.

2.2.1 Technical aspects of TQM

The Statistical Process Control (SPC) is the original TQM instrument (Godina, Matias & Azevedo, 2016). SPC is a statistical strategy used by managers to control the manufacturing or service delivery process to make changes within the organisation

and enhance organisational performance (Wells, Tamir, Gray, Naidoo, Bekhit & Goldmann, 2018). According to Psychogios and Priporas (2016), the main goal of SPC is to eliminate variance, which is inherent in many processes.

Another technical aspect of TQM is ISO 9000 series (Okudan & Budayan, 2021). The International Organisation for Standardisation (ISO) 9000 is the most well-known quality improvement system. It is an international series of publications commonly referred to as standards that were created by a global body known as the ISO/Technical Committee (Kar, Bin, Sorooshian & Bin, 2016). Their contributions are to establish the standards that organisations across the globe must follow in pursuit of quality in their production process. ISO assures that a firm has a defined quality improvement policy, making it more market competitive (Hussain, Eskildsen & Edgeman, 2020).

Pareto analysis is another important TQM technique. It is a tool that allows the management team to remove problems that arise throughout the operating procedures (Kado, Bala & Dandajeh, 2016). Neyestani and Juanzon (2016) described it as an extremely useful tool for considering a large volume of data in a manageable form. Pareto analysis is a formal approach that may be used when there are several different courses of action vying for attention. In essence, the problem-solver calculates the benefit provided by each action, then picks a few of the most effective activities that provide a total benefit that is near to the maximum feasible (Erdil, 2019).

The matrix diagram is another approach. This is a tool that helps managers to find, assess and rate the link between two or more factors, encouraging them to think in terms of relationships, strengths and patterns (Zou, Zhang & Huang, 2022). Histograms are also essential tools for TQM. Histograms graphically depict the relative frequency of occurrences of a wide variety of events. The graphic depicts the most significant reasons, and corrective actions are taken (Kado *et al.,* 2016).

The tree diagram, also known as the systematic diagram approach, is a tool used to arrange aims, challenges or client wants in a precise sequence (Hussain, Eskildsen & Edgeman, 2020). Critical path analysis is another approach (CPA). This tool is related to project management. It is connected to TQM, since project management is essential

for implementing quality initiatives inside a business. CPA attempts to build a logical sequence of tasks in terms of time and priority for the completion of a project by using a network of arrows or nodes (Kado *et al.,* 2016).

Another approach is a famous TQM tool known as the fishbone or Ishikawa diagram. The fishbone diagram is used to determine the root causes of an issue without the use of statistical approaches. According to Kriswanto and Yusuf (2021), the fishbone diagram is a good reminder of what must be done. It is a graphic representation of cause and effect. It is a more systematic technique than some other tools for brainstorming problem-solving factors (the Five Whys tool). The problem or consequence is seen in the fish's head (Neyestani, 2017).

2.2.2 Continuous improvement

Another principle is continuous improvement, which is a strategy to enhance organisational output, quality and performance (Goharshenasan & Shahin, 2017). Because it is not static, quality improvement is not a work with a goal. The emphasis is on identifying chances for improvement rather than simply maintaining the status quo. The emphasis on continuous improvement lies in preparation, prevention and foresight. According to Jimoh, Oyewobi, Isa & Waziri (2019), it is vital to generate generations of managers who are driven to the pursuit of never-ending improvement in serving the demands of external and internal consumers. This will enable to keep a wave of quality improvement.

Total muality management is used by manufacturers as a tool to improve productivity and customer satisfaction (Belay, Helo & Takala, 2011). The study by Belay et al. (2011) concluded that TQM practices improve the whole business performance by lessening operation costs and eliminating problems, encouraging workers to do things right the first time and increasing employees' skills. Challenges that hinder the improvement process were also discovered like a commitment to delegation to encourage decision making among the employees (Belay *et al.,* 2011).

Total quality involves several critical factors and involves other components, such as

tools and techniques for quality improvement, and managers can utilise different kinds of methods to put into practice the critical factors of TQM for implementation (Yap & Ng, 2018). Furthermore, Saffar and Obeidat (2020) observed that quality improvement necessitates the development of a quality council, which serves as the driver, to assure that progress is constant and never-ending. Quality may be improved if a company establishes a management philosophy of continuous improvement and implements the relevant organisational procedures (Goharshenasan *et al.,* 2017).

Continuous improvement is the planned, structured and systematic process of changing present processes in a continuous, gradual and company-wide manner to improve corporate performance (Boer & Gertsen, 2019). This crucial component, according to Dean and Bowen (2016), relates to an organisation's constant search for improved work practices and organisational procedures. A commitment to continual improvement should be visible at both the work unit and personnel levels. Besides, continual improvement has the potential to boost the performance of TQM implementation personnel.

2.2.3 Teamwork

The third TQM principle is associated with the notion of teamwork. Teamwork is a key aspect and a prerequisite for continuous improvement in the framework of TQM (Nasim, 2018). Individuals are often considered as ineffective when they work individually, as compared to when they work in teams. Teams should be inclusive of individuals from various hierarchical levels, divisions and departments within the organisation for them to be effective. Saffar et al. (2020) contend that all companies require teams to function more flexibly and to foster confidence among members. In conventional management methods, each department is responsible for its problems.

Teamwork places responsibility for an organisation's processes in the hands of people who know them best thus allowing them to participate directly in the mission or purpose of the business (Rosen *et al.*, 2018). The plan-do-study-act cycle is at the heart of the improvement process and is the key to employee empowerment in that process (Nasim, 2018). While companies desire employee dedication and empowerment, increasing control over the work process is a cornerstone of TQM (Saffar *et al.,* 2020). TQM is about individuals involved in a process of continuous improvement, which

incorporates components of bottom-up issue identification and problem solutions (Pambreni, Khatibi, Azam & Tham, 2019).

Therefore, TQM may empower employees by delegating duties formerly reserved for more senior organisational members therefore institutionalising involvement permanently (Goharshenasan *et al.,* 2020). Teams inside firms assist employees in becoming involved in issues that were previously the domain of senior management (Jimoh *et al.,* 2019). According to Saffar et al. (2020), empowered employees understand how to better blend their abilities into day-to-day job duties, allowing them to exercise greater judgement and a feeling of responsibility.

2.2.4 Continuous training

According to Hasham (2018), another component important in attempting to increase quality is employee training. Excellent training must be continual to match not only changes in technology but also changes involving an organisation's environment (Rosen *et al.*, 2018). According to Neyestani (2017), continuous training, leads to the formation of a single language throughout the firm. Top managers and shop-floor workers receive more training in the areas of "soft" quality tools, quality awareness and customer focus than in statistical techniques (Hasham, 2018).

Additionally, successful TQM implementation necessitates a training policy that is integrated into the entire quality strategy and attempts to increase the skills required for continual quality improvement (Hasham, 2018). According to Mahmood and Ismail (2018), the future of quality training should include improved training assessment systems. Organisations spend a lot of money on training, so they must ensure that it is accomplishing strategic goals (Mahmood & Ismail, 2018). He also believes that training may be measured using measures, such as customer happiness, market share and staff performance (Mahmood *et al.,* 2018).

It has been determined that training and employee development are crucial components of human resource management. Training is seen as a way to strengthen and implement TQM procedures (Dedy *et al.,* 2016). Training and development of leaders improve their understanding of quality concerns and their position within the

quality management strategy (Hietschold, Reinhardt & Gurtner, 2014). Thus, successful training and development provided personnel with the information, skills and talents they needed to make positive contributions to quality.

2.2.5 Customer satisfaction

Customer satisfaction is the driving factor for a business to enhance its performance in a whole quality framework (Hasham, 2018). According to Neyestani (2017), there are two types of customers: external (clients, government regulatory agencies and public) who define the quality of the service given and internal (workers, various departments) who define the quality of the processes involved with service delivery. Customers, both external and internal, have requirements they expect of the organisation. TQM, a modern approach to quality, emphasises the necessity of meeting their demands (Mahmood *et al.,* 2018).

According to Hasham (2018), to maximise customer happiness, everyone inside the business should see continuous improvement as something normal and encourages firms to create an inventory of customer data, complaints and benchmarks to increase customer orientation. According to Goharshenasan (2017), while customer attention is valued, approaches for creating a better knowledge of the customers' condition are not fully integrated into TQM. The TQM principles outlined above need the commitment and support of senior management. According to Jimoh (2019), senior managers must take initiatives, lead the process, offer guidance, and exhibit assertive leadership, including dealing with those workers who obstruct development and maintaining the drive.

Moreover, Goharshenasan (2017) suggest that top managers must set the quality objectives of the organisation to offer direction and clarity and to convey them continuously across the organisation. Companies with strong top management commitment, as opposed to enterprises with poor top management support, can develop high quality goods (Wijethilake & Lama, 2019). Aside from management's dedication and support for TQM, an open and democratic/participatory management style has been highlighted as crucial for organisational success (Kado *et al.,* 2016).

Goharshenasan (2017), for example, states that the essential distinction between TQM and other management systems is that it is more democratic. Additionally, Goharshenasan (2017) asserts that the most suited management style in a TQM environment is participatory, which involves eliciting feedback from empowered people. This motivates employees, and they will work harder and better, thus quality will be improved.

2.2.6 Customer orientation

Customer centricity, customer awareness and responsiveness are essential components of TQM. According to Nasim (2018), customer orientation is a pillar of various approaches, notably Japanese company-wide quality control. This emphasis is required to overcome the effects of the industrialisation process, which has isolated producers from the customers (Hasham, 2018).

People who have direct consumer interaction, such as those in the service industry, gain from direct feedback (Hasham, 2018). Nonetheless, impartial on-the-spot evaluation of that feedback is not always possible. Goharshenasan (2017) stated that service employees may be unable to envision client happiness, since they are unaware of the product (because it is intangible). All sorts of enterprises need to be aware of their consumers' preferences, tastes and applications (Neyestani, 2017). This is true for both the immediate buyer and the final user (Hasham, 2018). Relying only on consumer complaints is inadequate. Customers' opinions must also be carefully listened to. This may be accomplished through formal market research (Wani & Mehraj, 2014), as well as by providing chances for individuals at all levels and in all roles within the firm to interact with consumers.

According to Wani et al. (2014), even though CEOs agree that consumers are the most important thing, virtually little is done about it. Goharshenasan (2017) ascribed this to a lack of faith in consumer research data, since it is based on subjective judgements, and he offered several suggestions for making evaluation more accurate. Nonetheless, they still rely on subjective customer opinion. Leading corporations

engaged in this subject provided instances of Japanese and American firms that used consumer discussions, focus groups and qualitative interviews throughout the product development and design process (Goharshenasan, 2017). However, according to Karia and Assari (2006), customer focus does not contribute to job involvement, career satisfaction or organisational commitment.

According to Gruszewski et al. (2017), the most important aspect of TQM is customer attention. Hasham (2018) emphasises that quality is determined by the consumer, not by the organisation or the maker of the product or service because quality is what the end user demands. According to Brah, Tee & Rao (2002), the success of any firm soon will be determined by its ability to meet the requirements of its consumers efficiently and effectively continually. Similarly, He et al. (2017) emphasise that customer focus is the extent to which a business consistently meets the requirements and expectations of its customers. As a result, it is one of the most important TQM tools for improving and boosting corporate performance.

2.2.7 Supportive organisational culture

The common denominator of all the soft parts of TQM is supportive company culture. In other words, quality culture connects all the previously listed TQM ideas. As Pathiranage (2019) points out, it fosters high-trust social interactions, as well as a shared sense of membership and a notion that ongoing growth is beneficial to everyone in the organisation. Similarly, Araújo et al. (2019) contend that corporate culture influences and changes employees' behaviours and perceptions of all elements of their job, including quality. Moreover, Willar, Trigunarsya and Coffey (2016) support the concept that culture functions as a factor for cohesiveness in companies and, as such, may either assist or obstruct the process of change towards TQM adoption.

2.3 Empirical framework

The literature on TQM and how it relates to employee attitudes towards their jobs is covered in this section. It summarises the various viewpoints that researchers have

voiced on this topic.

2.3.1 TQM practices and its relations with employees related attitude

According to Anil and Satish (2016), TQM practices are formal, programmatic and behavioural. According to Willar et al. (2016), they are a set of practical measures that include continuous improvement, meeting customer requirements, reducing rework, long-term pondering, increased worker involvement and teamwork, process redesign, market research, team-based problem-solving, constant monitoring of findings and closer supplier relationships. Yusr (2016) summed up the practical impact of TQM concepts as follows:

- A focus on customers' needs.
- A focus on problem prevention (rather than a correction).
- Continuous improvement (seeking to meet customers' requirements on time, first).
- Training employees in ways to improve quality and
- Applying the team approach to problem solving.

This necessitates the collaboration of all members of the organisation, from senior management to employees and clerks (Vihari, Yadav & Panda, 2021). As a result, TQM takes a people-centred approach and encompasses many elements of organisational behaviour (Yusr, 2016). Effective TQM environments enable all workers to contribute to the achievement of an organisation's quality objectives (Talib & Rahman, 2021). All personnel are held accountable for the quality and are given the tools and training they need to fulfil their responsibilities (Ali & Johl, 2022). TQM is founded on the concept that personnel who are most familiar with daily operating processes are in the greatest position to comprehend and enhance their quality (Yusr, 2016). It seeks to foster an atmosphere in which managers and workers have positive interactions, and individuals are encouraged to accomplish their best (Kriswanto & Yusuf, 2021).

According to Sweis (2016), TQM is a participatory method that encourages all workers to take responsibility for improving quality inside the firm. Thus, TQM focuses not just on product quality, but also on staff quality (Pambreni *et al.*, 2019). TQM processes,

in principle, have a good impact on workers by increasing their happiness and dedication, as well as increasing organisational effectiveness (Kriswanto & Yusuf, 2021). Neyestani (2017) discovered that organisations that used TQM techniques improved employee satisfaction, attendance, turnover, safety and health. TQM provides benefits to organisations in terms of quality, productivity and employee development when completely adopted through increased teamwork, creativity, innovation, training, communication, trust and decision making (Saleh, Sweis & Saleh, 2018).

2.3.1.1 Development of TQM

Total quality management is a conceptual entity of the management idea, as well as a collection of quality management methodologies and procedures (Abbas, 2020). Some studies discuss TQM's harsh and soft aspects (Sweis *et al.,* 2016). Long-term success is the aim, which may be attained via customer satisfaction and benefits all members of the organization, as well as society (Bajaj, Garg & Sethi, 2018). The evolution of quality management is frequently portrayed in the literature as a four-stage process, with the first stage inspection (I) beginning with industrialisation and mass manufacturing (Neyestani, 2017).

Quality control (QC) in the second stage evolved particularly in tandem with the wartime industry (Belay *et al.*, 2011). The emphasis of the second stage is on the production process, which is being built methodically. The third stage, quality assurance (QA), considers the whole product development and production process to be a factor influencing quality (Kar *et al.*, 2016). Quality is viewed holistically and strategically in the fourth level, total quality management (TQM). The duty for quality was extended to encompass everyone in the organisation at this point, and the function of corporate management became crucial. Organisational maturity models are also used to characterise an organisation's level of quality management, and organisations may be categorised into different groups based on how values and processes are implemented, and quality ideals have been implemented into the organisational culture (Ahmed & Ali, 2016).

2.3.2 Work-related attitudes

Personality characteristics or dispositions are becoming more popular as predictors of work-related attitudes (Hoe & Mansori, 2018). Employees with good effects are more likely to have favourable attitudes about themselves and others, as well as a general sense of well-being, whereas those with negativity are more likely to feel apprehensive and tense (Kar *et al.,* 2016). Sweis et al. (2016) identified various work-related attitude markers. Task qualities, work participation, job satisfaction, career fulfillment and organisational commitment were among them. The same author defined job engagement as an individual's "ego involvement" with work - that is, the degree to which the individual mentally connects with his or her employment. Still, joyful or happy emotional states are the outcome of positive evaluations of one's profession or career (Ahmed & Ali, 2016).

A sense of organisational commitment instils in employees a sense of connection or loyalty to the organisation (Kriswanto *et al.,* 2021). Similarly, employee attitude, according to Kar et al. (2016), indicates work satisfaction and the individual's commitment to the organisation. Several metrics have been used by companies to assess the extent to which their focus on quality leads to improvements in employee satisfaction, attitude and behaviour. Employee happiness, attendance, turnover, safety and health, and the number of proposals given to enhance quality and cut costs have all been used as indicators (Kriswanto *et al.,* 2021).

According to Abba (2019), attaining employee and organisational objectives through the organisation’s performance is most important for work-related attitudes in the service industries. The responsibility of human resources practices attains more substantial influence in both the intra-industrial and cross-industrial studies (Abba, 2019). Work-related attitudes and jobholder performance studies had already been achieved by developing and developed countries (Abba, 2019). Results of the study indicated that employees’ performance relies on their attitude towards their jobs and organisations. However, the study did not consider the application of other concepts which rely on employee work-related attitudes.

2.4 Impact of TQM

This section will focus on the impact of TQM on employees' work-related attitudes. The purpose of this section is to discuss how TQM practices impact work-related attitudes in several areas, such as job involvement, job satisfaction, carrier satisfaction and employee satisfaction and organisation commitment.

2.4.1 Job involvement

Empowering workers to be more active in their professions and to participate in TQM decision-making activities is an essential feature of TQM. TQM necessitates full engagement from workers at all levels, and employees who have a wider range of duties and interact with a wider range of individuals at work feel more invested in their professions (Kriswanto *et al.,* 2021). Work happiness, career satisfaction and organisational commitment are all enhanced by high levels of "job participation" (Igbaria, Parasuraman & Badawy, 1994). TQM procedures are critical to properly involve people in processes that lead to increased corporate performance (Ahmed & Ali, 2016). TQM procedures can help to foster a culture that encourages people to collaborate throughout the organisation, promote personal accountability, and foster innovation and enhance a sense of accomplishment in job tasks (Abbas, 2020).

2.4.2 Job satisfaction

Individuals' favourable emotional reactions to their employment are referred to as job satisfaction. Job satisfaction, in a broader sense, relates to employees' recognition that they are contributing to the overall attainment of company goals (Kriswanto &Yusuf, 2021). According to Kriswanto et al. (2021), the essential aspects that contribute to job satisfaction include cognitively stimulating work, equitable remuneration, supportive working circumstances and helpful coworkers. TQM is supposed to boost work satisfaction, since it strives to create an atmosphere that evokes the best from employees. Indeed, Sweis et al. (2016) urged for employees to be given more authority and responsibility, allowing them to be more creative in applying their solutions to issues and cultivating a greater awareness of the need for cooperation, communication, and collaboration and teamwork (Ahmed & Ali, 2016).

2.4.3 Career satisfaction

Career satisfaction relates to people's overall emotional reaction to their jobs (Kriswanto *et al.,* 2021). TQM techniques provide a suitable management atmosphere that boosts staff motivation and goal achievement (Ahmed, 2019). Employees who are satisfied with their jobs are more likely to deliver excellent service to their clients and are more likely to stay with a company thus minimising staff turnover (Neyestani, 2017).

2.4.4 Organisational commitment

The term organisational commitment refers to the level of connection and devotion that individual workers feel for the company (Neyestani, 2017). TQM implementation that is successful enhances the possibility that workers will be driven to perform well and stay with the organisation (Ahmed, 2019). Employees that are deeply engaged in their organisations make a greater contribution to the company's growth and success (Ahmed & Ali, 2016).

2.4.5 Employee job satisfaction

Employee job satisfaction is one of the most thoroughly investigated employee work-related sentiments in business and management literature (Sweis *et al.,* 2016). Job satisfaction may be characterised in a variety of ways. Job satisfaction was described by Locke (2020) as the enjoyable emotional state arising from the evaluation of one's employment as accomplishing or aiding the attainment of one's job values. Job satisfaction is perhaps the most often examined work attitude in the organisational behaviour literature, as it is viewed as a desirable result at both individual and organisational levels (Ahmed & Ali, 2016).

In an empirical study, (Saleh, Sweis & Saleh (2018) found that the most likely workplace determinants of employee job satisfaction are whether the employee has good relationships with management, finds the job interesting, can work independently, has good advancement opportunities and has good relationships with colleagues. Neyestani (2017) discovered that job satisfaction is not a static condition but is influenced and modified by influences both inside an individual, notably personal traits and external to an individual, such as the immediate working environment

(Ahmed & Ali, 2016).

2.5 The impact of TQM on job satisfaction

There is both a positive and negative relationship between TQM and job satisfaction. This section will discuss the relationship between TQM and job satisfaction both negative and positive.

2.5.1 The positive relationship between TQM and job satisfaction

There are two schools of thought on the link between TQM practices and work happiness (Arunachalam *et al.,* 2017). TQM procedures, according to one school of thought, have a favourable influence on work satisfaction, meaning that firms that apply TQM would increase job satisfaction. The second school of thought contends that TQM reduces work satisfaction, meaning that if an organisation does not practice TQM, it will affect the quality of work hence demotivating workers. The key point of contention was whether the nature of TQM techniques improved employee job satisfaction or not. TQM has been shown to have a significant impact on an individual's job satisfaction and to typically result in healthier organisational climates inside the workplace (Khurshid, Amin & Ismail, 2018).

Ahmed et al. (2016) performed research on workers' emotive reactions to organisational quality initiatives (job satisfaction, commitment and intention to leave). The survey's participants were 228 workers from a prominent bank in Australia. The findings suggested that employees' engagement in organisational quality efforts was substantially associated with their affective reactions, with those who perceived higher organisational quality efforts demonstrating the most favourable relation to employees' job satisfaction inside the organisation

Empirical research by Karia and Asaari (2019) examined the influence of TQM techniques on workers' work-related attitudes. The study's participants include 104 workers from five Malaysian firms that implement TQM. The study's findings demonstrated that implementing TQM procedures influenced all elements of

employees' job satisfaction. Tasleem, Khan and Nisar (2019) performed research on the influence of TQM on employee attitudes. The results reveal that job satisfaction has grown inside the organisation, indicating that the deployment of TQM has transformed the working environment, and therefore workers' attitudes have improved. Consequently, employees' levels of pleasure and purposeful willfulness to remain with the firm may grow. These findings were consistent with prior research (Islam *et al.*, 2017), which demonstrated that TQM methods boost employee work satisfaction.

2.5.2 The negative relationship between TQM and job satisfaction

There is an opposing school of thought to the preceding reasons and viewpoints that indicated a link between TQM and work happiness. Several experts, however, have suggested that TQM, via standardisation and market-driven orientation, generates constraining uniformity in employee behaviour and organisational human culture (Randhawa & Ahuja, 2017). As a result, TQM has been portrayed as a "resurrection of Taylorism" (Corbacioglu, 2017), which reduces employee work satisfaction. The study discovered that a TQM programme did not improve all areas of performance in a study of 211 front-line supervisors from eight distinct firms that had been running a TQM programme for over two years in Hong Kong.

TQM, according to the findings, has made work more difficult - there was more of it, and it needed more individual expertise and engagement. However, most respondents did not appear to welcome this shift, implying that TQM techniques do not make their work more exciting or meaningful.Fiakpa (2020) performed a survey on the influence of TQM on middle managers and front-line workers in related research. A total of 171 front-line workers and sixty-seven middle managers were drawn from eight varied Hong Kong firms that had been using TQM for more than three years. The study's findings indicated that the TQM programme had not made their job more stimulating, and they did not experience a positive feeling of work achievement as a result. Furthermore, respondents stated that TQM had diminished their job autonomy.

Luthans (1996) used a pre-/post-test quasi-experiment control group design to evaluate the hypotheses about TQM's influence on hard practies (performance and turnover) and employee attitudes (work satisfaction and organisational commitment)

and organisational outcomes. A longitudinal study collected baseline data for the TQM intervention in 1991, followed by post-intervention data in 1992 and 1993. The findings revealed that there were no significant findings on the influence of TQM on work satisfaction. Kivimäki et al. (1997) conducted an empirical study at a TQM prize-winning surgical clinic in Finland, which appears to confirm their previous work. Longitudinal research was conducted before and after TQM implementation in a surgical clinic, as well as two non-TQM surgical clinics that served as the control group. According to Kivimaki et al. (1997), an economically feasible TQM deployment may not necessarily change the staff's well-being (in terms of job satisfaction) and work-related views.

2.6 Empirical research

Several studies have been done in the TQM area. One of those studies was on the development of TQM in Steel Manufacturers' Production by Tervonen, Pahkala & Haapasalo (2009). The objective of this study was to examine the development of quality management in Rautaruukki Plc's Production division. The goal was to describe significant occurrences in the development of quality management considering historical development, status and theoretical framework and to assess whether this description follows the development pattern outlined in the literature. Another goal of this research was to continue the quality management growth route by creating three scenarios for the organisation's development.

The most significant contribution of this research was to describe the whole growth route of quality management in the production division. From the perspective of future production quality professionals, the research provided a comprehensive assessment of recent history, actions implemented, development attempts and appraisal of the status. Knowing the history might help you avoid making the same mistakes repeatedly. It also helps to analyse whether anything might have been done differently and whether one can succeed better in the future. This study has shown TQM and performance correlation. However, this study did not strictly prove that TQM caused performance to increase but only that a positive correlation existed.

Another study was done by Karia and Asaari (2006) on the influence of TQM on employees' work-related attitudes and behaviour in Malaysia's randomly selected five public and five private firms. The purpose of this study was to examine the impact of TQM practices (customer focus, training and education, empowerment and teamwork and continuous improvement and problem prevention) on employees' work-related attitudes (job involvement, job satisfaction, career satisfaction and organisational commitment).

The study findings concluded that training and education, empowerment and teamwork and continuous improvement and problem prevention have a positive effect and impact on job involvement, job satisfaction and organisational commitment (Karia & Asaari: 2006). In contrast, the TQM practice on customer focus was found not to contribute to any studied work-related attitudes (job involvement, job satisfaction, career satisfaction and organisational commitment). However, the limitations of this study included not covering wider dimensions of TQM practices and failure in the understanding of customer focus as a cornerstone of TQM by individuals and firms which participated in the survey (Karia & Asaari: 2006).

The other study was done by Tari et al. (2020) on the components of successful total quality management in Spain. The purpose of this paper was to identify the components of total quality management, to make them known to managers and thus facilitating successful quality management implementation and to show the situation of 106 ISO 9000 certified firms concerning these components. On the one hand, the study found that TQM components must be considered by managers who want to successfully adopt TQM inside their organisations. These TQM components in order of criticality included: customer focus, customer satisfaction, staff indicator, process management, leadership, supplier management, learning, quality performance, quality planning, social impact, continuous improvement, employee management and employee satisfaction.

If the goal is to keep the ISO 9000 certificate, they will remain at a basic TQM level and show little interest in further developing quality management components (Tari` *et al.,* 2020). However, if these companies want to move beyond ISO 9000, they must enhance all these characteristics to increase their competitiveness. The next step may be to define improvement activities using the EFQM paradigm (Tari` *et al.,* 2020).

Then, after management is aware of the TQM components, actions for their implementation may be devised. Such activities will comprise the previously described processes, tools and methodologies, as well as a person accountable for implementation and completion date, to ensure that the implementation was appropriate (Tari` *et al.,* 2020).

The other study was on employee attitudes towards TQM implementation and job satisfaction in the public health sector by Zbornik Veleučilišta u Rijeci (2021). The study shows that in the public health sector, service quality is an important factor that determines patient happiness. Quality in the public health sector implies providing health care that is inexpensive, safe and effective, with the least risk and harm to patients.

In other terms, it implies meeting and exceeding patients' expectations. Numerous public health organisations establish quality standards to give patients with high-quality and pleasant service, which has many benefits and advantages, one of which is staff happiness. The study's goal was to assess employees' attitudes towards job satisfaction aspects and their evaluation of the level of TQM implementation, considering the employees' socio-demographic factors (Škarica & Vrtodušić Hrgović, 2021).

The findings indicate that education level and length of service have a significant influence on the variations in assessments among employees, whereas position in the workplace affects some dimensions of job satisfaction, as well as their impression of TQM implementation (Škarica & Vrtodušić Hrgović, 2021). The findings also revealed a statistically significant association between work satisfaction and the amount of TQM adoption. As this study focuses specifically on Institutes of Public Health, the current study identified a gap, as the current looked at TQM in the engineering field.

One of the studies in TQM was done by Addis (2019), which was an exploration of quality management practices in the manufacturing industry in Ethiopia. Total quality management has long been seen as a means of achieving company excellence. However, in the context of emerging economies, it is a recent idea. This is especially distant from reality in the case of African countries in general. The goal of the study was to investigate the present condition of TQM adoption in Ethiopia's manufacturing industry (MIE). The research also compares the adoption of TQM methods in big and

medium-sized businesses, as well as ISO and non-ISO firms. It has been discovered that supplier quality management is the component of TQM that significantly and direct impact on the organisation's ISO 9001 operational performance in Ethiopia (Addis, 2019).

2.7 Total quality management in project management

According to Likita, Zainun and Rahman (2018), in construction, TQM can be defined as a belief that guides the sector professionally in carrying out construction projects in terms of quality. The study shows that TQM has been a successful practice in projects, such as construction and has evaluated how TQM is in countries like India, the US and South Africa. The application of Artificial Neural Network (ANN) helps to enhance TQM in a construction project (Likita *et al.*, 2018). According to Likita et al. (2018), TQM practices give better control of processes in construction projects. Prediction of quality performance using ANN, the relationship among TQM practices and contractor competitiveness were contacted. The results showed that SA construction has been below standard (Likita *et al.*, 2018).

Total quality management in project management also includes contract management (Levy, 2018). Contract management is the process of managing contract formulation, implementation and analysis to maximise an organisation's operational and financial performance while minimising financial risk (Damaj & Yousafzai, 2018). Organisations are under increased pressure to save expenses and enhance corporate performance. Contract administration is viewed as a time-consuming aspect of a company thus highlighting the necessity for an efficient and automated contract management system (Rendon, 2019). The implementation of effective post-award and upstream operations serves as the foundation for contract management (Dahlgaard-Park, Reyes & Chen, 2018). Problems are unavoidable, therefore, businesses must be prepared for the unexpected and be able to change contract conditions as needed (Addis, 2019).

Engineering, Procurement, and Construction Management (EPCM) is a type of construction procurement used in engineering and infrastructure development that necessitates the use of professional engineers (De Carvalho, Ho & Pinto, 2014).

According to Krogstie *et al* (2015), little is known about project managers' paths and how they achieve the outcomes that characterise project management achievement levels in EPCM. The author investigated the EPCM project management area of knowledge and the expertise that exists. The research was carried out in Chicago and Northwest Indiana.

EPCM entails contract work and the employment of project managers, engineering professionals, architects, designers and drafters (Walters, 2015). There is a scarcity of project managers with the necessary skills to complete projects on time, under budget and within quality standards in EPCM (Al-Qadasi *et al.*, 2021). According to the research, some of the project managers did not have formal education and were not PMP certified, and one of the three people interviewed was a female project manager. However, the study did not delve into other aspects of EPCM, such as how project managers handle total quality management (de Carvalho, Ho & Pinto, 2014).

According to Wembe's (2020) research, projects in Africa are poorly managed by Western companies using Australian projects. According to the findings of the study, stakeholders should be effectively integrated into organisational management processes to improve project success. The research did not thoroughly investigate other ways in which long-distance company relationships, including TQM practices, might compromise total quality management practices concepts.

2.8 Total quality management in process engineering design firms in South Africa

Process engineering design organisations operate in a competitive, global business climate where outsourcing process engineering design services to other nations is prevalent (Bajaj *et al.*, 2018). In terms of product quality, design is the most important aspect. An inaccuracy in the design phase is exacerbated in the production phase and is only detectable during the inspection and testing phases (Dedy *et al.*, 2016). Although the design phase is the most crucial, quality consciousness is necessary at all phases of the product life cycle, with dedication from management to lower-level employees (Abbas, 2020). A total quality management approach to engineering

design is fundamentally based on a holistic perspective (Abbas, 2020).

Research in South Africa on total quality management adoption by process engineering design firms was done by Njenge, Vermeulen and Pretorius (2014). The research had three aims. Firstly, the study looked at the impact of TQM adoption on the performance of process engineering design businesses. Secondly, the study considered the extent to which TQM is used by South African process engineering design businesses. Finally, the study roped in the perceived significance of TQM principles.

The author seeks to establish the impact of TQM on the performance of process engineering design businesses (Njenge *et al.,* 2015). The study concluded that engineering businesses benefit from TQM implementation. According to the study, TQM adoption enhances staff happiness, customer satisfaction and financial performance while also establishing a vision that directs the entire organisation toward improvements in product quality and customer related performance. The study finds out that TQM deployment improves organisational performance. The study concluded that incorporating TQM into process engineering design has merit to the organisation's performance and improved employee morale.

2.9 Other Concepts supporting TQM practices

The following are some other concepts supporting TQM practsises.

2.9.1 Customer management

Customer management is described as the process of managing an organisation's, its people's and its customers' relationships across time (Damaj & Yousafzai, 2018). Companies must match their customer strategy with their aims and objectives to achieve long-term success (Dahlgaard *et al.*, 2019). Customer contentment is a marketing word that is commonly used. It is a measure of how well a company's products and services meet or exceed consumer expectations (Hoe & Mansori, 2018). Customer satisfaction is described as the number of consumers or percentage of total customers, whose reported experience with a company, its products or services (ratings) surpasses established satisfaction goals (Dahlgaard-Park *et al.,* 2018).

Customer satisfaction ratings may have a significant impact on firms (Damaj & Yousafzai, 2018). They instil in staff the significance of exceeding consumers' expectations. Furthermore, when these ratings fall, it signals a concern that might impact sales and profitability (Hoe & Mansori, 2018). These measurements quantify a critical phenomenon. When a brand has loyal consumers, it benefits from free and extremely efficient word-of-mouth marketing (Damaj & Yousafzai, 2018). As a result, organisations must successfully manage consumer happiness. Firms require accurate and representative satisfaction measurements to achieve this.

2.9.2 Service Quality

Quality improvement and adherence to accepted quality criteria are important to the current notion of service marketing (Damaj & Yousafzai, 2018). Customer satisfaction and retention are increased as the quality of service delivered supports the view that the value of the service obtained exceeds the price paid for it (Dahlgaard-Park, Reyes & Chen, 2018). Some key principles include current quality concepts, which result in increased profitability. The major purpose of any corporate quality control is to change the frame of mind and psychology of the service provider, particularly the front and back-end personnel who supply the service (Abu-rumman, 2018).

Because of the difficulty in defining and measuring service quality, the notion has sparked substantial attention and controversy in the research literature (Hoe & Mansori, 2018). Great service quality adds to profitability. The goal of service quality is to ensure that customers, both internal and external, get what they desire (Addis, 2019). Customer satisfaction is a customer's sentiment or attitude towards a product or service after using it (Dahlgaard-Park, Reyes & Chen, 2018). Satisfaction and service quality are frequently considered in tandem as functions of client perceptions and expectations (Hoe & Mansori, 2018). Customer satisfaction is determined by establishing the customer's quality perceptions, expectations and preferences (Dahlgaard-Park *et al.,* 2018).

2.9.3 SIPOC approach

SIPOC is a well-known quality-management approach used in Six Sigma project management and other process improvement models (Hoe & Mansori, 2018). The diagram helps determine the sources of process variation (Damaj &Yousafzai, 2018). It may be used to quantify and regulate these changes to achieve a more stable and predictable process (O'Keeffe, O'Sullivan & Bruton, 2022). SIPOC diagrams are extremely useful for studying and optimising business processes.

They are simple to grasp and may be used in any business situation due to their easy-to-use nature and usage of less particular vocabulary. They are equally valuable for onboarding new team members, filling in newly recruited project participants and communicating with stakeholders (Dahlgaard-Park *et al.,* 2018). SIPOC diagrams enable the specification of process inputs and the determination of who is anticipated to furnish the stated inputs (Bai, Satir & Sarkis, 2019).

SIPOC illustrates all process inputs and outputs. The acronym's components are presented and described below:

1. Suppliers: providers of process inputs that have a direct influence on the outputs. They might be internal or external to the company. The providers in a SIPOC diagram for updating a manufacturing line, for example, might include a maintenance team, line operators and contractors (Bai *et al.,* 2019). They all have an impact on the process output thus upgrading to the new manufacturing line.

2. Inputs: the resources, materials, equipment or data needed to complete the operation and generate the outputs (Bai *et al.,* 2019). The providers furnish these entities. It is critical to record the most crucial inputs. These can involve producing electrical designs and drawings, arranging electrical installation and wiring and so forth.

3. Process: the steps that comprise a process. It links the process inputs and outputs. It depicts a process map with 4-5 high-level phases. Posting updated equipment, setting benchmark requirements for the new line and testing are all phases of upgrading a production line (Hadek *et al.*, 2019).

4. Outputs: the primary items or services produced by the process. Inputs and outputs can both be any kind of resource or finished operation (Hadek *et al.*, 2019). The outputs are wide and neutral, reflecting the customer's desired value. Our engineering method would provide a range of reports, such as a safety report, test operation report, energy savings report and so on (Bai *et al.,* 2019).

5. Customer: anyone who benefits from the process outputs is referred to as a customer. Customers and suppliers might be either inside or external to the firm (Bai *et al.,* 2019). The maintenance staff, partners, end clients and line operators themselves would be the receivers of the outputs of an engineering process (Damaj & Yousafzai, 2018).

2.9.4 Quality policies

A quality policy is a brief statement that aligns organisation's purpose and strategic direction, provides a framework for quality objectives and includes a commitment to meet applicable requirements (ISO 9001, customer, statutory or regulatory) while also striving for continuous improvement (Dilawo *et al.,* 2018). Clause 5.2 of ISO 9001:2015 addresses quality policy (Budiharso & Tarman, 2020). The quality policy frequently combines an organisation's vision or goal statement, as well as fundamental values (Dahlgaard-Park, Reyes & Chen, 2018). Standard Stores has produced a form to assist one in answering the question "How to Write an ISO 9001 Quality Policy." ISO 9001 is defined as the international standard that specifies requirements for a quality management system (QMS) (Hoe *et al.,* 2018). Section 5.2 Quality Policy is divided into two subsections: 5.2.1 Quality Policy Establishment and 5.2.2 Quality Policy Communication (Dilawo &Salimi, 2019). The responsibility of top management is to create, record and communicate the quality policy, as well as to make it available to relevant interested parties (Durairatnam *et al.*, 2020).

2.10 Conditions that influence the implementation of TQM practices

2.10.1 Top management commitment

In terms of its critical significance in implementing TQM, senior management

commitment is seen as the starting point from which quality activities flow (Hietschold *et al.,* 2014). Because top management commitment is the primary driving factor behind TQM, it is one's job to establish an adequate atmosphere for TQM implementation. According to Seetharaman, Sreenivasan and Boon (2006), an organisation cannot be changed into a TQM if senior management does not conduct TQM practices in the organisation. Having stated that, the senior management's primary responsibility is to assure this transition and its dedication to TQM operations.

2.10.2 Quality Culture

Quality is not just a process that can be managed via evaluation and assessment; it is also a set of beliefs and practices shared by the organisation's environment and community that should be implemented at all organisational levels (Dilawo & Salimi, 2019). Employees are seen as an organisation's most valuable assets, and the success of an organisation is determined by how they are handled (Howarth & Watson, 2012). Employee behaviours and efforts are influenced by the prevalent culture in the workplace (Hoe & Mansori, 2018). According to Gherbal *et al.* (2012), within the TQM culture, management must promote an open and cooperative culture in which all workers, regardless of managerial levels or positions or positions have to be made to feel that all of them are responsible for achieving the organisation’s objectives.

2.10.3 Employee Empowerment

Employee empowerment and engagement in an organisation help TQM adoption succeed (Dilawo & Salimi, 2019). Furthermore, it encourages employees to provide greater job quality and contribute more to the new company process and is thus seen as a critical aspect (Hietschold *et al.,* 2014). As a result, managers should motivate and encourage people to accept responsibility and authority and effectively communicate to improve quality in all parts of work (Hoe & Mansori, 2018). This will increase employees' sense of belonging to their organisation.

2.10.4 Process management

According to Ibrahim et al. (2017) process management is a collection of behavioural

and methodological techniques that focus on a company's activities and actions rather than producing goals. According to Kanji (2012), the emphasis in a TQM company is not on formal systems or processes. Rather, the emphasis is on establishing process management teams to handle organisational challenges. In this scenario, the key objective is to align individuals and their tasks with the corporation and its procedures (Hoe & Mansori, 2018). . An organisation's effectiveness is determined by its emphasis on processes, such as activities and tasks, rather than on abstract concerns (Dilawo & Salimi, 2019).

2.10.5 Communication

Effective communication begins with expressing the organisation's ideals, rules and measures to its personnel (Bai *et al.,* 2019). As a result, an organisation should clearly explain its goals and quality policies to its personnel (Hoe & Mansori, 2018). To have an efficient administrative system with the least amount of red tape, all workers should be aware of their respective duties and responsibilities (Li, Laux &Antony, 2018). According to Kanji (2012), organisations cannot function without communication. When communication is hampered, the entire organisation suffers (Hoe & Mansori, 2018). When communication is thorough, accurate and timely, the organisation tends to be vibrant and effective (Hoe & Mansori, 2018).

2.11 Conclusion

This chapter provided literature related to the study. The study discussed several aspects related to TQM practices and employee work-related attitudes. The chapter discussed employees' perceptions of TQM practices. TQM practices implemented in mechanical, electrical, control and civil engineering project services were also discussed in this chapter. The chapter also discussed TQM practices that affect employees' work-related attitudes in mechanical, electrical, control and civil engineering project services. However, the study will only focus on continuous improvement, customer focus, training, teamwork and problem prevention focus, as they are some of the important TQM practices in the engineering sector. The following chapter will focus on the research methodology used in the stud

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The research approach employed in this study will be presented in this chapter. The term "research methodology" describes the overarching strategy for the entire research process (Snyder, 2019). The research methodology for this study provides information on the research plan, research technique, research design, research approach, research area, population and sample (Snyder, 2019). It will detail the data collection tool utilised, as well as the procedures taken to keep the research instruments valid and reliable.

3.1.1 Research problem

Following a review of the literature, the research problem was determined as a lack of application of TQM practices affecting the employee work-related attitudes negatively. Therefore, to assist in improving employees' work-related attitudes, the study seeks to explore the effect of TQM on employee work-related attitudes.

3.1.1.1 Research question

This study aimed at addressing the following research questions which came up when analysing the problem statement:

- What are the effects of total quality management practices on employees' work-related attitudes at an engineering company that offers project engineering services?

The following are the sub-research questions of the study:

1) What are employees' perceptions of the total quality management practices?
2) How are the total quality management practices implemented in mechanical, electrical, control and civil engineering project services?
3) Which total quality management practices affect employees' work-related attitudes in mechanical, electrical, control and civil engineering project services?

4) What are the conditions that influence the implementation of total quality management practices on work employees' attitudes at the engineering company?

These questions were aimed at establishing the link between TQM practices application on employees' work-related attitudes. This study hoped through its findings to contribute to resolving the problem of poor employees' work-related attitudes.

3.1.1.2 Research objectives

The purpose of this study was to explore the effect of total quality management practices on employees' work-related attitudes at an engineering company in Secunda South Africa and how it can contribute to the improvement of the morale of employees. Thus, two constructs were utilised in this study, which are total quality management practices and employees' work-related attitudes.

The following were the research objectives of the study.

1) Identify employees' perceptions of TQM practices.
2) Explore TQM practices implementation in mechanical, electrical, control and civil engineering project services.
3) Determine the total quality management practices that affect employees' work-related attitudes in mechanical, electrical, control and civil engineering project services.
4) Understand the impact of the work conditions on the implementation of the total quality management practices on employees' work-related attitudes at the engineering company.

3.2 Research methodology

This section describes the research philosophy and design used in this study. This study used qualitative methods to get a fuller understanding of the effects of TQM practices on employees' work related attitudes. The goal of qualitative research is to collect as much information as possible from a limited sample size. It is a more adaptable method than quantitative research, since it allows participants to express

themselves while collecting data (Flick, 2016).

3.2.1 Research philosophy

The assumptions generated throughout the literature review and elaboration of the study questions influenced the research philosophy chosen. The research philosophy was developed in response to considerations from the research approach. These assumptions support the study methodology and research approach used by Mohajan (2018). As a result, this study employed an interpretivism philosophy.

It is essential to situate qualitative research alongside other types of research in a philosophical framework. This includes opinions regarding the nature of reality (ontology) and information (epistemology). Certain suppositions about the world are made by conventional research paradigms. They believe that academics should make an effort to discover an objective reality through their research.

The most common philosophy for qualitative research is interpretive philosophy (Mohajan, 2018). It was selected for this study because it considers social reality in the description of the lived experience of human beings (Babii, 2020). Social reality can be approached in different ways, and in this study, the researcher selected a variety of research approaches. Therefore, the interpretive paradigm chosen in this research gave the researcher an insight into lived experiences of the employees and managers at the engineering company.

Because interpretative researchers' believe that social reality is entrenched within and impossible to isolate from their social contexts, they "interpret" reality through a "sense-making" process rather than a hypothesis testing procedure (Bougie & Sekaran, 2019).In interpretative research, data gathering and analysis can occur concurrently and iteratively (Cr, 2020). For example, before moving on to the next interview, the researcher may conduct one and code it. Simultaneous analysis assists the researcher in identifying any faults in the interview process and adjusting it to better capture the phenomena of interest. Instead of being reductionist and isolationist, interpretive analysis is holistic and contextual.

In contrast to statistical methodologies, which are frequently used in positivist

research, interpretive interpretations focus on language, signs and meanings from the perspective of the actors participating in the social phenomena. In interpretative research, rigour is defined by systematic and transparent data collecting and analysis methods rather than statistical requirements for construct validity or significance testing (Bougie & Sekaran, 2019).

3.2.2 Qualitative approach

Research involves quantitative and qualitative research. Quantitative research is grounded on the measurement of quantity or amount (Cr, 2020). On the other hand, qualitative research involves quality and kind, and this type of research aims at locating the fundamental motives and desires by using interviews. Qualitative research is of vital importance in behavioural sciences, as it aims to discover the fundamental motives of human behaviour (Mohajan, 2018).

By engaging in naturalistic dialogues with study participants, qualitative research develops comprehensive understandings of rich, contextual and typically unstructured, non-numeric data. Case study research is distinguished by its emphasis on 'how' and 'why' enquiries; it is, thus, ideal for descriptive and exploratory investigations. A case study can describe a process, individual or group behaviour in context and/or the sequence of events in which the behaviour happens (Blumberg, Cooper & Schindler, 2014).

This study was qualitative to analyse the varied factors that motivated people to behave in certain ways and which made them dislike a particular thing. The research topic is about exploring TQM practices and employees' work-related attitudes, thus, qualitative research analysed numerous factors and employees' perceptions in terms of TQM practices and the TQM practices that lead to the employees behaving in certain ways, how employees perform if the TQM practices are present in the organisation. Qualitative research is concerned with the judging of attitudes, opinions, and behavior. The techniques also involve focus groups, interviews, projective techniques and in-depth interviews (Blumberg, Cooper & Schindler, 2014).

3.3 Population and sample framework

This section covers the sampling strategy that was used and why it was chosen based on the population and sample size. The study targeted the personnel at the company amounted to twenty-two individuals who included the management and non-management employees. There were three employees from non-management levels and six from management levels. The study adopted a non-probability sampling approach to select the sample that was in the study. This sampling method was chosen because the sample was known to the researcher,, therefore non-probability sampling is faster and less expensive than probability sampling.

Respondents answer faster than persons chosen at random because they are highly motivated to engage. The purposive sampling technique was used in this study. In the purposive sampling approach, researchers choose samples only based on their expertise and credibility (Maree, 2017). The sample size was 9 respondents thus adhering to Maree (2017) who attested that a sample between 8 and 15 respondents suffices for a qualitative study.

3.4 Data collection method

The study collected data from primary sources through interviews. Primary data is information acquired by the researcher through surveys and interviews. The most common data gathering methods include focus group discussions, observations, data banks and other resources. In this study, data were gathered using semi-structured interviews. Interviews are a type of data gathering strategy in which the researcher asks the respondents questions about the subject face-to-face or online, and the respondents answer by proving their point of view (Mohajan, 2018). The precision with which data is collected is essential to the study's validity (Mohajan, 2018). The use of a suitable data collection instrument, as well as detailed instructions for its usage, decreases the likelihood of sampling errors (Cera *et al.*, 2020).

3.4.1 Semi-structured interviews

Only a few pre-planned questions are asked during a semi-structured interview; the rest are unplanned. Semi-structured interviews are conducted primarily to get data from key informants who have firsthand knowledge of the issue at hand and who can

express their opinions and ideas in their words (McGannon *et al.,* 2021). Researchers can employ semi-structured interviews to acquire new, exploratory data related to a study subject, triangulate other data sources or validate the results by verifying participant feedback on study findings (Cera *et al.*, 2020).

Semi-structured interviews allow researchers to pre-plan questions to help lead the conversation and keep participants on track, as well as allow respondents to offer open-ended responses for more in-depth information (Maree, 2017). In the research, a semi-structured interview stimulated a two-way discussion (Bougie & Sekaran, 2019).

The disadvantage of semi-structured questions is that it requires time to sit down with participants and conduct an open-ended interview (Bougie & Sekaran, 2019). Another problem is that finding an interviewer who has undergone the requisite training to conduct a professional interview may be challenging (Levitt, 2021). Semi-structured interviews were used in this study to obtain data while ensuring that the research objectives were accomplished. The information was gathered online using Microsoft Teams. The interview guide is attached in appendices as annexure A. Each interview took on average 45 minutes – 1 hour to be completed. To comply with COVID-19 requirements, the interviews were conducted through Microsoft Teams.

3.5 Pilot Study

A pilot study was conducted to determine the feasibility of the study and the suitability of the collecting instrument. The interview guide was pre-tested on two of the company staff in two days, and these included one of the managers and one of the employees. This was done with great regard for language, logic and statement sensitivity. The pilot research participants were excluded from the final study. The interview guide questions were fine-tuned after pre-testing before being delivered to the sample group. Pre-testing assisted the researcher in determining whether the interview guide was easy to follow and grasp, the statements were presented in a logical sequence and the language and vocabulary were clear.

3.6 Data analysis methods, techniques and instruments

Data were analysed qualitatively. Because raw qualitative data adds no value, it must be processed, analysed and interpreted to produce meaningful information (Bougie & Sekaran, 2019). Data analysis is the systematic use of scientific and/or logical procedures to describe and display, compress and recapitulate and evaluate data (Cera *et al.*, 2020). Because this is qualitative research, data were studied inductively, and the obtained data were evaluated to produce themes that reflect the data set's general features (Davison, McLean & Warren, 2015).

Thematic analysis examines survey data related to the subject of the study. Levitt (2021) describes thematic analysis as a dynamic qualitative analytical strategy that aids researchers in developing fresh and original ideas from data. Malekzadeh, Abedi & Mahmoodi, (2021) define thematic analysis as a qualitative research method that examines themes or patterns of meaning in data. The simplicity with which topic analysis can be adapted by inexperienced researchers who are learning to interpret qualitative data is one of its main advantages. Thematic analysis can be used to examine the majority of qualitative data types, such as secondary sources, focus groups, observational and field studies, surveys, solicited diaries and interviews. Both small and large datasets can be evaluated using thematic analysis.

The technique evaluates explicit and implicit meaning in data by connecting phrases or words in the text, stressing the organisation and precise description of the dataset and providing a thorough theoretical evaluation of the meaning. Because this was a qualitative study, the material was reviewed inductively before drawing conclusions (Levitt, 2021).

Thematic analysis investigates questions about participants' specific experiences, insights, behaviours and habits. It also investigates aspects and social processes that help shape particular phenomena, the formal and informal norms and guidelines behind particular behaviours (Levitt, 2021). In conducting the thematic analysis, the researcher followed the following six steps (Levitt, 2021):

1: Familiarising with the data

Transcribing the data, reading and re-reading the data and writing down the initial code are the first steps. The goal is that the researcher completely understood the data and that any data that was not processed further was eliminated (Zikmund & Babin, 2015). Trustworthness was established through prolonged engagement, triangulated data, different data collection modes documenting theoretical and reflective thoughts, documenting thoughts about potential codes/themes storing raw data in well-organised archives and keeping records of all data fieldnotes, transcripts and reflexive journals.

2: Generating initial codes

The second step will begin when researchers have reviewed and been familiar with the data, having ideas about what is in the data and what is intriguing about it (Braun & Clarke, 2006). This stage entails coding interesting features of the data systematically throughout the dataset. This step also entails categorising the data connected to each data such that it is easy to recognise comparable data, which benefits in the identification of numerous subjects (Walliman, 2017). Peer debriefing, researcher triangulation, reflexive journaling and the usage of a coding framework audit trail of code production documentation of all team meetings were used to ensure trustworthiness. Coding enabled the researcher to simplify and focus on certain data characteristics.

The researcher progressed from unstructured data to developing hypotheses about what was happening in the data. During the coding process, researchers pick relevant sections of text and assign labels to them to index them as they pertain to a theme or issue in the data (King, 2004). According to Walliman (2017), good coding conveys the qualitative richness of the phenomena. According to Braun and Clarke (2006), researchers should go methodically through complete data collection, providing full and equal attention to each data item and discovering interesting aspects in the data items that may form the basis of themes across the dataset. Codes will have clear limits to ensure that they are neither interchangeable nor redundant.

3: Searching for themes

When all data has been first coded and aggregated and a list of the various codes detected across the dataset has been generated, the third step begins. This stage involves categorising data into possible topics. This step also includes data organisation for each prospective topic (Walliman, 2017). Through researcher triangulation and diagramming to make sense of topic linkages, trustworthiness was established. The researcher kept meticulous records on the evolution and hierarchy of concepts and themes.

4: Reviewing the themes

The fourth step occurs once a group of topics has been developed and refined. The researcher verifies whether the subject is connected to the coded extract and the complete dataset at this point. The researcher then creates a themed map (Levitt, 2021). This includes establishing and naming themes and subtopics that arise from different topics (Braun & Clarke, 2006). This is a continuous examination to fine-tune the specifics of each issue. As Zikmund (2015) noted, all themes and facts connected to each issue are clarified at this point. Through researcher triangulation, themes and subthemes were verified by team members, and referential adequacy was tested by returning to raw data. The researcher evaluated the coded data extracts for each topic during this step. During this step, the researcher examined the coded data extracts for each topic to see if they made a cohesive pattern. Individual theme validity was evaluated to see whether the themes correctly reflected the meanings visible in the dataset as a whole (Braun & Clarke, 2006). During this phase, flaws in the initial coding and themes were uncovered thus necessitating numerous revisions (King, 2004).

5: Defining and naming themes

During the fifth step, researchers assess what aspects of data each theme covers and why they are of relevance (Walliman, 2017). The researcher performed and produced a complete study for each unique topic, determining the tale that each theme portrays. Braun et al. (2006) proposed that theme titles be catchy and quickly convey to the reader what the topic is about. Data sections may be incorporated into numerous themes, with some overlap. Researchers may evaluate how each theme fits into the overarching story of the full dataset in connection to the research questions at this point.

6: Producing the report

The last step occurs once the researcher has thoroughly defined the themes and is ready to begin the final analysis and report writing. This was the final analysis, which included the selection of acceptable passages, analysis and debates. The researcher also analysed the study questions and the literature and compared the findings to prior researchers' evaluations of the research issue (Walliman, 2017). The researcher clearly expressed the logical processes by which discoveries were created in a way that a critical reader can understand so that the statements made with respect to the dataset are credible and plausible.

The researcher retained methodological notes, trustworthiness notes and audit trail notes. Direct quotes from participants were a vital component of the final report. Short quotations were provided to enhance comprehension of certain points of interpretation and to highlight the ubiquity of the themes. Longer quotation portions were inserted to provide readers with a sense of the source writings. Raw data extracts must be included in the analysis process (Walliman, 2017). Extracts of raw data will be embedded within the analytic narrative to illustrate the complex story of the data, going beyond a description of the data and convincing the reader of the validity and merit of the analysis (Braun & Clarke, 2006).

3.7 Trustworthiness of the study

A study's credibility establishes its truthfulness, offers a foundation for usage and allows for independent assessment of the consistency of its processes and the impartiality of its findings or conclusions (Davison, McLean & Warren, 2015). The following four elements were assessed to assure the research's legitimacy:

3.7.1 Credibility

Credibility relates to trust in the data's authenticity and interpretation (Maree, 2017). Credibility refers to the significance of the results and how well they are conveyed. Its goal is to boost the credibility of research findings. It also assesses the reliability of foreign readers. The research accomplished this by using member checking. This involved presenting data, interpretations and conclusions to research participants to

ensure that their objectives and expectations are appropriately conveyed.

The analysis was transparent, which meant that the researcher presented it as thoroughly as possible to strive for credibility. The reader was provided with information on the approaches employed, as well as the methodological judgements and considerations made. This covered, for example, how the thematic analysis was carried out, as well as details of how meanings were generated from the data and themes found. Descriptions were precise and consistent. The technique and the presentation of findings both contributed to credibility. As a result, to achieve confidence, the procedures and methodologies were provided as completely and transparently as feasible.

3.7.2 Dependability

Data must be reliable in terms of context and time such that if research results are reproduced in the same (or similar) setting, survey results will likewise be replicated in the same (or similar) environment. The obligation of researchers to provide knowledge to readers, that is, the research technique is reasonable, traceable and recorded, is known as credibility (Maree, 2017). The study accomplishes dependability by emphasising the need for the researcher to report changing contexts and settings, which were critical to the study's consistency. The research attained dependability by ensuring that the study process was rational, traceable and well-recorded. The readers would be able to evaluate the research method; they would better determine the research's trustworthiness.

3.7.3 Transferability

It is necessary to guarantee that the results are transferrable and applicable in multiple contexts and demographics. Researchers must include appropriate descriptive data in study reports so that customers may evaluate the data's use in diverse contexts (Cera *et al.*, 2020). Transferability is achieved by ensuring that the appropriate coordination's generalisation process is inference extrapolation, which is defined as a generalisation from the context of the research study to other contexts (Davison et *al.,* 2019). In this research, detailed explanations were given so that individuals wishing to apply the findings to their sites could assess their applicability.

3.7.4 Confirmability

Confirmability is a quality that ensures fairness or the possibility of data accuracy, correlation or meaning between two or more independent persons (Cera *et al.,* 2020). The study ensured that all data used came from individuals rather than the researcher to measure conformability. The researcher included markers such as the reasons for theoretical, methodological and analytical choices throughout the entire study so that others can understand how and why decisions were made.

3.8 Ethical considerations

Ethics are norms and standards of behaviour that give a guideline to moral choices about peoples' behaviour and relationship with others (Blumberg, Cooper & Schindler, 2014). The main aim of ethics in research is to make sure that no one is mistreated or harmed or suffers consequences from the research activities. Many ethical problems can be eliminated by careful planning and constant attention, and it also needs integrity from the researcher (Bougie & Sekaran, 2019). The researcher adhered to the following ethical considerations:

3.8.1 Informed consent

When people are recruited to participate in research, informed consent describes the scenario in which they are made completely aware of all the details of the research and still elect to participate. After learning about the advantages and disadvantages of the intended research, each participant was given the freedom to decide whether to participate or otherwise. In this study, every participant signed a letter indicating their willingness to take part.

To obtain participants' informed consent for the study, the participants' role in the investigation was explained. Firstly, the researcher received permission from the engineering company regarding who to contact. Once there was permission about who to contact, the researcher directly gave the participants consent letters to read and explained in line with the participant information sheet and signed if willing to participate.

When people were recruited to participate in research, informed consent was when they are fully aware of all the details and still chose to participate. The participants

decided whether to participate after learning about the advantages and disadvantages of the proposed study. They were told that if they felt uncomfortable in any way during the research, they were free to end it at any time. The engineering department was the only audience for the report, and every effort was made to ensure that the research study's findings are kept confidential.

3.8.2 Protection from harm and right to privacy

If there is a chance the data could harm the participant or if the researchers offer only insufficient protection of confidentiality, a signed form detailing the types of limits should be attained (Bougie & Sekaran, 2019). The research did not harm anyone. Because data could not be connected to specific individuals, participation in the study was voluntary and anonymous. Numbers were employed to replace any information that could be used to identify a person. The nature of the interview guide guaranteed that the responses were genuine. It also ensured that the identity of the participants remained anonymous.

3.8.3 Privacy

Privacy is critical not only for the validity of the research but also for the participants' safety. As a result, ethical researchers can obtain permission to conduct interviews, schedule interviews, reduce the time required for participation and limit observations to public behaviour only (Blumberg, Cooper & Schindler, 2014). The researcher obtained permission to carry out online interviews online and limit the time required for participation.

3.8.4 Confidentiality

This involves the researcher coming up with signed non-disclosure documents, limiting access to participation identification, disclosing participant information only with written consent and not revealing data subsets (Bougie & Sekaran, 2019). The researcher did not disclose the participant’s information.

3.8.5 Ethical clearance approval

Before data were collected, the first step was about requesting ethical clearance. Data were collected once ethical clearance was approved by the institution. An ethical letter was obtained from UNISA allowing the researcher to conduct the study. The ethical

letter is attached as Annexure C.

3.9 Conclusion

This chapter explained the research methodology that was utilised to address the study objectives and research questions. The study methodology sampling procedures and data analysis methods that were used in the study were also discussed in this study. The chapter also discussed ethical considerations, which werereviewed, including informed consent, protection from harm and the right to privacy of the participants. The chapter that follows focuses on data analysis and interpretation.

CHAPTER FOUR

PRESENTATION OF RESULTS, DISCUSSION, AND INTERPRETATION OF FINDINGS

4.1 Introduction

The previous chapter focused on providing the research methodology that was utilised in this study. The current chapter will present the results of the study, discussion and interpretation of the research findings. The structure of the chapter is in such a way that it enables to meet the goals and objectives of the study. This chapter will be in several sections. The first section will provide the demographic details of the participants. Data will be analysed using thematic analyses in the presentation of the respondents' findings. The study was guided by the following research objectives:

1) Identify employees' perceptions of the total quality management practices

2) Explore the total quality management practices implementation in mechanical, electrical, control and civil engineering project services.

3) Determine the total quality management practices that affect employees' work-related attitudes in mechanical, electrical, control and civil engineering project services.

4) Understand the impact of the work conditions on the implementation of the total quality management practices on employee work-related attitudes at an engineering company.

4.2 Demographic Details

The attributes and traits of the population under investigation were determined using demographic data. According to Chu and Ke (2017), having access to these figures is necessary to comprehend the targeted population sample's demographic composition and its applicability to the study. The sample's and participants' understanding of the research issue is also deepened by demographic information. In this analysis, the following demographic traits were taken into account.

- Age

- Gender
- Highest Qualification
- Work Experience.

4.2.1 Age

The study recorded the participants' ages in detail. Age was taken into consideration, since it indicates the makeup of the sample being studied with respect to its structure and because it has been empirically proven that participants' ages significantly affect how they perceive and approach understanding a subject being studied (Chu & Ke, 2017).

Table 4.1: Participant's Age

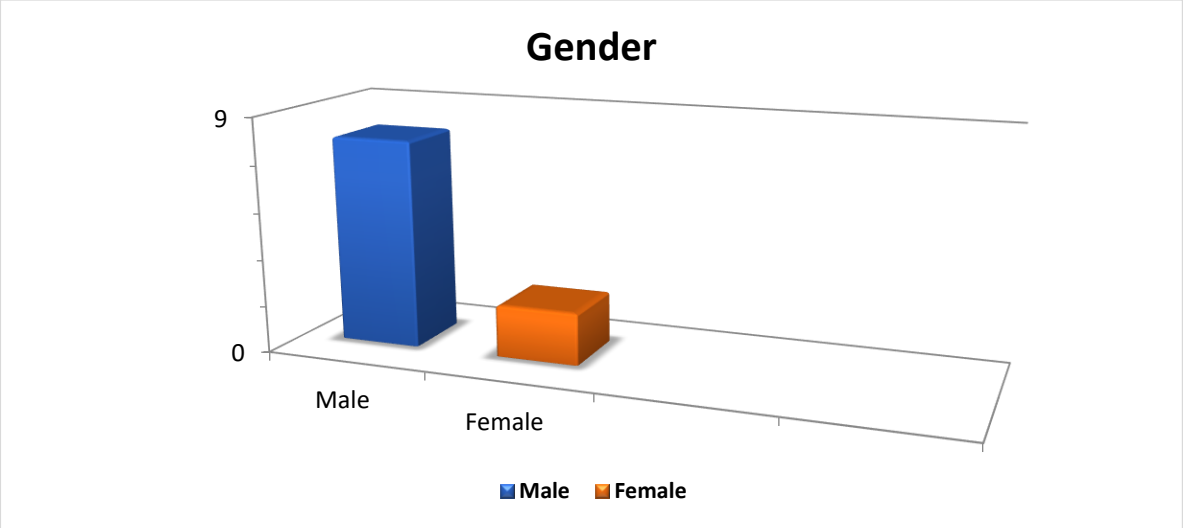
Item	Number	Percentage
Below 35 years	4	44.4%
36-45 years	5	55.6%
Above 45 years	0	0%
Total	**100**	**100%**

Table 4.1 above shows the age range of the participants. The findings on the age range of participants show that the age was not evenly distributed within the study. Most of the participants were between the ages of 36-45 thus accounting for 55.6 % of the study population. Those below 35 were 44.4% whereas those above 45 years were 0% of the population. Cohen et al. (2017) contend that if different age groups are not well represented, the study may not give the complexity needed to comprehend the research topic.

4.2.2 Gender

The gender makeup of the participants was also examined because gender equity has received considerable attention in the South African industry. Gender offers a unique viewpoint when it comes to comprehending a study idea (Cypress, 2018). This is one of the reasons the study attempted to identify the gender of the participants.

Figure 4.1: Participant's Gender



The findings of the study on the gender of participants suggested that males outweigh females. This is shown by 7 males out of 9, about 77.78% being males and 2 females out of 9 thus accounting for 22.22%. Therefore, there is an imbalance in the representation of females in the organisation concerning Employment Equity Act (EEA) requirements. However, the study, in terms of the participants' perspectives and attitudes about the research problem was covered.

4.2.3 Highest Qualification of Participants

The survey gathered demographic information as well as the highest level of education each respondent had earned. This is accurate since education significantly affects how well someone understands and views a certain subject (Schindler & Cooper, 2014).

Table 4.2: Participant's Highest Qualification

Item	Number	Percentage
Diploma and below	5	55.56%
Bachelor's Degree	4	44.44%
Total	**9**	**100%**

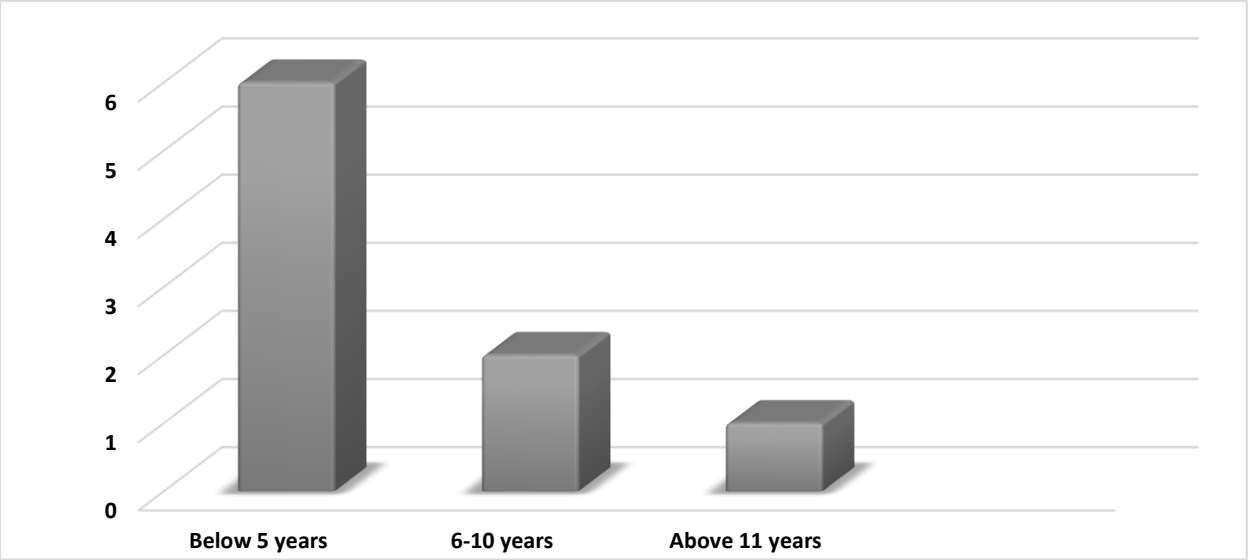
The qualification results of respondents were recorded, and the results are shown in

Table 4.2 above. The types of qualifications are national diplomas and bachelor's degrees in the organisation, with 55.55% and 44.44% respectively. This means that the matter under investigation was known by participants because they have good academic backgrounds.

4.2.4 Work Experience

Leedy and Ormrod (2015) made the case for the significance of work experience in the study, saying that it aids participants in distinctively comprehending the study. This results from the fact that a person's length of employment is one of the factors affecting their level of knowledge. The table below displays the study's findings about employees' job experiences.

Figure 4.2: Work experience of participants



The results of the study on the participants' work experience show that employees had a range of experiences. Those with less than 5 years dominated the study, as they comprised 66.67% of the participants. Those between 6-10 were 22.22%, as well as those above 11 years were 11.11% of the population. The participant can clearly express the present state and dynamics inside their organisation about the study issue because of their experiences or length of time working for the organisation.

4.2.5 Participants occupation

The study documented each respondent's job title, along with their demographic information. The table below displays the participants' positions in the study's findings.

Table 4.3: Participant's Highest Occupation

Item	Number	Percentage
Supervisors	3	33.3%
Employees	3	33.3%
Senior Management	2	22.2%
Director	1	11.1%
Total	**9**	**100%**

The findings on the positions of participants are shown in Table 4.3 above. Most of the participants were either in management or supervisors thus constituting 66.66%. Supervisors constituted 33.3% and senior management and directors were 22.2% and 11.1% respectively. Employees were also represented by 3 technicians from the engineering company. This shows that all levels of management were presented hence the study's findings were unbiased.

4.3 Presentation and discussion of findings

Flick (2016) emphasised the importance of grouping, structuring and giving meaning to data in the process of data analyses in qualitative studies. This process can be done through thematic analyses, and it is important in the study, as it gives meaning to the collected data. Research objectives were acting as major themes, and sub-objectives were presented as sub-themes.

From the process of coding, the following four main themes and their sub-themes which are linked to the objectives of the study emerged:

1. Employees' perceptions of total quality management practices such as:
    - Continuous improvement
    - Teamwork
    - Continuous training
    - Customer focus
2. Ways total quality management practices are implemented in mechanical, electrical, control and civil engineering project services:

- ISO 9000
- Critical Path Analysis
- Organisational commitment

3. Which total quality management practices affect employee work-related attitudes in mechanical, electrical, control and civil engineering project services?
    - Customer focus
    - Continuous improvement
    - Teamwork

4. What are the conditions that influence the implementation of total quality management practices?
    - Top management commitment
    - Quality culture
    - Risk taking
    - Communication

The themes and sub-themes are discussed in detail in the next sections.

4.3.1 Theme One: Employee's perception of TQM practices

The first objective of this study sought to determine employees' perceptions of TQM practices. The emerging sub-themes are continuous improvement, teamwork, customer focus and continuous training. These sub-themes are discussed in detail below:

4.3.1.1 Continuous improvement

Most participants had a perception that continuous improvement is a TQM practice that if implemented helps enhance organisational output, quality and performance. They posited that total quality management is used by manufacturers as a tool to

improve productivity and customer satisfaction:

In this regard, participant 1 had this to say:

"Continuous improvement helps to continuously improve all the employee work-related attitudes mentioned. It improves job satisfaction by making sure that we as supervisors try to avoid NCRs Non-conformant in the work they do thus not following procedures. On job involvement continuous improvement improves by working with people who want to be more involved in non-conformity (NCRs) and on career satisfaction, we are confident with what we do. Continuous improvement improves the issue of delivering quality service to the client for the time I have worked for the company."

The above view was supported by Participant 7 who shared that:

"Continuous improvement does have an effect because it makes the employees understand the jobs better and makes it easier for the involved parties and also makes the employees understand the direction where the organisation is going. Continuous improvement also makes individuals very confident in the speciality, and it will lead to them being more dominant in their careers".

Participant 3 also supported this by saying:

"Continuous improvement does improve and play a huge role in job satisfaction. I try to find out how many employees are not happy, and it is not only about safety. Recently, I had issues with PPE, and the employees communicate if there is any problem. Employees become more dedicated if they see the managers responding to them."

Participant 5 had another view:

"*Yes, continuous improvement does improve because as you improve, you get better, and you get sharper with what you are doing and produce better results. On job involvement, yes, continuous improvement, yes, it does improve because as you improve, you will get more involved, enthusiastic and eager to do more and better. On organisational commitment, my commitment will improve because once there is job satisfaction and job involvement, there will be more commitment. It will improve my career satisfaction as all the aspects of employee attitudes interconnect, and you*

become a better professional and do better in everything you do."

Respondent 8 also said that:

"Yes, yes, it does. You cannot always get something right. The first time you learn from it. Experiences. So, those experiences, that's how you then use them to improve and how you do things and that is what continuous improvement is all about. It's building on what you've started and then improving based on the lessons. So, it does boost morale and yes, job satisfaction. It does bring about career satisfaction because you experience growth. For example, when you are working on a project, and then there've been failures and then there've been challenges. At the end of that project, we do things that are called lessons learnt where we look at what went wrong and how we can improve it. So, the moment you see that there's a better way of dealing with that challenge or that problem that you've handled, it makes you prepared for the next project for the next challenge because you know that you will do it better, so that is career satisfaction, that much involvement it's there."

These findings suggest a perception that continuous improvement is an TQM practice and that if implemented has a positive effect on employees' work-related attitudes, thus helping to enhance organisational output, quality and performance. These findings are supported by Goharshenasan and Shahin (2017) who argued that continuous improvement is a strategy to enhance organisational output, quality and performance. Because it is not static, quality improvement is not 'a work with a goal'. The emphasis is on identifying chances for improvement rather than simply maintaining the status quo.

The findings of the study also support the literature review which shows that continuous improvement relies on preparation, prevention and foresight. According to Jimoh, Oyewobi, Isa & Waziri (2019), it is vital to generate generations of managers who are driven to the pursuit of never-ending improvement in serving the demands of external and internal consumers. This will enable to keep a wave of quality improvement. Also, a commitment to continual improvement should be visible at both the work unit and personnel levels. Furthermore, continual improvement has the potential to boost the performance of TQM implementation personnel.

4.3.1.2 Teamwork

The majority of participants highlighted that TQM practices are the drivers of teamwork. These participants argued that teamwork places responsibility for an organisation's processes in the hands of people who know them best, allowing them to participate directly in the mission or purpose of the business. The plan-do-study-act cycle is at the heart of the improvement process and is the key to employee empowerment in that process.

Participant 4 claimed that:

"Teamwork is positive because in our day-to-day activities, we are working with people with different skills and we do it, and we share ideas. We share with the team our skills and thereby building confidence among each other. If I come across a certain problem with other team members, then we solve it as a team. Instead of waiting for the supervisor, working as a team helps us to be efficient, since we are teamwork empowered. We no longer wait for him to come to the site, as it will cause delays. It helps people to do things on their own."

Participant 8 emphasised the points above by saying that:

"Teamwork empowerment gives room to freedom at a responsible level, as you will be responsible for your successes and failures without the management breathing on your neck. On organisational commitment, the management gives employees room to function at their capacity. Obviously, that environment will improve your commitment. You will be happy as you will know that you are empowered. On job involvement, when management is not around, you will function in a way that you are responsible for the work that you do, and you express yourself more. Most employees feel free to express themselves in the absence of the management because you will be too scared to make mistakes."

Participant 2 supports teamwork by saying:

"*Our organisation has a team that functions flexibly, and it fosters confidence among members. No man is an island; the important factor is a network, and in terms of delegating responsibility, it gives them confidence and a feel to be part of the organisation, and this leads to career growth too."*

These results are supported by Saffar et al. (2020) who argued that teamwork is a key

aspect and a prerequisite for continuous improvement in the framework of TQM (Nasim, 2018). Individuals are often considered as ineffective when they work individually, as compared to working as a team It can be deduced from the study that teams should be inclusive of individuals from various hierarchical levels, divisions and departments within an organisation for them to be effective. The findings in the literature review, as propounded by Mazali (2018), show that teamwork is positive as people with different skills work together, and they share ideas.

Therefore, as provided by the primary data, sharing ideas and skills within the team builds confidence among each other. Saffar et al. (2020) contend that all companies require teams to function flexibly and foster confidence among members. This finding by Saffar et al. (2020) is in line with the primary study that the participant's organisation has a team that functions more flexibly, and it fosters confidence among members.

4.3.1.3 Continuous training

The majority of participants highlighted that TQM practices are the drivers of continuous training. These participants highlighted that successful TQM implementation necessitates a training policy that is integrated into the entire quality strategy and attempts to increase the skills required for continual quality improvement.

This was supported by participant 4 by saying:

"If I am trained, the company contributes to all my career satisfaction and also all the other employee work-related attitudes."

Participant 2 asserted that:

"Training is an organisational perspective; if colleagues are exposed to training, they will improve their day-to-day activities. What determines career satisfaction, organisational commitment and job involvement is discipline. If an employee is exposed and willing, this will improve the organisation or if the employee is unwilling, it might drag the company. Continuous nurturing will have value for the organisation. An organisation must commit itself to the employees. It's 50/50 for everyone must play their part. If employees are trained, they end up delivering the best."

Participant 3 emphasised the points above by saying that:

"Our supervisors have different degrees for they underwent different pieces of training,

no matter the qualification. We make sure that we go for legal liability training. We open their eyes through legal liability training. They become much more aware and in tune. The way they will contribute is going to be different because they now know what they are expected to do, for example, the legal implications. They become in tune with what is happening. They become more interested in the legal space beyond their scope. Such skills in training are offered, and it changes them, for example, Safety Aid. Staff retention becomes high because the company is investing in them."

Also, participant 5 reiterated that:

".. anything that has to do with training makes you aware of quality requirements that you need to achieve. It will be an investment to the organisation."

The findings from the literature and the study's findings support the conclusion that TQM practices are what motivate continual training. It has been determined that training and employee development are crucial components of human resource management. Training is seen as a way to strengthen and implement TQM procedures (Dedy *et al.,* 2016). The findings, as reported by Dedy et al. (2016) are in line with the findings of the primary study when the respondents showed that through training, employees will develop a quality culture, as it makes employees aware of quality requirements. The training and development of leaders improve their understanding of quality concerns and their position within the quality management strategy (Hietschold *et al.,* 2014). Thus, successful training and development provided personnel with the information, skills and talents they needed to make positive contributions to quality, as shown in this primary study. Respondents have shown that training improves the day-to-day activities of management, and they will be able to drive better qualities within the organisation thereby affecting employee work-related attitudes positively.

4.3.1.4 Customer focus

Most participants had a perception that customer focus is a TQM practice that if implemented is a crucial driver of quality improvement. These participants highlighted that an organisation which is has a customer-focused spirit helps create a positive environment. They shared that customer service practices lead to keeping them trying new things, feeling brave about brainstorming new ideas and making people feel excited to go to work with their co-workers.

Participant 2 had this to say:

“I think the organisation must continue to employ customer focus because it has advantages to customers and to us as well. Customer-focused culture leads to more sales, increased revenue, market share, and mindshare. These are sources of motivation because they lead to the potential of increase in salaries, which end up giving us job satisfaction.”

Participant 3 claimed that:

“Our organisation has a customer-focused spirit. This leads employees to making sure that the needs of the customers are met. Therefore, this is increasing organisational commitment. In my view, customer focus leads to organisational commitment.”

In support of the above, participant 7 echoed that:

“The organisation's standards are entirely customer-focused, and every employee feels excluded. The company and its workers work together in collaboration. To balance achieving client happiness, the organisation does not compromise its personnel. The organisation's employers make sure that staff happiness does not come at the price of client satisfaction.”

Participant 9 had this to say:

"We provide the consumer with excellent service in whatever we do. Customer happiness is crucial, since losing a customer defeats the purpose of customer service. A company's ability to focus on its customers might be the difference between success and failure. If a customer is happy, your work satisfaction does increase; you become more satisfied. As you complete your task and the customer is satisfied, you will have professional accomplishments, which will increase organisational dedication and job happiness.”

These findings demonstrate the perception of participants on customer focus TQM practice. The majority of participants emphasised that if the organisation has a customer focus culture, it will improve the motivation of employees, therefore, customer focus affects positively work-related attitudes. This is because due to being customer focus, the organisation will be successful and conflicts at the organisation will be reduced. This surges job satisfaction for employees, as well as an increase

organisation commitment form employees. This is in line with the findings in the literature review that customer focused organisations increase job satisfaction and upsurge organisation commitment (Hoe & Mansori, 2018). There is a direct link between employee satisfaction and customer satisfaction because happy employees equal happy customers and unhappy employees lead to unhappy customers (Guest & Conway, 2011). Increased productivity translates into better service and value for the consumers, and higher productivity increases employee happiness. Increased client happiness and loyalty because of this value encourages profitability and ongoing success (Hussain, Eskildsen & Edgeman, 2020).

4.4 Theme Two: Ways TQM practices are implemented in mechanical, electrical, control and civil engineering project services

The second objective of the study sought to ascertain ways TQM practices are implemented in mechanical, electrical, control and civil engineering project services. Various questions were asked to the participants and three sub-themes emerged from the answers as follows: Helps the organisation ISO 9001, CPA and organisational commitment. These themes are discussed in detail below:

4.4.1 ISO 9001

The participants highlighted that ISO 9001 is one of the quality management systems that is used to implement TQM practices in mechanical, electrical, control and civil engineering project services. These participants highlighted that ISO 9001 talks about quality management andt documentation, and they use it in document reviewing and when aligning documentation. Each document has a reference number, and there is revision control used in the documentation system using ISO 9001.

This was supported by participant 7 who had this to say:

“ISO is an awareness of everything that you are doing. Every month, there is a quality objective, ISO 9001:2015, that is the way of doing things in the right manner. ISO 9001 is for a quality management system, ISO 4500 is for environmental awareness, and ISO 10007 is for configuration standards. They use these 3 on their sites. Every month, they have an extraction from the ISO 9001, and they compare that extract to how they are doing it on-site, practically, as a way of how to improve monthly.”.

Also, participant 3 claimed that:

"The number one that stands out is the record keeping of documentation, since we deal with a lot of paperwork. If those documents are incorrectly stored, the retention period is undetermined. When the numbering is not right, there will be a problem; there will be a challenge. I play around with the ISOs to suit the situation. If you mess up with record keeping, then, the whole system is non-existent. Regular communication must be achieved and kept so that we always go back and do follow ups."

In support of the above, participant 4 highlighted that:

"Following this ISO 9001 is also helping in terms of quality because it is also measuring you in terms of deliverables or forming some standards that consider safety. We normally have a meeting with the team on which standard we are going to use. We walk on site considering the safety and quality we must deliver to the customer."

On the other hand, participant 5 had this to say:

"When an organisation tries to implement ISO, they do it at an organisational level where employees are not much involved, but they participate in it in a way that it should be implemented daily to the employees and make it understandable and let them drive daily. It should be part of the employee's life. It is more like a management thing; employees are normally uninvolved because of the way it is communicated to employees. Management is unstrategic to involve employees so that it is incorporated in the daily duties of the employees."

The findings from the respondents are in line with what has been found in the literature review that ISO 9001 is one of the TQM practices that are implemented in mechanical, electrical, control and civil engineering project services. The International Organisation for Standardisation (ISO) 9001 is the most well-known quality improvement system. This was in line with what was found in the literature review. Respondents have shown that following ISO 9001 is also helping in terms of quality because it is also measuring the organisation in terms of deliverables or forming some standards that consider safety. That is the duty of top management to create and communicate quality and safety policy (Durairatnam *et al.*, 2020). Durairatnam et al. (2020) pointed out that it is the responsibility of top management to create, record and communicate quality policy, as well as to make it available to relevant interested parties. Their contributions

are to establish the standards that organisations across the globe must follow in pursue of quality in their production processes. ISO assures that a firm has a defined quality improvement policy thus making it more market competitive (Hussain, Eskildsen & Edgeman, 2020).

4.4.2 Critical Path Analysis (CPA)

The majority of participants highlighted that the other technical aspect in the implementation of TQM practices is CPA. CPA attempts to build a logical sequence of tasks in terms of time and priority for the completion of a project by using a network of arrows or nodes.

This was supported by participant 6 as follows:

"I use the experience on-site; you need to make sure that the guys who are going to do the job know all the standards. The technicians should check the plant status against the design document, and the painters are responsible for area identification on the site. Having the skill is a must but with knowledge of the standards as well. Every employee must know their area with standards. In our organisation, after induction, there is awareness of all the standards thus getting to know the gap, and who understands which standard and in which manner. When it comes to delegation, it is easy to delegate the right employee. The standards must be known so that you are in line with what the customer wants."

Participant 3 reiterated the point above in scheduling safety activities by saying that:

"This runs from project to project. They use methods. At the beginning of each project, we schedule dates whereby employees are trained about safety, and we lay down when the Personal Protective Equipment (PPE) and first Aid boxes are going to be purchased. We have our monthly reviews, thus, TQM plays the monitoring part and what we have decided. How did we monitor? How did we shortfall and how did we come back in line? We do monthly meetings; we check the progress on the table and if there is no progress, we check what is the cause of the delay and how to change that in the future. The implementation part is that we go through our safety meetings and do the review on monthly basis."

Participant 7 had this to say

"So, normally, what we do is that if I were to go the client site, in this case, our client is Eskom, I need to check the system owner of the client and the engineer of the client, so that if we have issues on the site, we will know who to contact. I link myself with the system owner to say this is the task I am doing and schedule my time and any issues we solve with the system engineer. If we start a system, I must close it with the system owner. At the end of the day, when we are done with the project, we hand over the system to them."

Participant 5 emphasised CPA as a way of implementing TQM by saying that:

"The critical path activities are dependent on one another. That is part of planning to execute. We implement by planning all activities, making sure that everyone is aware by looking at the timeframe and looking forward to achieving the required quality."

As shown in the discussion above, both primary study findings from participants and what was found in the literature review agree that another technical aspect of TQM is CPA. In the l literature review, as forwarded by Kado et al. (2016), CPA is connected to TQM since project management is essential for implementing quality initiatives inside a business. The respondents argued that they use CPA methods and at the beginning of each project, they schedule dates whereby employees are trained in safety. They map out where the PPE and first aid boxes would be purchased. Therefore, CPA helps in improving TQM, as it forces the organisation to plan how the organisation will tackle the project when it commences and the quality standards to be followed.

CPA attempts to build a logical sequence of tasks in terms of time and priority for the completion of a project by using a network of arrows or nodes (Kado *et al.,* 20016). The literature review also shows that CPA helps to ensure that the tasks are completed in the minimum possible time without compromising quality (Kriswanto & Yusuf, 2021). This is echoed by participant 7 who shared that that he links himself with the system owner and solve any issues with the system engineer. This helps with time management, which helps to offer quality to customers in a reasonable time.

4.4.3. Organisational commitment

Nine participants highlighted that organisational commitment is another way of

implementing TQM practices. They argued that any organisation commitment practices such as exceeding customer expectations, identifying problems, building commitment and promoting open decision making among workers are necessary for TQM implementation.

The following excerpt from participant 8 supports this sub-theme:

"The employers are engineers, and they delegate other employees on the site because they know that their employees have full knowledge of the standards … don't micromanage employees. We have full confidence in our employees."

Participant 9 supported this by saying that:

"Definitely, everyone wants to be told that you are doing good, and it also 'regroups' what is not done well. It is a guiding method. Organisational commitment gives direction to the outcome of the quality management system."

This study suggests that organisation commitment is a way of implementing TQM practices. Organisational commitment refers to the extent of closeness and loyalty felt by the individual employees to the organisation. Implementation of TQM will increase their chances of remaining in the company. Employees who are highly attached to their organisations tend to contribute effectively to company growth and success (Arasanmi & Krishna, 2019).

4.5 Theme Three: Total quality management practices affect employee work-related attitudes in mechanical, electrical, control and civil engineering project services

The study sought to identify the total quality management practices that affect employee work-related attitudes in mechanical, electrical, control and civil engineering project services. Numerous questions were asked to the participants and the following sub-themes emerged from their responses: customer focus, continuous improvement and teamwork. These themes are discussed in detail below.

4.5.1 *Customer focus*

The majority of participants highlighted that customer focus TQM practice affects employee work-related attitudes in mechanical, electrical, control and civil engineering

project services. These participants argued that as a service provider to customers, they understate the main objective like time factor. Different exposure to improve the customer led to improved employee work-related attitudes.

Participant 8 had this to say:

"All the standards of the company are customer focused, and all employees at the organisation do feel left out. There is a partnership between the organisation and its employees. The organisation does not sacrifice its employees for them to achieve customer satisfaction. Employers at the organisation make sure that the employees are happy but not at the expense of satisfying the customer."

Participant 3 shared similar sentiments to participant 8 by saying that:

"In my context, we talk zero harm. It is part of that commitment that is run through the SHE policy. Our policy is that each worker must go back home, as they were with no harm. We strive for zero harm as one incident or any accident at work causes serious impacts and messes up everything. Harm will lead to low morale among employees. We engage with the clients on regular basis. We have audits every quarter for the customers to check. Customer focus is our number one objective."

In support of the above, participant 4 had this to say:

"It is positive in the sense that our organisation put the customer first, for example, in this case, the customer is Eskom. When the customer comes to our organisation and claims something beyond our scope, the management comes to us and motivates us, and they do something for the team. As long as what the client is requesting is in line with our scope, we make sure we satisfy the customer. It's positive to all employee attitudes. In terms of career satisfaction, customer focus improves exposure when the organisation does something beyond its scope in the name of satisfying the customer."

Similarly, participant 5 claimed that:

"Everything we do, we offer professional service to the customer. Customer satisfaction is of outmost importance for if you lose a customer, you lose the objective of customer service. Customer focus makes a difference in the organisation, that is, it's either success or failure. If a customer is satisfied, it improves your job satisfaction;

you become more satisfied. On career satisfaction, as you execute your work when the customer is happy, there will be career success. You will enjoy, leading to improvement in organisational commitment and job satisfaction."

Respondent 1 has this to say:

"During our contract initiation, there were problems concerning standards used, that is, in configuration management service, which is the one which we use in our organisation. There is another standard used like the one for equipment identification. Regarding onsite contract initiation, they use the current revision of any standard. New Engineering Contract (NEC) governs our contract. The differentiation between the two revisions affects the size of the label put onsite. They hold meetings with the client, in this case, it's Eskom and management. Everyone involved in the initiation stage of the contract will also be involved in the amendment stage and even put their signatures."

These results illustrate that customer focus affects employee work-related attitudes positively. Participant 8 highlighted that their organisation balances the happiness of their employees instead of going all out for the customers. Even participant 4 highlights management motivation and career satisfaction. Thirdly, participant 5 stresses job satisfaction. Hoe and Mansori (2018) support all the above by positing that organisations are more committed to customer focus through the implementation of new ideas in the management of ideas, for example, and models, including the principles of TQM as they improve the quality of goods and services. According to Guest and Conway (2011), TQM involves putting the customer as the focal point of operations. Customer focus will affect customer satisfaction and positive satisfaction will lead to higher customer loyalty in engineering companies.

4.5.2 Continuous improvement

The majority of the respondents indicated that continuous improvement as a TQM practice helps to improve several work-related attitudes, such as job satisfaction, job involvement, organisational commitment and career satisfaction of employees. These participants argued that continuous improvement helps enhance organisational output, quality and performance, which, in turn, improves work-related attitude.

Participant 1 asserted that:

"Continuous improvement in our organisation helps to improve continuously all the employee work-related attitudes mentioned. It improves job satisfaction by making sure that, as supervisors, we try to avoid NCRs of the work they do thus not following procedures. On job involvement, continuous perfection improves by working with people who want to be more involved in non-conformity. Concerning c career satisfaction, we have confidence in what we do. Continuous improvement improves the issue of delivering quality service to the clients for the past time I have worked at the company."

Participant 2 alluded that:

"*Continuous Improvement does have an effect because it makes the employees understand the job better and makes it easier for the involved parties and makes the employees understand the direction where the organisation is going. Continuous improvement also makes individuals very confident in the speciality, and it will lead to them being more dominant in their careers."*

Participant 7 said that:

"Continuous improvement does improve and plays a huge role in job satisfaction. I try to find out how many employees are unhappy, and it is not only about safety. Recently, we had issues with PPEs, and the employees communicate if there is any problem. Employees become more dedicated if they see the managers responding to their concerns."

Participant 9 argued that:

"Continuous improvement does improve … at the organisation, we are taken for training, and this makes know better. Now, we are delivering right to the customer thereby leading to job satisfaction. The job I am doing is aligned with my career for I did mechanical engineering. I am happy because I am becoming more practical. The customer measure is according to our deliverance. Job satisfaction and career satisfaction are positive, as we know what is required through continuous improvement."

The above reviews show that continuous improvement as a TQM practice greatly affects positively work-related attitudes. There is a link to the findings of both the literature review and the primary study. The study by Belay et al. (2011) concluded

that TQM practices improve the whole business performance by lessening operational costs and eliminating problems, encouraging workers to do things right the first time and increasing employees' skills. This encourages employees to do things right, thus making employees satisfied because there will be no conflicts within the organization, as employees will be doing the right thing.

The literature review also shows that challenges that hinder the improvement process will also be revealed like a commitment to delegation to encourage decision making amongst the employees through continuous improvement (Belay *et al.,* 2011). This is also in line with what the study findings that continuous improvement makes employees understand the job better. Besides, makes it easier for the involved parties and the employees understand the direction where the organisation is going. Employees will be encouraged to be involved in decision making through continuous improvement, as they are given the chance to give their views on the business process.

4.5.3 Teamwork

Most of the respondents indicated that teamwork as a TQM practice helps to improve several work-related attitudes, such as job satisfaction, job involvement, organisational commitment and career satisfaction of employees. These participants argued that TQM through teamwork empowers employees by delegating duties formerly reserved for more senior organisational members therefore institutionalising involvement permanently. This makes them satisfied, as they are doing a job with the help of their team members with a high success rate. Doing a high-level job successfully is motivating; it gives high job satisfaction, organisation commitment and career satisfaction among the employees.

In the same vein, participant 5 shared the following:

"Teamwork empowers career satisfaction, organisational commitment, job satisfaction, job involvement, and a common goal unites employees, meaning that the product will be easily delivered. The team that the organisation has can perform their duties and have standards to follow, and specifications are used because they are empowered as a team. When the team helps a new employee without the intervention of the supervisor, it implies that everyone knows what the supervisor expects of them."

Participant 7 reported that:

"*Teamwork is key. Employees come from different backgrounds. Goals are important as they initiate teamwork. If anything is not right, they act. And, if things need attention there and there, employees are empowered to respond promptly, even if the manager is not there. Teamwork helps to see what different characteristics can handle and what they cannot. Our team is also included in chairing meetings and is rotated in safety meetings. Concerning career satisfaction, some of the employees develop a love for safety and environment as they work as a team."*

Participant 2 revealed that:

"Yes, it does impact on my career satisfaction for teamwork empowerment gives room to freedom at a responsible level. You will be responsible for your successes and failures without the management breathing on your neck. On organisational commitment, the management gives employees room to function at their capacity. Obviously, that environment will improve your commitment. You will be happy as you will know that you are empowered. On job involvement, when management is not around, you will function in a way that proves that you are responsible for the work that you do, and you express yourself more. Most employees feel free to express themselves in the absence of the management because they will be too scared to make mistakes in their presence."

The above reviews show that teamwork as a TQM practice greatly and positively affects work-related attitudes. There is a link between the findings of both the literature review and the primary study because they both agree that teamwork improves employee work-related attitudes. Teamwork in firms assists employees in becoming involved in issues that were previously the domain of senior management (Jimoh *et al.*, 2019). This is in line with what was found in the primary study that the employees, even of the lower levels, are allowed to do high-level duties with the help of team members who are vested in those areas, and this makes the former satisfied.

In the same manner, Saffar et al. (2020) argued that empowered employees understand how to better blend their abilities into day-to-day job duties, allowing them to exercise greater judgement and a feeling of responsibility. The plan-do-study-act cycle is at the heart of the improvement process and is the key to employee empowerment in that process. While companies desire employee dedication and

empowerment, increasing control over the work process is a cornerstone of TQM (Saffar *et al.,* 2020). TQM is about individuals involved in a process of continuous improvement that incorporates components of bottom-up issue identification and problem solutions.

4.5. Problem prevention focus

Many respondents supported problem prevention focus as it enhances avoiding losses before they happen, and this leads to improved employee work-related attitudes. However, some argued that if there is a problem that occurs, there are high chances of continuous learning from the problem to avoid them in the future.

Respondent 2 has this to say about problem prevention focus:

"And what about problem prevention focus whereby you make sure that you avoid any losses? Or, are we using avoidance strategies? Do they have any effect on your job satisfaction, your career satisfaction, your job involvement and organisational commitment? So, the more we come up with strategies that bring processes to the workplace, the more it helps colleagues and the company to improve on a certain task or a challenge. So, doing that regularly, it does a great job, satisfactorily, and there will be an improvement."

Respondent 3 supported the above by saying that:

"You see a problem and you prevent it before it brings more problems so that the employees are satisfied, and they become involved because they will say I played a role and nothing happened."

Respondent 5 resonates with the above:

"Yes, I think yeah, it does in a sense that any proactive strategy to prevent a problem from occurring as opposed to reacting to problems when the problem is here. Now, you must deal with the problem, which becomes a lot of effort. Preventing the problem before it even occurs adds value and can improve job satisfaction amongst employees and because you know that you don't have to deal with problems most of the time. You have good strategies to prevent problems before they even help with proactive strategies that will bring that job satisfaction. Doing so impacts your organisational commitment because you are always on the positive side of things. You become

proactive, and you will not deal with problems most of the time. You prevent them before they occur, which is something very positive. It will impact on your organisational commitment and yeah."

Respondent 9 argued that:

"So, focusing on preventing the problem goes back to what I said about the lessons learnt. I will write them down to say the last time I had this lesson; this is where I failed. I make sure that I do not do the very same mistake. So, if I prevent the problems before they occur, that alone saves my job. It saves career satisfaction and the organisation. We won't be losing clients because we are doing something right."

The above review shows that problem prevention focus affects positively job satisfaction, organisational commitment, job involvement and career satisfaction of employees. In engineering projects, the customer is actively involved in all stages of the processes by giving adequate information and finally accepting the last service or product thereby helping to prevent problems to occur (Ramesh, Ravi & Suganthalakshmi, 2016). Scholars from the literature review argued that quality management is interested in making sure that problems are prevented by coming up with strategies that make the attitude achievable (Culp, Smith & Abbott, 1993). However, there was not much information on problem prevention focus on the engineering sector by the previous authors.

4.6 Theme Four: Conditions that influence the implementation of TQM practices

The study sought to assess the conditions that influence the implementation of TQM practices. Various questions were asked, and the following sub-themes emerged from the answers: what the top management commitment are, quality culture and risk taking and quality culture. These themes are discussed in detail below:

4.6.1 Top management commitment

Most of the participants proposed the need for top management commitment as a necessary condition that influences the implementation of TQM practices. These participants argued that management commitment propels the TQM by creating values, goals and systems that lead to satisfied customers and improve their organisational goals.

In this regard, participant 9 argued that:

"Top management really influences the implementation of TQM. A lack of involvement of the top management, in the previous years in the project, affected the service. This year, it was agreed that the top management must visit the site every second week of the month, since it was implemented, and it really changed the quality of the work."

Participant supported this 1:

"If I am not committed as a manager, how would I send the message across, and how will others comply? I must lead by example each day. We talk about continuous improvement and management review, and all parties in all departments should speak the same language. For the sake of sustainability, that is the key, and if I'm not there, someone has to run with it then. TQM is easy to implement".

Participant 2 also supported the above by saying:

"Definitely, management commitment propels the TQM by creating values, goals and systems that lead to satisfied customers and improve on their organisational performance if the top management goes beyond the slogan or just the phrase or the brand of the company. We give our best service, and when the top management is involved, it makes an impact".

Also, in support of the above, participant 7 had this to say:

"*Yes, top management has an influence on TQM because it has a clearer picture of what the clients want. They are able to influence employees since you now have the same goals and same understanding as an organisation."*

Similarly, participant 8 said that:

"Yes, if top management is involved, it influences the implementation because, then, you can see that this is serious. But most importantly is to ensure that everybody in the organisation.is committed to this because if it's only certain individuals and management is not doing it at the end of the day, then, you've those gaps that are unfulfilled, and this will defeat the whole purpose".

These findings suggest senior management commitment as the starting point from which quality activities flow (Hietschold *et al.,* 2014). Because top management commitment is the primary driving factor behind TQM, it is one's job to establish an

adequate atmosphere for TQM implementation. According to Seetharaman et al. (2016), an organisation cannot be changed into a TQM if senior management does not conduct TQM practices in the organisation. Having stated that, the senior management's primary responsibility is to assure this transition and its dedication to TQM operations.

4.6.2 Quality Culture

Nine participants identified the need for quality culture to influence the implementation of TQM practices. These participants argued that quality is not just a process that can be managed via evaluation and assessment. It is also a set of beliefs and practices shared by the organisation's environment and community that should be implemented at all organisational levels.

Participant 1 had this to say:

"Quality culture affects TQM implementation. Quality culture is there in our organisation, like every month, there is a quality theme, and it is there to easily implement TQM. The team is deeply knowledgeable about ISOs. Competition is one of the factors, as we have two teams on the same site who compete to see which one provides quality service and this enhances quality culture."

Participant 9 supported by sharing that:

"Definitely, it causes quality culture, which is something important. Culture is incorporated in the daily practices of everyone in the organisation. It is not something that we do at that time and then forget about it. So of course, it will influence the implementation of the TQM in the sense that it will be easier to implement to TQM if there's quality culture within an organisation."

Participant 3 also said that:

"It does, also I remember the cultural part of it is what we want to achieve, it's part of the goals, you start doing your business in a certain manner. Whether you are coming as an employee or a stakeholder or sub-contractor, you must live by that culture. It must be something easy to adopt. It will make it easy to adopt and set implementable targets. Yes, it is attainable. Workplace factors that influence quality culture are

communication and training. It is not a one-way journey; it is two-way. People need to be trained to be part of the implementation team."

Participant 4 also supports the above by saying that:

"Yes, it does because if you get your quality right; it reduces costs; it reduces risks … trust issues from the whole organisation through our decisions the customers being satisfied to make sure that quality culture is guaranteed."

These findings suggest the need for quality culture as a condition that influences the implementation of the TQM practices. Employees are seen as an organisation's most important asset, and the success of the organisation is determined by how they are handled (Howarth & Watson, 2012). Employee behaviours and efforts are influenced by the prevalent culture in the workplace. According to Gherbal et al. (2012), within the TQM culture, management must promote an open and cooperative culture in which all workers, regardless of managerial levels or positions must be made to feel that all of them are responsible for achieving the organisation's objectives.

4.6.3 Communication

Most participants proposed the need for communication to influence the implementation of TQM practices. These participants argued that when communication is thorough, accurate and timely, the organisation tends to be vibrant and effective.

Participant 1 had this to say:

"Communication on ISO 9001 was explained in full detail in our organisation, and it made everyone aware in the organisation. It made everyone to be in line with the objectives of the organisation. Everyone is involved … the low-level workers and communication are effective."

This was supported by participant 3 who had this to say:

"It does, through communication you inform what the plan is, you engage with them through processes so that everyone understands it … make sure everyone has a channel to communicate, be it via email. TQM it's not a one-sided company role, but it needs everybody's engagement. Communication through the Service Level

Agreements … we do customer reviews … you take it back to the employees and update them on where they excelled. Through that, the team will know where the focus area ."

Respondent 5 argued that:

"Communication is key, so that whatever we do, we will know what needs to be done. We communicate either with the client or the management. We quickly hear what needs to be done in terms of quality. It helps fix and make quality a culture. If communication is flowing well, it will allow TQM to be fully implemented."

In the same vein, respondent 7 shared that:

"Yeah, in terms of communication, which is something that we, we, we take lightly but communication is the backbone of any business. If your communication is poor, then you are bound to fail. So, you must work on your communication strategy, and you must make sure that you also develop a communication plan.

"You must have ways of communicating, and you must make sure that you allow also people to be free around you, especially if you're a senior manager. You need to be able to check out with people outside of work. You just talk about things that are not work related. So, in short, communication is the key, it is the most precious aspect of any company. If the company is not doing well on communication, that company is bound to fail."

These findings suggest the need for communication as a condition that influences the implementation of TQM practices. Effective communication begins with expressing the organisation's ideals, rules and measures to its personnel. As a result, the organisation should clearly explain its goals and quality policies to its personnel. To have an efficient administrative system with the least red tape, all workers should be aware of their respective duties and responsibilities (Li *et al.,* 2018). According to Kanji (2012), organisations cannot function without communication. When communication is hampered, the entire organisation suffers.

4.7 Conclusion

The research objectives were to determine how employees felt about TQM practices.

This chapter offered the results, findings and comments regarding those research objectives. This chapter covered the demographic information necessary to comprehend the sample and how it relates to the study's goal. The findings on the employees' perceptions of TQM practices from the primary study are also presented in this chapter through thematic analysis. The study's findings and recommendations are presented in the following chapter.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter will provide conclusions and recommendations of the study. This will involve a presentation of the research results in connection with the findings from the primary study and literature review. These results are crucial in organising the study's conclusions in relation to employees' perceptions of TQM practices. Furthermore, this chapter will proceed to present the conclusions, recommendations of the study and suggestions for future research.

5.2 Findings from the primary study

The following are the findings from the study.

5.2.1 Objective 1: Employee's perception of TQM practices

The first objective of this study sought to determine employees' perceptions of TQM practices. Respondents confirmed TQM practices, such as continuous improvement, teamwork and continuous training, affect work-related attitudes such as job satisfaction, job involvement, organisational commitment and career satisfaction of employees. In particular, continuous improvement affected job satisfaction, job involvement, organisational commitment and career satisfaction of employees. On the other hand, teamwork affected job satisfaction, job involvement, organisational commitment and career satisfaction of employees. Thirdly, continuous training affected job satisfaction, job involvement, organisational commitment and career satisfaction of employees. Also, customer focus affected job satisfaction and organisational commitment.

5.2.2. Objective Two: Ways TQM practices are implemented in mechanical,

electrical, control and civil engineering project services

The study also sought to ascertain ways TQM practices are implemented in mechanical, electrical, control and civil engineering project services. Several questions were asked to the participants and three subthemes emerged from the answers. The following findings were established as ways TQM practices are implemented, which are ISO 9001, critical path analysis and organisational commitment.

5.2.3 Objective Three: Total quality management practices affect employee work-related attitudes in mechanical, electrical, control and civil engineering project services

The study sought to identify total quality management practices that affect employee work-related attitudes in mechanical, electrical, control and civil engineering project services. An assortment of questions was asked to the participants and the following TQM practices were highlighted as affecting employee-related attitude: customer focus, contract management in the process, service quality, continuous improvement and process improvement, continuous training and teamwork.

In particular, customer focus affected job satisfaction, job involvement, organisational commitment and career satisfaction of employees, whereas continuous improvement and process improvement affected job satisfaction, job involvement, organisational commitment and career satisfaction of employees. On the other hand, teamwork affected job satisfaction, job involvement, organisational commitment and career satisfaction of employees. Thirdly, continuous training affected job satisfaction, job involvement, organisational commitment and career satisfaction of employees. In contrast, the ones which did not have clear a effect were not identified from the responses.

5.2.4 Objective Four: Conditions that influence the implementation of TQM practices

The study sought to assess the conditions that influence the implementation of TQM practices. Various questions were asked, and the following aspects were provided by the respondents: top management commitment, quality culture and communication.

5.3 Conclusions

Regarding the first objective meant to identify employees' perceptions of TQM practices, the study concluded that TQM practices that affects employees' attitude are customer focus, continuous improvement, teamwork and continuous training. The study identified ISO 9001 quality management system, critical path analysis and organisational commitment as means of implementing TQM practices in mechanical, electrical, control and civil engineering project services in the second objective. The third objective concludes that TQM practices affect job satisfaction, job involvement, organisational commitment and career satisfaction of employees. The study also identified the following conditions: top management commitment, quality culture and communication to influencing the implementation of TQM practices.

5.4 Recommendations

The following are the recommendations from the study:

5.4.3 Continuous training

There is a need to provide continuous training to employees on a more frequent bases. This is because, in the study, it was not provided that training is done at what intervals. Training is an important component in attempting to increase the quality in employee training. Excellent training must be continuous to match not only changes in technology but also changes involving an organisation's environment.

5.4.2 Top management commitment

Top management needs to show more commitment to quality improvement in both their words and actions. The most crucial element in establishing and running a programme for quality improvement is leadership. The perspective of the client should always be taken into account when developing methods for gauging service quality. The study did not show any existence of ways that the organisation is putting in place to improve the commitment of top management, such as workshops that can help them see the importance of TQM and increase their commitment. Therefore, there is a need for the organisation to have workshops emphasising the importance of TQM to increase employee commitment.

5.4.3 Customer orientation

There is a need for the organisation to improve customer orientation. Customer

centricity, customer awareness and responsiveness are essential components of TQM and even though the organisation is practising them, there is a need for improvement.

5.4.4 Supportive organisational culture

There is a need for supportive organisational culture. The common denominator of all the soft parts of TQM is supportive company culture. In other words, quality culture connects all the previously listed TQM ideas. Culture helps to foster high-trust social interactions, as well as a shared sense of membership and a notion that ongoing growth is beneficial to everyone in the organisation. In this regard, corporate culture influences and changes employees' behaviours and perceptions of all elements of their jobs, including quality within the organisation. Culture functions as a factor for cohesiveness in companies and, as such, may either assist or obstruct the process of change towards TQM adoption.

5.5 Managerial implications

The organisation has been facing several challenges from its human resources department, which include scarcity of labour due to high labour turnover, complaints from customers for poor customer services and documentation management system problems. This study explored the effect of TQM practices application on employee morale at the engineering company. The challenges discussed above of the engineering company are attributed to little application of TQM practices like customer focus and job satisfaction thereby leading to low employee morale and delays in the production and delivery of goods and services. Therefore, there is a need for improvement in these areas. Through its conclusions and by pointing out areas that need improvement, this study is significant for project engineering service organisations, since it improves organisational performance and ensures the survival of the organisation.

5.6 Suggestions for further research

Firstly, because this study only looked at one engineering firm, additional research will be needed to assess the impact of TQM on employee attitudes in other engineering firms operating in a comparable setting. Therefore, the study might be expanded to include larger samples of South African organisations in different industries thus

boosting the generalisability of findings. The study only applied a qualitative approach. There is a need to use the mixed approach in the future to overcome the shortfalls of utilising a single approach, such as a low sample in the qualitative study. There is also a need to explore other TQM practices that were excluded from the study like strategic planning, process management, and leadership.

5.7 Summary

The study explored total quality management practices application on employees' work-related attitudes at an engineering company in Secunda, South Africa. The issue of TQM practices application on employee work-related attitudes is important considering the contribution of these practices towards improving the quality of products and improvement in employee morale. A qualitative research approach was followed in this study. Data were collected from 9 participants. In this study, non-probability sampling was used. A purposive sampling technique was used in this study. Semi-structured interviews were used in this study. Data were collected using online interviews.

Thematic analysis was employed for data analysis. TQM practices confirmed to affect employees' attitudes positively are customer focus, continuous improvement, teamwork and continuous training. The study identified ISO 9001 quality management system, critical path analysis and organisational commitment as ways or means of implementing TQM practices in mechanical, electrical, control and civil engineering project services in the second objective. The third objective concludes that TQM practices affect positively job satisfaction, job involvement, organisational commitment and career satisfaction of employees. The study also identified the following conditions: top management commitment, quality culture and communication to influencing the implementation of TQM practice.

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Annexure A: Research Interview Guide

1. How old are you?

Age	Tick
18yrs-35years	
36-45 years	
Above 45 years	

2. What is your gender?

Gender	Tick
Male	
Female	

3. What is your highest level of professional qualification?

Qualification	Tick
Diploma and below	
Bachelor's Degree	
Post-Graduate and beyond	

4. How long have you been working at the organisation?

Years	Tick
Below 5 years	
6-10 years	
Above 11 years	

SECTION B: Employee's perception on TQM practices

Total quality management (TQM) is the continual process of detecting and reducing or eliminating errors in manufacturing, streamlining supply chain management, improving the customer experience, and ensuring that employees are up to speed with training. Also work-related attitudes refer to how employees feel, what they belief and how employees act towards various aspects of a job, work environment and the people involved.

Given the definitions of TQM and work-related attitudes may you answer the following questions:

1. Do you think Continuous improvement improves job satisfaction, job involvement, organisational commitment, and career satisfaction of employees? Explain how.
2. Do you think that teamwork empowerment has an impact on career satisfaction, organisational commitment, job satisfaction and job involvement of employees? explain how.
3. In you understanding customer focus how it impacts your job involvement, job satisfaction, career satisfaction and organisational commitment? what positive relation do you think exist
4. Do you think training as a TQM practice contribute to organisational commitment, career satisfaction and job involvement of employees' attitude?

SECTION C: Ways TQM practices are implemented in mechanical, electrical, control and civil engineering project services

5. In your view, how can ISO 9001:2018 be used in implementing TQM practices?
6. Explain how Critical path analysis a method that can be used to implement TQM at your organisation?
7. Does organisational commitment practices such as exceeding customers' expectations, identifying problems, building commitment, and promoting open decision-making among workers necessary in TQM implementation?
8. Do you think training can be used for TQM implementation? explain how.

SECTION D: Which Total Quality Management practices affect employee work related attitudes in mechanical, electrical, control and civil engineering project services

Engineering management consulting is concerned with the development, improvement, implementation, and evaluation of integrated systems of organisations, people, money, knowledge, information, equipment, energy, materials and/or processes.

9. In this case do you think customer focus management is one of the TQM practices that are implemented in mechanical, electrical, control and civil engineering project services? Explain how customer focus affect job satisfaction, job involvement, career satisfaction and organisational commitment of the employees in engineering.

a. The Contract management process includes a contract request or initiation, authoring, negotiation/redlining and approval stages, execution, and signature as well as obligation monitoring, renewals, amendments, and expiration. Can you elaborate on how the process unfold.
b. Are there service level agreements as part of the contract management at your organisations? does it include success factors and key performance indicators?

10. Problem prevention focus is one of the important TQM practises, in your view how does it affect job involvement, career satisfaction, job satisfaction and organisational commitment of the employees?

11. Does training affect job satisfaction of employees the mechanical, electrical, control and civil engineering project services? Explain.

- Which formal trainings does your organisation do internally and how?
- Which informal trainings does your organisation do internally and how?
- Explain how your organisation deal with something outside its expertise or experience arises??

SECTION E: What are the conditions that influence implementation of TQM practices

9. In your view, do top management commitment influence implementation of TQM? Explain how.
10. In your view, does quality Culture influence implementation of TQM? Which factors at the workplace influence employees in order to achieve quality culture?
11. In your view, which resources and tools influence the implementation of TQM? Explain how.

12. In your view, does communication influence implementation of TQM? Explain how.

Annexure B: Turnitin Report

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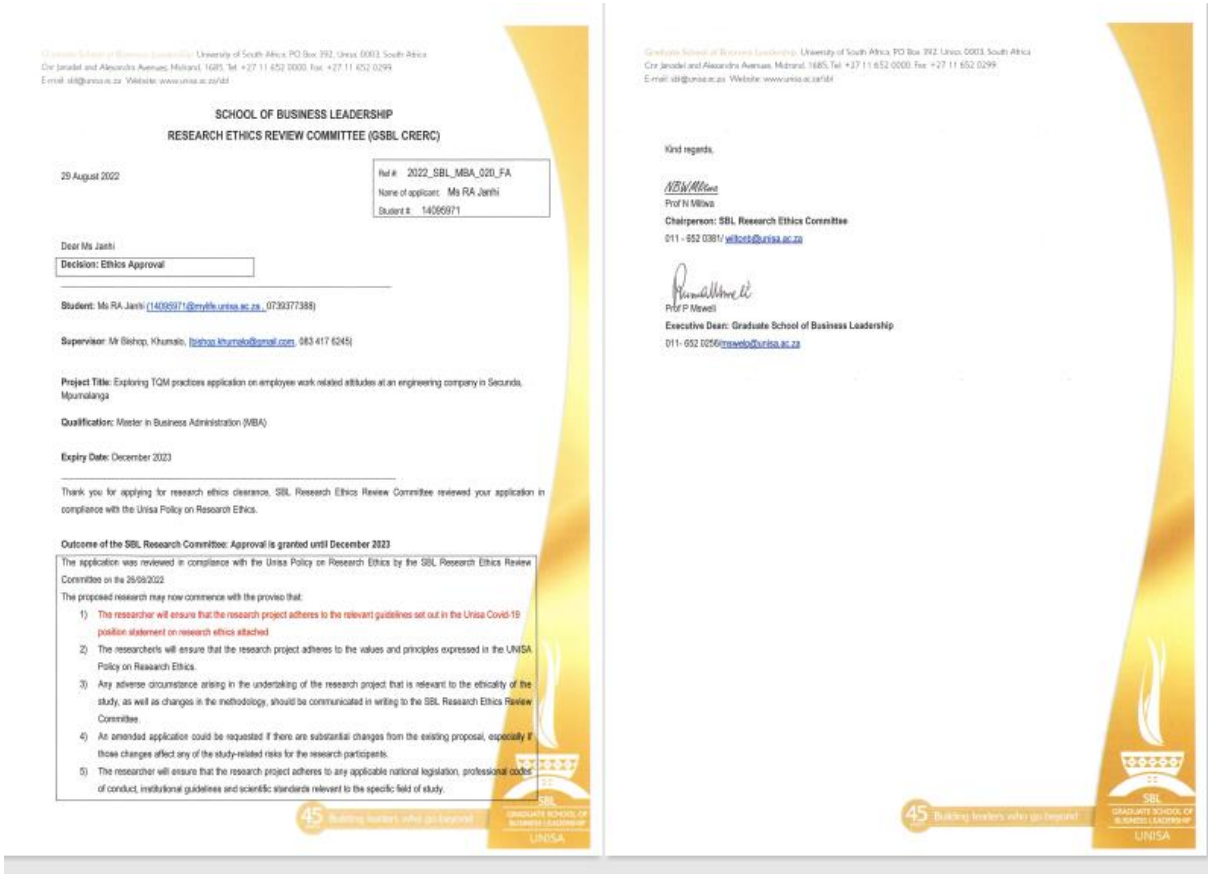

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SCHOOL OF BUSINESS LEADERSHIP

RESEARCH ETHICS REVIEW COMMITTEE (GSBL CRERC)

29 August 2022

Ref #: 2022_SBL_MBA_020_FA
Name of applicant: Ms RA Janhi
Student #: 14066971

Dear Ms Janhi

Decision: Ethics Approval

Student: Ms RA Janhi (14066971@mylife.unisa.ac.za, 0739377388)

Supervisor: Mr Bishop, Khumalo, (bishop.khumalo@gmail.com, 083 417 6245)

Project Title: Exploring TQM practices application on employee work related attitudes at an engineering company in Secunda, Mpumalanga

Qualification: Master in Business Administration (MBA)

Expiry Date: December 2023

Thank you for applying for research ethics clearance. SBL Research Ethics Review Committee reviewed your application in compliance with the Unisa Policy on Research Ethics.

Outcome of the SBL Research Committee: Approval is granted until December 2023

The application was reviewed in compliance with the Unisa Policy on Research Ethics by the SBL Research Ethics Review Committee on the 26/08/2022.

The proposed research may now commence with the proviso that:

1) The researcher will ensure that the research project adheres to the relevant guidelines set out in the Unisa Covid-19 position statement on research ethics attached.
2) The researcher/s will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.
3) Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study, as well as changes in the methodology, should be communicated in writing to the SBL Research Ethics Review Committee.
4) An amended application could be requested if there are substantial changes from the existing proposal, especially if those changes affect any of the study-related risks for the research participants.
5) The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study.

45 Building leaders who go beyond

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Kind regards,

Prof N Mtiwa
Chairperson: SBL Research Ethics Committee
011 - 652 0381/ wltcet@unisa.ac.za

Prof P Mawoli
Executive Dean: Graduate School of Business Leadership
011- 652 0256/mawolp@unisa.ac.za

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Annexure D: Language Certificate

Registered with the South African Translators' Institute (SATI)

Reference number 1000686

SACE REGISTERED

15 December 2022

EXPLORING THE TOTAL QUALITY MANAGEMENT(TQM) PRACTICES APPLICATION ON EMPLOYEES' WORK-RELATED ATTITUDES AT AN ENGINEERING COMPANY IN SECUNDA SOUTH AFRICA

This serves to confirm that I edited substantively the above document including a Reference list. The document was returned to the author with various tracked changes intended to correct errors and to clarify meaning. It was the author's responsibility to attend to these changes.

Yours faithfully

Dr. K. Zano

Ph.D. in English

kufazano@gmail.com/kufazano@yahoo.com

0631434276

Annexure E Letter of Consent by Supervisor

MBLREP / MBL5913 / MBA5929

CONSENT TO SUBMIT RESEARCH REPORT FOR EXAMINATION 2022

Consent is hereby given to:

Student name: ... **Rutendo Annie Janhi** .....

Student number: ...**14095971**..... to submit her research report in its final form.

Supervisor Signature: _____.....Date: ...**18 December 2022**.....

Supervisor Name: ..... **Mr. Bishop Khumalo** .....

The student acknowledges that sufficient feedback was provided by the supervisor and that s/he took the responsibility to attend to the feedback in a way that satisfies the requirements for a research dissertation on the MBA and MBL level.

Student signature:

Date: ...18 December 2022.....