AN EVALUATION OF CUSTOMER SATISFACTION WITH WATER SERVICE QUALITY IN THE UMGUNGUNDLOVU DISTRICT MUNICIPALITY

By

Emmanuel Xolani Muthwa

Submitted in fulfilment of the requirements for the Doctor of Philosophy in Management Sciences: Public Administration

Main Supervisor: Prof. Noluthando.S. Matsiliza

Department of Public Management, Economics, and Law
At
Durban University of Technology

Riverside Campus

APRIL 2021

Student _____

Supervisor _____ _____

DECLARATION

I, **Emmanuel Xolani Muthwa,** declare that

(i) The research reported in this dissertation, except where otherwise indicated, and is my original research.

(ii) This dissertation has not been submitted for any degree or examination at any other university.

(iii) This dissertation does not contain any other person's data, pictures, graphs or other information unless specifically acknowledged as being sourced from other persons.

(iv) This dissertation does not contain any other person's writing unless specifically acknowledged as being sourced from other researchers. Where other written sources have been quoted, then:

a) their words have been re-written but the general information attributed to them has been referenced;

b) where their exact words have been used, their writing has been placed inside quotation marks and referenced.

(v) This dissertation does not contain text, graphics or tables copied and pasted from the Internet, unless specifically acknowledged, and the source being detailed in the dis

Signature:

Date: 29 April 2021

ABSTRACT

Water services are critical to the provision of safe drinking water. Access to clean water is recognised as a human right in many countries. In South Africa, the Constitution, the Water Service Act, and the National Water Act are the water legal framework. Recognizing the significance of having access to a safe and sufficient water supply has become a core business for many cities. However, as in many developing countries, South Africa is facing noteworthy challenges with water provision. These challenges are frequently characterized by intermittent water provision, low pressure, and poor water service quality.

The uMgungundlovu district municipality has seen an increase in public outrage over water service quality, inevitably resulting in community reactions that are frequently the source of violent protests.

Some of the issues that the communities are facing include inappropriate water access, a slow response time from the municipality, and inefficient water infrastructure. Thus, the study aimed to explore how satisfied the community in the uMgungundlovu district municipality is with the water service provision. Furthermore, this study intended to design a framework that can enhance water quality services in the uMgungundlovu district municipality.

In this study, the water service quality was measured using the five dimensions (Tangibles, Reliability, Responsiveness, Assurance, and empathy) of the ServQual model coined by Parasuraman, Zeithaml, and Berry. To address the research problem and objectives, this study opted for a mixed-methods approach. This study collected qualitative data through the interview from twenty-four respondents, and quantitative data through questionnaire from 286 respondents in the uMgungundlovu district municipality.

The findings of this study reveal that there is a gap in the water service quality provided by the uMgungundlovu district municipality to its customers in terms of what

customers perceive and what they experience in all five dimensions of ServQual namely Tangibles, Reliability, Responsiveness, Assurance, and empathy.

The study proposes a framework to enhance the water service quality in the context of the rural community. The proposed model is based on the ServQual model. Furthermore, the study recommends that uMgungundlovu district municipality should consider restructuring its customer care service, should consider updating and upgrading water equipment, and should consider modernising the water meter reading system and water statement system.

ACKNOWLEDGEMENT

I would like to take this opportunity and thank God for the strength He gave me to complete this work. I will not be doing justice to myself and Almighty God if I do not give a special thanks to my supervisor,Mentor ,**Professor Noluthando Matshiliza** for her dedication and support that I received from her for the past 3 years.

It is so important to thank my family for their love, support, and encouragement. I then wish to thank my dear friends for all what they have done for me up to this point. I would like to take this opportunity to thank my brother from another country **Junior Vela Vela** for his support and encouragement.

This is an appropriate time to give a special thanks to my comrade and **friend Dr. E.V Nzama** for his words of wisdom and encouragement, there are times where he used to say: "*without PHD, awuyona indoda".*

Lastly, I would like to acknowledge and thank my department, UMDM especially for giving me sufficient time and resources to complete my studies.

I acknowledge that many people have contributed towards the completion of this thesis such as **Cllrs ,Ward Committees ,Community Members,UMDM Officials** nabanye, but may not have enough space to mention each one of them by name. May the almighty God bless you abundantly.

There is a truth in saying that 'a friend in need is a friend indeed'.
I thank you all.
Ningapheli amandla enikwenze kumina nikwenze nakwabanye.

DEDICATION

This work is dedicated to all participants, Stake holders, Family members, Extended families, and colleagues from DUT, UMDM staff members and uMgungundlovu District Municipality.

Lastly to myself, I think it is important to mention that one has sacrificed a lot for this work and I lost many of my friends trough out the process. I cannot wait to be called Dr EX Muthwa one day.

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

DWAF	Department of Water Affairs
IOL	Independent Online
ServQual	Service Quality
UNDESA	United Nations Department of Economic and Social Affairs
SDGs	Sustainable Development Goals
MDG	Millennium Development Goals
EU	European Union
OECD	Organisation Economic Co-operation and Development
IWRM	Integrated Water Resources Management
WUAs	Water user associations
RSA	Republic of South Africa
UNHRC	United Nations Human Rights Council
SOE	State Owned Enteprise
PPPs	Public-Private Partnerships
BOOT	Build-Operate-Own-Transfer model
BOT	Build-Own-Transfer
DBFOT	Design-Build-Finance-Own-Transfer
DWS	Department of Water and Sanitation
CMAs	Catchment Management Agencies
RWUs	Regional Water Utilities
COGTA	Department of Cooperative Governance and Traditional Affairs
WSPs	Water Service Providers
WARS	Water Allocation Reform Strategy
NWRS	National Water Resource Strategy
SALGA	South African Local Government Association
UMdm	uMgungundlovu District Municipality
KZN	KwaZulu- Natal
UMdm IDP	uMgungundlovu district municipality Integrated Development Plan
GEAR	Growth, Employment and Redistribution
ASGI-SA	Accelerated and Shared Growth. Initiative for South Africa

RDP	Reconstruction and Development Programme
DHS	Department of Housing

TABLE OF CONTENTS

Table of Contents

CHAPTER ONE
INTRODUCTION AND OVERVIEW OF THE STUDY

1.1 Introduction

Water services are essential in the provision of clean drinking water as a human right and in the need to support human beings. Everyone on earth needs at least twenty to fifty litres of clean water per day to cook, drink, and just keep themselves clean (Zahid, 2018:1). The basic human right in this case, according to the United Nations, is equal access to safe and clean water. As a result of the universal acceptance of water as a human right, many states now grant water rights.

The domestic instruments which deal with the right to water in South Africa are the Constitution, the Water Service Act, and the National Water Act. These are the main legal instruments that have been introduced to protect the constitutional right to water. However, water has become a challenge of global dimensions (Larsen *et al.*, 2016:928). Many developing countries, including South Africa, face significant challenges with water provision. These challenges are often characterised by intermittence, low pressure, and poor water service quality (Majuru, 2015:i).

Local governments, as the water authorities recognised by the legislation of South Africa, are facing violent protests from their communities about poor service delivery. The community often complains about poor water service delivery. Understanding the water problem from the community perspective is primordial. Thus, this study investigates the expected water service quality and the experienced water service quality from the community perspective. Furthermore, this study proposes a framework to improve water service quality.

1.2 Background

The post-apartheid government in South Africa has inherited a legacy of an unequal municipal system, which was characterised by many service-delivery backlogs (Rogerson and Nel, 2016:111). As a result, rural areas, informal settlements, and black urban areas have been experiencing inadequate service delivery (Democracy, Governance, and Service Delivery report, 2016:3-5).

After 1994, the government launched an ambitious programme to improve service delivery in the country, especially in black urban and rural areas. The programme included the eradication of water supply backlogs, as water is considered a precious yet scarce resource in South Africa (The Water Wheel, 2014:31).

Access to clean and good water service quality is one of the basic human rights all people are entitled to (Schramm *et al.*, 2018: 127-129). Worldwide, about 785 million people have no access to quality water services and 8 million die every year of water-related diseases (World Health Organisation, 2019). About half of the world's population will experience water stress problems by 2025 (World Health Organisation, 2019).

Residents in areas with poor quality water services are in sub-Saharan Africa (Dos Santos *et al.*, 2017:499). The sub-Saharan population is suffering chronically from overburdened water systems, and that is leading to complaints and protests from the population. The latest countrywide protests in South Africa for improved water (and other) services are clear evidence of the deep-seated and potentially explosive water supply challenges facing South Africa (The Water Wheel, 2014:31). For several reasons, South Africa is struggling with water supply.

The Department of Water affairs has outlined numerous challenges linked to the water sector; these being water re-use, water demand management, instability in leadership structures, failure to decentralise water resource management, water use authorisations, unsustainable practices, inequality, accessibility, fights over water

and safety, economic impact, water quality issues, participation of stakeholders, and distribution strategies (Toxopeus, 2019). Furthermore, the South African Human Rights Commission report of 2017 to 2018 reported that corruption, urbanisation, and poor implementation of water and sewerage policies and programs are part of the challenges.

According to Statistics South Africa (2017), 88.8 per cent of South African households are connected to piped water, 46.4 per cent of South African households are projected to have water piped in their homes, 26.8 per cent of South Africans have access to on-site water, and only 13.3 per cent must share a communal tap, while 2.4 per cent relied on their neighbours' taps. Nine per cent of the population of uMgungundlovu do not have access to potable water and, generally, water is provided in the form of pipe water, water on site, tap water, or communal water (LDM, 2014).

There is a huge contrast in terms of access to water service quality evident between the underprivileged and privileged communities (Kayaga *et al.*, 2019:975-976). Therefore, South Africa needs to develop quality management of water services as an instrument, not an end in of itself.

Water quality management involves sustainably maintaining fitness for the use of water resources by balancing socio-economic development with the protection of the environment (DWAF). From a regulatory perspective, water quality management includes the on-going process of planning, designing, implementing, and administrating water quality management policies, approving water uses that may have, or may potentially have, an effect on water service quality, as well as the monitoring and auditing of the above mentioned.

This would allow the state to build an environmentally and socially just society where all South Africans have access to quality water services. Thus, it is not enough to have adequate access to water if the quality of water services are not considered when allocating water (DWAF).

Water service quality in South African municipalities is considered an issue (Department of Water Affairs, 2010). The uMgungundlovu district municipality is one of the municipalities struggling to supply communities with water service quality.

The uMgungundlovu district municipality communities are concerned with the lack of access to quality water services due to growing pollution caused by urbanisation, mining, deforestation, and other anthropogenic causes (uMgungundlovu Environmental Health report, 2017-2018). The uMgungundlovu district municipality is also facing the issue of no payment of water supplied by government institutions such as government departments, businesses, municipalities, some schools, clinics, and residents. The municipal manager claimed that the debtors' book is sitting around R500 million (Ntuli, 2018:para.4 line 1).

South Africa has made progress concerning the improvement of the water supply access since the apartheid regime collapsed (IOL, 2019). However, what appears paradoxical is that despite the reported progress in water access, the expectation of water services from communities are still not met. This gives rise to this study to investigate the gap between expectations and experiences of the quality of water services provided within the uMgungundlovu district municipality from community members' perspectives.

1.3 Problem Statement

The uMgungundlovu district municipality has been experiencing increasing outcry regarding water service quality, inevitably generating community reactions that are generally sources of violent protests (Mwelase and Dzwairo, 2016:2). Inappropriate water access, response time from the municipality, and inefficient water infrastructure are some of the issues the communities are experiencing. Places like Maqongqo in, the district of uMgungundlovu, have not had access to water for the past four years (Ngubane, 2019).

Furthermore, recently the community in Mpofana protested over the shortage of water (Sithole, 2019). While water is a critical resource that is needed by millions of

people in Southern Africa, the existence of a public water system in a region does not ensure access to clean and reliable clean water (Nganyanyuka *et al.*, 2014:359).

Transformation and changes in legislation have exacerbated the scarcity of water since the uMgungundlovu district municipality is the only water supply authority and has brought about some changes in the distribution of water. Thus, this study explores the water service quality within the community and proposes a framework that can improve the water service quality in the uMgungundlovu district municipality.

1.4 Aim of the Study

The overall aim of the study is to explore how satisfied the community in the uMgungundlovu district municipality is with the water service provision. Furthermore, this study intends to design a framework that can enhance water quality services in the uMgungundlovu district municipality. The aim will be achieved through the following objectives.

1.4.1 Research Objectives

- To determine communities' expectations of water service quality in the uMgungundlovu District Municipality
- To ascertain communities' experiences of water service quality in the uMgungundlovu District Municipality.
- To identify the mechanisms in place that ensure water quality service supply to the community.
- To identify and understand the gap between communities' expectations and experiences of the water service quality in uMgungundlovu District Municipality.
- To recommend a framework that enhances the water services quality at the uMgungundlovu District Municipality.

1.4.2 Research Questions

- What are the communities' expectations on the provision of water in the uMgungundlovu District Municipality?
- What is the community's experience of the water service delivery in the uMgungundlovu District Municipality?
- What are the mechanisms in place that ensure the quality water service is supplied to the community?
- What is the gap between the community's expectations and experiences of water service quality at the uMgungundlovu District Municipality?
- How can a framework for enhancing water service quality at uMgungundlovu District Municipality be implemented?

1.5 Significance of the Study

Cosgrove and Rijsberman (2014:23) claim that the global water crisis is not due to insufficient water, but to poor water management. As a result, both the environment and people are suffering (Magombo *et al.*, 2015:159). Therefore, good water management is imperative to any country. South Africa is considered a water-scarce country (Donnenfeld *et al.*, 2018:4).

It is thus imperative for the country to understand and manage water resources well. Thus, this study contributes to the understanding of the water situation. The study allows policymakers, water service suppliers, and district municipalities to have empirical evidence of the gap of water service expectations and the perceived water service quality.

Considering that there is a dearth of empirical studies in the sphere of water service quality in South Africa for both the public sector and research management, this study seeks to provide more insight into water service quality and create a better relationship between communities of the uMgungundlovu district municipality and the municipality in the context of water service quality.

Furthermore, this study proposes a framework that can be recommended to enhance the provision of quality water services and supply in the uMgungundlovu district

municipality. This study is immeasurably important in various ways to water engineers, policymakers, municipalities, and stakeholders as it provides a more trustworthy scientific measure and view for assessing the level of water service quality delivered to communities in the uMgungundlovu district municipality.

Water engineers may use the findings of this study to design improved water service infrastructure. Policymakers might use the findings of this study to improve existing policies.

1.6 Overview of the Research Design and Methodology

The following is a synopsis of the methodology used in this study. A detailed perspective of the methodology is provided in chapter three.

1.6.1 Research Design

A research design is a roadmap that is used to address the research problem and the data collection process (Clow and James, 2014:34). The three types of research design are exploratory, descriptive, and causal (Hair *et al.*, 2013:76). This study opted for a descriptive research design.

Descriptive research aims to describe answers to questions of who, what, where, when, and how. It is desirable if the researcher wants to extend the findings to a larger study (Burns and Bush, 2014:103). The mixed-methods approach provides the possibility of triangulation to investigate the same phenomenon.

Triangulation makes it possible to identify aspects of a phenomenon more correctly by using various approaches and techniques to study it from different points of view. Efficient triangulation needs a thorough assessment of each method's type of information, including its strengths and flaws (Ness, 2015). This study employs mixed methods to collect data on the expectations and experiences of water service quality in the uMgungundlovu district municipality.

1.6.2 Population

According to Walliman (2011:185), a population simply means the total number of elements that are the subject of a research investigation. A population is typically a large collection of people or objects that need to carry out a study, making them the main focal point of a scientific study (Etikan *et al.*, 2016:9). The research study was carried out in the uMgungundlovu district municipality with a population of 1,017,763 of which the majority are Black Africans (84.75 per cent) followed by Indian or Asian (6.68 per cent), White (6.28 per cent), Coloured (2.02 per cent), and other (0.27 per cent) (Statistics South Africa, 2014). UMgungundlovu district municipality is one of the ten district municipalities of the KwaZulu-Natal province. The seat of uMgungundlovu is Pietermaritzburg.

1.6.3 Sampling Method

The target population relates to a set of individuals or items of interest to the study (Asiamah *et al.,* 2017:12). The study targets people from the following seven local municipalities in the uMgungundlovu district municipality; Impendle Local, Mkhambathini, Mpofana, uMsunduzi, Richmond, uMngeni, and uMshwathi.

Sampling is described as a method of selecting a small demographic sample to engage in research (Gentles *et al.*, 2015:1775). Sampling techniques enable researchers to select from a larger community a set of individuals or items to be included in the research study (Palinkas *et al.*, 2015:534).

The non-probability sampling approach, using the discretion of the researcher, was used to select participants (Patten, 2016:11; Creswell, 2014:6). The purposive sampling method, which uses the knowledge of the researcher about the population and the purpose of the study is appropriate for this study.

Using a purposive sampling method, the researcher chooses community members in a position to provide the necessary information to address the research problem.

Respondents were selected purposively from the uMgungundlovu district municipality based on their use of water in their local municipalities.

A sample is a subset of the whole selected population that will partake in a study (Mlterud and Siersma, 2016:3). The sample in this study was made up of household community members from six local municipalities in the uMgungundlovu district municipality that were purposively selected.

The sample size is defined as the total number of persons or items selected to be part of the study (Creswell, 2014:42; Chow *et al.*, 2017:337). The total number of household community members selected for the study is 324. Three hundred household community members answered the questionnaire and twenty-four officials and ward committee leaders from each of the six local municipalities were selected purposively and interviewed (Impendle, Mkhambathini, Mpofana, uMsunduzi, Richmond, uMngeni, and uMshwathi.).

1.6.4 Measuring Instrument

This research study makes use of a questionnaire and interview. The questionnaire has two sections. Section one has seven demographic questions. Section two is divided into two sub-sections, namely expectations and perceptions. The expectation sub-section has 18 questions and the perceptions section has 18 questions as well. The interview guide has two sections, namely section A and B. Section A has seven demographic questions and section B has 17 questions. The questionnaire and interview guide are included in the appendices.

1.7 Ethical Considerations and Confidentiality

To ensure compliance with institution ethics requirements, a letter of approval from the district municipality official was obtained and submitted together with this study's proposal for review. Participants were provided with informed consent before answering questions. Throughout this study, respondents were kept anonymous and

confidential as their names are not disclosed when analysing and presenting study findings.

Burns and Bush (2014:224) suggest that information obtained from a respondent should have no name or identity connected to their responses. Furthermore, they suggested that, despite the researcher knowing the respondent's identity, such information should not be revealed to third parties.

1.8 Classification of Chapters

Chapters are summarised as followed:

Chapter One: Introduction and Background

This chapter introduces the study by discussing the background of the study, the statement of the problem, the study's aims and objectives, the significance of the study, and a brief outline of the methodology used in this study.

Chapter Two: Literature Review

This chapter situates the current research problem in the body of knowledge by elaborating on the theoretical context, the discourse of the multi-sector governance in water provision, policy framework, and strategies for water service quality in the global and local context. Furthermore, this study presents the challenges of water service quality.

Chapter Three: Research Methodology

This chapter presents the design and methodology employed in this study. The chapter discusses the strategy, the population, sample method, measurement instrument, ethical considerations, data analysis techniques, and validity and reliability. This chapter presents the strategy used to tackle the research problem of this study.

Chapter Four: Data Analysis and Discussion of Findings

The primary focus of this chapter is to present an analysis of the data collected from the respondents. The SPSS package was used to analyse the quantitative data, and graphs, tables, and pie charts were used to present the data. **T**his chapter presents the analysed quantitative and qualitative data in relation to the research objectives of this study. The results emerging from the study are interpreted and discussed in detail in relation to the literature review.

Chapter Five: Summary, recommendations, and conclusion

This chapter provides a discussion of the summary of the findings, recommendations, and major conclusions of this study. It also discusses the proposed framework. It further highlights the major contributions of this study.

1.8 Chapter Summary

The current chapter discussed the context of this study, the problem under investigation, the aims, the research objectives, and questions, and provided an overview of the research methodology. Moreover, a brief synopsis of the chapters of this research study was presented. This chapter introduces the importance of water and provided an overview of the current situation of water services worldwide and in South Africa. The next chapter discusses the literature review.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

A detailed layout of this study was provided in chapter one by establishing the context, background, and general overview of the research design. Hence, the review of literature on the nexuses between the local community and water service delivery and service quality is discussed. Chapter two, therefore, focuses on this since the researcher argues that literature review should not be a simple collection of currently published papers (Hart, 2018:31). Rather, various debates on the subject, arguments, and counterpoints should be systematically contrasted to identify research gaps and fill the gap with a new study (Machi and McEvoy, 2016:5).

The review of literature examines the context in which a theory is engaged within the local government on concerns related to the supply of water services to the local community. As Hart (2018:31) understandably claims, a literature review aims to appropriate a "research project into the context by relating ideas and theory to problems and questions" to rationalise its importance for ongoing discussions on the topic. Hence, the literature review reflects the logical constituent on which the study is based (Bowers and Stevens, 2010:94). This is because it helps to shape the study's theoretical framework and enhances the process of understanding its core concepts (Kumar, Negi, and Singh, 2011:31). This literature review, therefore, aims first to provide useful insight into water services, water security, water demand management, water governance, and water policies and regulations, and describes the history of water services in South Africa.

2.2 Conceptual Framework

Figure 2.1 represents the conceptualisation of water services in the context of the local municipality in South Africa, especially in the uMgungundlovu district municipality's context.

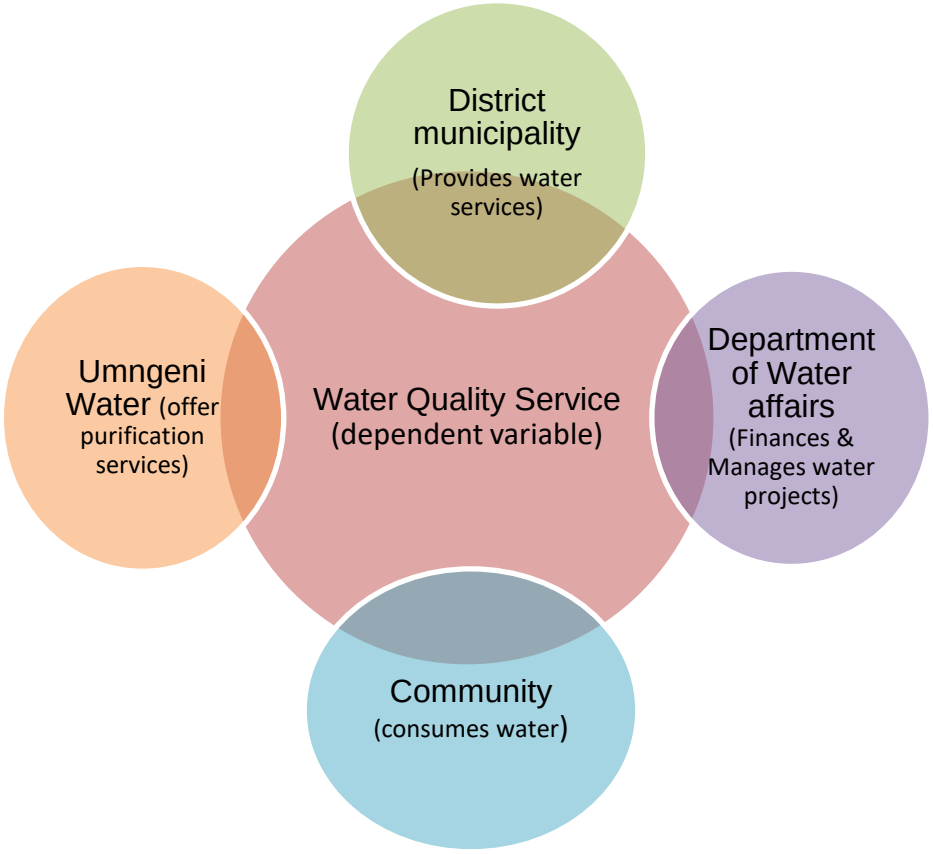

Figure 2.1. The conceptualisation of water service quality.

Source: Researcher's work

2.3 Theoretical Framework

This subsection discusses two proposed frameworks, namely the ServQual and Grönroos models.

2.3.1 SERVQUAL

Parasuraman, Zeithaml, and Berry (1985:12) were the pioneers of the service quality model. The initial model had 10 dimensions of service quality that are proposed as a service quality gap model. Parasuraman *et al*. (1988:15) then modified the model to contain five dimensions that can be applied. The newly designed model came with a questionnaire of 22 items to be considered and it was formally named the SERVQUAL model, with diagnostic characters and some practical implications. The

SERVQUAL model simply conceives service quality as a gap between the expectations and perceptions of customers (Parasuraman *et al.*, 1985). Exploratory research was conducted to investigate the concept of service quality. Business executives were interviewed from various service companies and the studies revealed that discrepancies exist between what constitutes service quality to management and what customers perceive to be service quality. Therefore, this model will be used to explore the gap between the community's expected water service quality and the perceived performance of the uMgungungundlovu District Municipality. The SERVQUAL model has been extensively used by researchers and practitioners (Awan *et al.*, 2011; Raza *et al.*, 2015) from various management studies.

The five dimensions of the SERVQUAL, designed by Parasuraman *et al*., (1988) are noted as follows:

- Reliability- the ability to perform services accurately.
- Tangibles - includes physical facilities, staff, equipment, building, appearances.
- Responsiveness - the willingness to help and respond to the customer.
- Empathy - attention, caring, and individual service is given to the customer.
- Assurance – a staff's ability to inspire confidence, trust, and courtesy.

One of the criticisms of the SERVQUAL model is the challenge of evaluating expectations (Gilmore and McMullan, 2009:645; McDougal and Levesque, 1995; Cronin and Taylor, 1992; Carman, 1990).

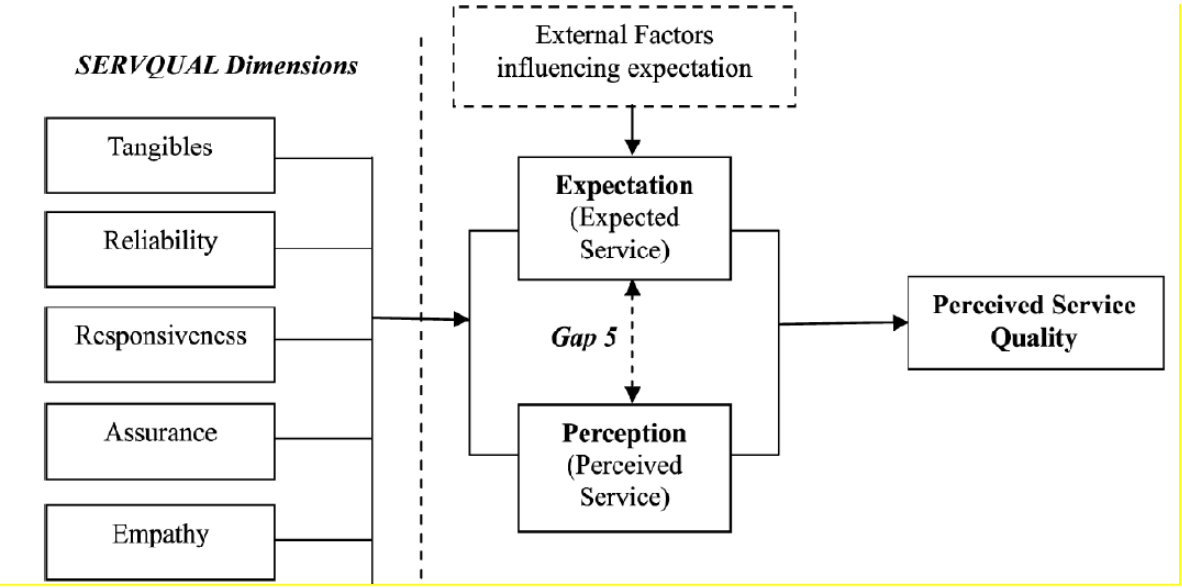

Figure 2.2 SERVQUAL by Parasuraman *et al*. (1988)

Grönroos (1984) posits that an appropriate formulation of definition for service quality should be consumer oriented (Grönroos, 1984). Therefore, this model emphasises customers' perceptions of service quality as its main feature, and the factors that influence the quality of service are incorporated into it. The Grönroos service quality model underscores the interaction between the buyer and seller, which he claims is as important as the eventual outcome. Therefore, the basic assumption of this model is that service quality centres around the appraisal of two variables, namely the anticipated service and the actual service delivered as perceived by customers (Grönroos, 1984). The result of this juxtaposition approach is taken as the perceived service quality. According to Grönroos (1988), performance appraisals involve two dimensions, namely a technical dimension (outcomes) and a functional dimension (process-related). He further argues that service quality is not determined only by the product of service (technical dimension), it is rather how a service is accomplished (functional dimension) as well. This study also selected the Grönroos model to assess the community's expectations and experiences of the quality of water services.

Diverse scholars do not offer a uniform agreement as to what 'service' means. Scholars acknowledge that the discourse on the meaning of service has been going on for years and results seem not to bring the service quality research community

closer to the meaning of service; instead, it has made the understanding of service more complicated (Schachter, 2006:19). Pararuraman, Zeithaml, and Berry (1988:42) summarised “the definition of services from numerous scholars as being characterised as intangibility (viewed as performances rather than objects), heterogeneity (services performance often varies from a different producer and customer), and inseparability”. Studies show that services are perishable as well as non-physical goods that are consumed as they are produced (Salleh and Yusof, 2016:4). Scholars argue that the most important features of services are that they are processed with a series of activities that use different resources with direct interaction with users (Chen *et al.*, 2013:1085). Services aim to generate solutions to the problems faced by users (Koskela-Huotari and Vargo, 2018:40).

Most services appear through the collaboration of human services and users. This makes services heterogeneous because people are different (Gronoos and Helle, 2010; Randhawa and Scerri, 2015:31). Sichtmann, Schoefer, Blut, and Kemp (2017:11) claim that intangibility is at the heart of services, although there are services with tangible elements. The intangibility of services influences customers to see the benefits abstractly and subjectively (Blindenbach-Driessen, 2018:1090).

Several studies show that the word ‘quality’, in this context, comes from quality goods literature (Ali and Raza, 2018; Wirtz, 2018:10). Individuals will, in general, associate quality with tangible stuff and not regularly with service. For different people, quality means different things, depending on their situations (Saeedi, 2017:1187-1189). To an extent, this means that quality is relative (Hill and Fredendall, 2016:56). Hill and Fredendall (2016:57) define quality as conformance to requirements. Juran asserts that quality consists of those product features which meet the needs of customers and thereby provide product satisfaction. Khader and Madhavi (2017:17) argue that quality is the status of being free of errors and deficiencies that satisfy people. Walsh, Northington, Hille, and Dose (2015) define quality as the ability to comply with the standards or requirements of a product or service. The main factor impacting consumer satisfaction and consumer buying intentions is quality enhancement (Meesala and Paul, 2018:261).

Yarimoglu (2014:81) explains that quality has several dimensions, including characteristics, performance, perceptible quality, compliance, durability, dependability, and aesthetics. For a product or service to be of quality it should satisfy stated needs or implied needs (Rust and Huang, 2014:207-208). Therefore, service quality is, in its contemporary conceptualisation, a comparison of perceived expectations of a service with perceived performance, giving rise to the equation SQ=P-E. This conceptualisation of service quality has its origins in the expectancy-disconfirmation paradigm (Mokoena and Dhurup, 2017:19). Service quality is of utmost importance for productivity and market volume growth (Meesala and Paul, 2018:261). Numerous organisations focus on quality of service issues above others to improve customer satisfaction (Kumar *et al.*, 2008:28).

2.4 Public Service Quality

Despite increasing pressure on governments to enhance the quality of public services, particularly in recent times, the rise in demand for enhanced public services quality dates back to the 1990s when customer satisfaction was recognised as a crucial strategic imperative for reinventing the public sector (Osei-Kojo, 2016:3; Rhee and Rha, 2009). Public service delivery was considered as poor and low in standards, partially due to highly ineffective and waning bureaucracies (Osei-Kojo, 2016:3). The situation gave the NPM model an impetus. Osborne and Gaebler (1992:19) argue that the essence of the reform of public management was a re-alignment of regulatory bureaucracies to result-orientated ones. Hence, New Public Management aimed to re-align public sector institutions to increase profitability and improve efficiency, which was undermined by “bureau-pathology”, public service not reacting to citizens’ demands (Osei-Kojo, 2016:4; Kaboolian, 1998).

The emergence of the paradigm of public service quality sparked vibrant academic debates and resulted in numerous definitions of the concept. Public service as a whole includes activities related to the provision of services to lower units or other legal institutions by the government based on given authority (Aritonang, 2017:100; CTFT, 2014). Goods and services are categorised as products used for utility. The goods sector includes mining, agriculture, manufacturing, and construction while the services sector includes communication, public utilities, transportation, retail and

wholesale trade, insurance, finance, real estate, government services, and business services (Ocampo *et al.*, 2019: 2; Kutscher and Mark, 1983). Bhattacharya, Saha, and Banerjee (2016:2) stress that government services must be well delivered to society because public services underpin human well-being and economic growth. Besides effective delivery, products, and services should also be delivered with honesty, be centred around people, and be responsive to their needs and demands, especially the needs of the most vulnerable (Rinhold *et al.*, 2013:2). Furthermore, public service should enable ordinary people to assess the quality, adequacy, and efficacy of basic services (Ocampo *et al*., 2019:2). The state of public services and their proposed futures appear at the centre of public and political debates; therefore, it is crucial to any government to provide efficient and effective public services to avoid any backlash from communities.

2.5 Delivery of Public Water Services

Drinking water is regarded and classified as an economic good that can be sold at a non-negative price (Abubakar, 2016:44; Garcia, 2005), a product or human right which everybody should have access to regardless of their ability to pay (Constitution of South Africa, 1994; UNDESA, 2010). Water supply involves funding and construction of infrastructure, billing and tariff collection, and system management and maintenance (Cobbinah *et al.*, 2020:97). Public water service delivery is usually favoured over private water service delivery for reasons including high infrastructure costs, wanting to avoid exclusive service, and being cost-effective. As such, water is produced and distributed predominantly by the government, accounting for over 90 per cent of the world's water services. In Europe, the tasks, and duties of municipalities, as well as the division of responsibilities between the central government and municipalities, vary widely. Usually, it is the responsibility of the municipalities to manage water supply and sewerage systems (Pietila, 2019:99). The following section focuses on water scarcity as it is one of the challenges of public water services.

2.6 Water Scarcity

Water scarcity is defined as a lack of adequate available water resources to meet the requirements of water use within an area. Over the last few decades, it has become

clear that water scarcity is becoming a danger to the sustainable development of human society due to a constantly increasing demand (Mekonnen and Hoekstra, 2016:1). It has been proven that the increasing world population, enhanced living standards, changing water consumption patterns, and expansion of irrigated agriculture are the key drivers of the rising global water demand. Globally, and annually, there is enough water available to meet this demand; there are significant spatial and temporal fluctuations in water demand and supply, resulting in water scarcity in some parts of the world during specific times of the year (Zeng *et al.*, 2013:441; Mekonnen and Hoekstra, 2016:1). Seventy-one per cent of the world's population (4.3 billion people) lives in moderate to severe water scarcity at least one month of the year. For at least four to six months per year, the number of people facing severe water scarcity is 1.8 to 2.9 billion (Mekonnen and Hoekstra, 2016:3).

South Africa is currently overexploiting its renewable water resources. South Africa, ranking among the world's 40 driest nations, with an annual average rainfall of 497 millimetres, is a water-scarce country (Mesissner *et al.*, 2018: 17). Much of the water infrastructure in the country is in crisis and dam levels are precariously low. By 2030, South Africa, a developing country, is expected to be seriously affected by physical water scarcity (Fisher-Jeffes *et al.*, 2017:20). Over 60 per cent of the rivers in South Africa are already overexploited and only one-third of the country's major rivers are in decent condition. The most affected province is the Western Cape, followed by the Eastern Cape and then KwaZulu-Natal. About 50 per cent of the KwaZulu-Natal rivers are over-exploited and dam levels are about 52 per cent (Donnenfeld *et al.*, 2018:1-3).

2.7 Water Demand Management

Water demand management refers to any action that reduces the average water usage in line with the protection or improvement of water quality (Joustra and Yeh, 2015:123). Furthermore, Brooks (2006:521) provides an operational definition of water demand management, "any measure – administrative, economic, financial, technical or social, that achieves one or more of the following five objectives:- reducing the quantity or quality of water required to accomplish a specific task; - adjusting the nature of the task so it can be accomplished with less or lower quality water; - reducing losses in movement from source through use to disposal; - shifting

time of use to off-peak periods; - increasing the ability of the system to operate during drought". Sinclair-Smith and Winter (2019:106) assert that managing water demands is the main focus for most water managers since better-quality access to water is critical for the poor. Water quality is considered an important element of water demand management as water quality affects the quantity of potable water (Stavenhagen *et al.*, 2018:188).

Water demand management has been described from a governance perspective as a policy framework to limit water use to the amount that meets socio-economic needs without wasting resources, at a reasonable cost, and without the removal of critical resources from other areas and future generations (Woodhouse and Muller, 2017:36). The sustainability aspect of water demand management is emphasised by not using more water than is considered necessary to ensure efficient, non-wasteful use of water and limit environmental degradation (Stavenhagen *et al.*, 2018:189). Water demand management has been broadly accepted in the last two decades as an essential element of water resource planning. Lately, water demand management's potential as an adaptive measure for climate change was highlighted. In many developed countries water demand management has effectively reduced demand and augmented efficiencies; nevertheless, implementation in developing countries has been more challenging where technical skills are less accessible and infrastructure and management systems are less advanced (Sinclair-Smith and Winter, 2018:8). It is, therefore, critical for this study to understand the water demand of the community in the uMgungundlovu district municipality.

2.7.1 Factors Influencing Water Demand

Previous studies have identified certain factors influencing water demand, such as utilities' policies (the price of water), demographical issues (income, household size), stand size, weather conditions, geographical conditions, and water pressure (Romano *et al.*, 2015:76). Furthermore, population growth has increased food production, and industrial growth coupled with improved living standards have led to increased water demands, while climate change and environmental pollution affect the availability of water resources to meet this increasing demand (Rathnayaka *et al.*, 2016:1). Utilities' policies are considered the most common factors influencing water demand. Jacobs *et al*., (2005:3-4) assert that stand size is arguably the most

used factor by the civil engineering profession in South Africa to 'guesstimate' residential water demand. Weather conditions are also used as factors influencing water demand, especially weather conditions such as temperature and rainfall. Griffioen and Van Zyl (2014:23) and Jacobs *et al*. (2006:19) identified water pressure as one of the factors influencing the water demand in South Africa. Sinclair-Smith and Winter (2019:107) argue that reducing water pressure can significantly reduce water loss from leaking pipes and plumbing fittings. Well-managed water pressure can help in extending water and plumbing fittings' lifetimes and reducing pipe bursts and subsequent water losses, therefore, minimising water demand.

2.8 Water Security

The Global Water Partnership views water security as the overriding objective of water management (Shah, 2016:32). However, literature defines water security by focusing on four different aspects, namely welfare, equity, sustainability, and risks. Water security is defined as using water such that "we are increasing economic welfare, enhancing social equity, moving towards long-term sustainability or reducing water-related risks" (Hoekstra *et al.*, 2018:2). Gain *et al*., (2016:3) define water security as, "the conditions in which a sufficient quantity of water resources is available and accessible of adequate quality". Water security is something to improve over time, using certain goals and targets and a combination of policies, reforms, and investment projects to achieve those goals (Van Beek and Arriens, 2014:5).

An estimated great number of the world's population faces high-level water security or water-related biodiversity risks (Khan *et al.*, 2020:2). Water plays a significant role in the creation of healthy, stable, and prolific communities and ecosystems. The United Nations has thus acknowledged water security as one of the seventeen development goals (SDGs) (Engelenburg *et al.*, 2019:92). Water security is not only entrenched in the physical availability of freshwater resources in relation to water demand but also social and economic factors.

The conceptualisation of the term security is based on availability, accessibility to services, safety and quality, and management (Gain *et al.*, 2016:1-2). Consequently,

maintaining water security is essential to people's well-being, energy, agriculture, and other industries, and is the main challenge for the scientific community, government, and society at large (Zeitoun *et al.*, 2016:144). However, the introduction of the term 'security' to water originally raised hopes and concerns amid the water research and policy communities. The hopes arose from the perception that the term could shake the thinking, which had not moved from decades of debate, on the usefulness of the Dublin principles or the integrated water resources management paradigm (Hepworth, 2009:45). The fear was that the term would allow national military-political apparatuses to secure water, which threatened to put water resource management decisions beyond the scope of normal politics (Weinthal *et al.*, 2015; Spring and Brauch, 2014).

The interpretation of water security varies from discipline to discipline, from region to region, and from topic to topic (Gober *et al.*, 2015:26). In South Africa, despite the high premium put on water resources, there is no common understanding of water security. Furthermore, it has been established that people of different lifestyles have different understandings and perceptions of water security in the Republic of South Africa, mainly concerning water availability, water access, and water quality (Meissner *et al.*, 2018:17). In the year 2000, 7.1 million South Africans did not have access to a basic water supply, and the number decreased to 5.4 million in 2004 and 4.2 million in 2017 (WashWatch, 2019).

Ngarava, Zhou, and Monde (2019:2) argue that there is a distinct relationship between men and women with access to water, use of water, information, water governance, and perceptions, primarily based on the gender division of labour linking women and water. At a global level, women are responsible for collecting water in 80 per cent of households without water at their properties (Das, 2017; UN Women, 2018). This brings into question the Millennium Development Goals (MDG) 7's celebration achievement of reducing the percentage of the population with access to safe drinking water by 2015 (Ngarava *et al*., 2019:2).

2.9 Multi-Sector Governance in Water Provision

Water is vital for the wealth and development of any country, particularly underdeveloped countries that are still in quest of investment and opportunities for

productivity growth (Mthethwa, 2017:7). Thus, water is governed by various sectors at different layers. The national, provincial, local, and extra-governmental bodies have formed inter-relations in the interest of water provision and management.

The term multi-sector governance originates from the understanding of the global relations of members within the European Union (EU) context of regional governance.

In the context of South Africa as a developing country facing serious issues of unemployment, poverty, and inequality, water supply and access represent a problem in the rural areas and informal settlements (Donnenfeld *et al.*, 2018:2-5). The current issues include water stress, poor town planning, past socio-economic imbalances, poor infrastructure maintenance, growing and urbanising populations, aging infrastructure, and government level-level capacity shortages (Mthethwa, 2017:7; Rabe *et al*., 2012:3).

The problem of ensuring a reliable water supply for all in South Africa is compounded by the following:
A dry climate associated with low precipitation levels, a population that is rapidly urbanising and putting pressure on cities, skewed growth and economic centres located away from water resources, an aging water supply system, and failure by authorities to maintain the infrastructure sufficiently (Rabe *et al.*, 2015:3).

Donnenfeld *et al*., (2018) claim that the agricultural sector is the largest user of water resources in South Africa, followed by the municipal sector as the second-largest user. The agricultural sector's water withdrawals accounted for 63 per cent of all water usage in 2015 while the municipal sector water withdrawals were at 27 per cent (Maphela and Cloete, 2019:4).

The 2000 Millennium Development Goals, which planned to reduce the number of people without sustainable access to safe drinking water by 2015, was met (Maphela and Cloete, 2019:5). Otieno and Ochieng (2014:120) claim that South Africa, as a water-stressed country, will experience physical water scarcity by 2025. Thus, there was an urgent need to develop and implement water conservation and water

demand management. The sustainable Development Goals have requested South Africa to strive to ensure that by 2030 everyone in the country has access to safe and affordable drinking water (United Nations Development Programme, SDG, 2017). In 2016, the percentage of South Africans who have access to a source of drinking water improved from 84 per cent to 86 per cent (Statistics SA, 2017).

Water provision in South Africa is facing another challenge in the nation's growing population. To meet the 2030 goal of SDG, Statistics SA (2017) suggested that new wisdom and greater efficiency in usage in water planning and management is required. All the stakeholders, including the population, need to consider water as a fragile resource, without which the country cannot prosper. Knuppe and Meissner (2016:7) proposed that collective responsibility can encourage national awareness of the sustainable usage of water. Iny (2017) supported the abovementioned claim by stating that local governments are fast becoming the second largest consumers of water resources.

2.9.1 Water Governance

Water governance research is primarily multidisciplinary, with contributions from a varied range of academic fields, namely sociology (Leauthaud *et al*., 2013), economics (Kusena and Beckedahl, 2016; Lahnsteiner and Lempert, 2007), Law (Woodhouse and Muse, 2009), and engineering (Abukila *et al.*, 2012), among others. A wide perspective on research literature on the term governance shows the difficulty in defining the concept (Woodhouse and Muller, 2017:2).

Further analysis shows that while emphasis on water governance may differ by disciplinary focus, most studies agree on a concept of water governance that integrates technological, political, institutional, and socio-economic attributes that intersect at various levels to establish a diverse and dynamic water supply, distribution, and management system (Acheampong *et al.*, 2016:1835). Water governance research has centred on the design, development, and implementation of conceptual frameworks in a policy context (Meissner and Jacobs, 2016; Lalika *et al.*, 2015), and unravelling the political and environmental consequences of water

issues (Atampugre *et al.*, 2016). Furthermore, in recent years, water and its governance have gained more attention as a policy concern (Woodhouse and Muller, 2017:1).

According to the Organisation Economic Co-operation and Development (OECD) (2015a:5), water governance is defined as, "the range of political, institutional, and administrative rules, practices and processes through which decisions are taken and implemented, stakeholders can articulate their interests and have their concerns considered, and decision-makers are held accountable for water management".

Research in water governance has also been related to key social concerns, such as the increasing population, environmental issues, and sustainability, whereas water scarcity, a phenomenon emanating from both human and natural causes, continues to be one of today's pressing global problems (Olagunju *et al.*, 20019:2). Conflicts in water systems between the goals of meeting basic human needs, economic growth, and environmental sustainability are also not unusual. There is also a school of thought for social justice that argues that access to water should primarily be considered a basic need. Only after fulfilling this need will water be allocated to other sectors that seek to improve the economy for the benefit of the society (Olagunju *et al*., 2019:3; Pollar *et al.*, 2014).

Research on water governance is increasingly related to socially appropriate water management practices. According to Olagunju *et al*. (2019:2), notwithstanding the growth in research on water governance over the years, the current literature on water governance has not been extensively and systematically reviewed. Subsequently, water governance research's emphasis, trends, patterns, and implications for water debates and practices are not well understood. Besides, while water issues are universal, there is a strong agreement that the social and ecological impacts of water-related problems in Africa are disproportionately higher. Moreover, issues are exacerbated by infrastructural deficits, poor institutional capabilities, and tangible political uncertainty in the continent (Spoon, 2014; Olagunju *et al*., 2019:2).

At the heart of the post-apartheid South African government's new water policy system lies the concept of redressing past disparities in access to water through a

structured institutional mechanism for collective water governance at a local level, the association of water users (Forster *et al.*, 2017:1). South Africa, along with many other African countries (African Ministers' Council on Water [AMCOW], 2012), has bought in the idea of Integrated Water Resources Management (IWRM) which encourages concepts of water management skills being transferred to newly developed regional and local institutions and including the involvement of the stakeholders in decision making. Water user associations (WUAs) were developed as institutional mechanisms for collaborative water governance at a local level. The National Water Act of 1998 and the Department of Water Affairs (1998) define WUA as, "cooperative associations of individual water users who wish to undertake water-related activities for their mutual benefit".

2.9.2 Collaborative Water Governance/Management

Worldwide, collaborative water governance/management partnerships are used to tackle complex water problems and combine diverse government and non-government viewpoints. Collaborative water governance uses inclusive deliberation and dialogue among autonomous actors in the state, civil society, and private institutions to make or inform decision making (Brisbois and Loe, 2016:202; Cisneros, 2019). The collaborative water governance/management partnerships view decision-making as an interchange and cooperation involving government and non-profit and private sectors, including consultation with the general public (Margerum and Robinson, 2015:53). In collaborative governance, a consensus is usually sought, if not always obtained, and the partners are forced to rethink initial assumptions and attitudes (Margerum, 2011; Margerum and Robinson, 2015:53). The interaction between stakeholders in collaborative water governance usually leads to social networks (Ogada *et al.*, 2017:2).

The prospects of water insecurity around the world have never been greater and this poses challenges of controlling water scarcity, quality, and associated ecosystem services (Harrington, 2017:257-258; Margerum and Robinson, 2015). Therefore, collaborative water management partnerships tackle challenges related to power-

sharing and building consensuses, mainly when the issues and context provide more trade-offs and fewer opportunities for joint gains (Curtis *et al.*, 2014:176).

From the governance perspective, collaborative water management partnership focuses on a policy level, organisational level, and activity level. At a policy level, the focus is on the policy and the interpretation of policy; at the organisational level, the focus is on the organisational programmes and resources; at the action level, the focus is on the ground actions (Margerum and Robinson, 2015:55).

2.9.3 Integrated Water Resource Management

The conventional, single-focus, sectoral organisation of water management entities has proven to be ineffective in tackling the multifunctional nature of water. Several scholars have described the situation as a governance crisis which contributed to the quest for an effective water resource management approach. In the process, several researchers, policymakers, and international bodies have developed the concept of Integrated Water Resources Management (IWRM) (Malaza and Mabuda, 2019:9).
Integrated Water Resources Management (IWRM) is commonly accepted as the primary approach to sustainable water management (Allouche, 2016). Integrated Water Resources Management has been recognised as the prevalent model of water resource management over the past two decades (Metha *et al.*, 2016:390).

Since the South African government is the steward of all water entities, this paradigm encourages the government to engage different stakeholders on water resource management issues to encourage effective use of water and the safety and conservation of water resource entities as well as the conservation of catchments (National Water Act No 36 of 1998). The National Water Act, No 36 of 1998, acknowledges the need to have an integrated approach to managing all facets of water resources and to delegate management roles across spatial scales to allow all stakeholders to participate. However, according to Munnik, du Toit, Rogers, Pollard, Hamer, Weaver, Retief, Sahula, and O'Keeffe (2018:1), integrated Water Resource Management (IWRM) has been largely struggling in South Africa ever since it was first implemented into legislation and policies. It is especially the integration practice that is so difficult.

2.10 Water legislation and Policies in South Africa

2.10.1 The Historical Background

The legacy of apartheid's water provision left gaps in the present water policy management. The most affected areas include institutional structures, policies, and legislation, and they have been affected predominantly in the governance of stakeholders and their relationships in the water sector ever since. Because of the unquestionable link between land ownership and water access, the presence of riparian water rights has made the legislation exclusionary and discriminatory with regards to water access (Pumzile, 2017:46-47; Madigele, 2018:129). This area notes the administration and governance of water in the interim phase and the post-apartheid era by acknowledging regulations and policies in water management and service agreements and policies.

2.10.2 South African Constitutional Framework on the Right to Water

Access to a secure and suitable supply of water is essential to life and is recognised as a human right. Adequate and clean water is required to sustain a healthy human life. Water rights are part of second-generation rights. Section 27(1) (b) stipulates, "everyone has the right to have access to sufficient food and water". Access means that water service delivery is key to ensuring the right to water. Furthermore, section 27 (2) of the constitution stipulates, "the state must take reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of these rights" (RSA, 1996).

In South Africa, as in most democratic countries, the constitution is the country's supreme law, and any other legislation must comply with its provisions. Therefore, water legislation is consistent with constitutional provisions. The constitution of South Africa provides its people a redress against the inability of the government to meet its constitutional obligations. This can be achieved by involving the judiciary. The aggrieved parties can take the government to court for failing to recognise the right to water access (Pumzile, 2017:46-48). The judiciary has to ensure that there are no

legislative or other barriers to the democratic realisation of the rights secured by the constitution.

The state is the guardian of the national water resources. The constitution stipulates that the government is divided into three entities, namely national, provincial, and local government. Section 152 of the constitution, Act 108 of 1996, stipulates that the local sphere of government has the primary responsibility to manage water resources. However, despite its primary responsibility, realisation of the right to water is a joint competence of the national, provincial, and local governments. In addition to acknowledging the water right, the South African Constitution places certain duties on the state to ensure the progressive realisation of the rights found in the bill of rights (Iyer and Tewari, 2017:129). The four types of obligations imposed by section 27 (2) on the state on the realisation of fundamental human rights, such as the right to water access are to protect, to prevent, to fulfill, and to promote. Regarding the right to accessing water, the state has to protect it (RSA, 1996).

The duty to protect against any form of human rights abuses within its jurisdictional area by third parties, including private actors, involves taking reasonable measures to prevent, investigate, punish, and redress such abuses through effective policies, legislation, regulations, and adjudication (UNHRC, 2012).

2.10.3 National Water Act and Water Service Act

The ratification of the constitution has resulted in the Water Service Act and the National Water Act being enacted (Act 108, 1997; Act 36, 1998). This is because of the Constitutional provision acknowledging water as a human right. The Acts have been enacted to govern the execution of this basic human right (Maphela and Cloete, 2019:4). The Water Service Act provides for basic access rights to a water supply and basic sanitation. The government must ensure that a water supply and sanitation services are provided in an effective, fair, and sustainable manner (Water Act 108, 1997). However, the right to access to water is subject to restrictions set out in the Water Service Act (Water Service Act 108, 1997, Section 3(4)). Section 1(iii) of the Act describes basic water supply as the minimum standard of water supply services required for a reliable and equitable supply to households, including

informal households, of adequate quantity and quality to sustain life and personal hygiene. Under regulation 3, made by the minister of water and forestry under sections 9(1) and 73 (I) (j) of the Water Services Act 1997, a minimum potable 25 litres of water per person per day or nine kilolitres per households per month at a minimum flow rate of no less than 10 litres per minute is prescribed for basic water supply. Also, the minimum supply of water should be within 200 meters of a household and customers should not be without a water supply for more than seven days a year (Maphela and Cloete, 2019:6). Among other things, this Act provides for collecting and sharing information in a national information system and encouraging efficient management and conservation of water resources (Pumzile, 2017:55).

The National Water Act was enacted during the post-apartheid era and is generally regarded as one of the most progressive water laws in policy cycle in the world (Maphela and Cloete, 2019:3). In a culture fraught with socio-economic imbalances, the Act passed and was adopted and implemented. It, therefore, offers a powerful instrument for redressing the disparities and imbalances of the past regime (Kemerink *et al.*, 2011). The National Water Act is responsible for protecting, maintaining, and allocating water resources equitably to the relevant people (Maphela and Cloete, 2019:4). The National Water Act bases itself on three principles: sustainability, efficiency, and equity. Sustainability means fostering social and economic growth, thus safeguarding the environment both now and in the future. Equity means that each person must have access to water. Eventually, sustainability means that water should not be wasted but should be used for the best social and economic benefit possible (Pumzile, 2017:55).

2.10.4 Access to Water as a Shared Responsibility of Arms of Government

The Constitution of South Africa, as the supreme law of the country, has divided the government into three spheres, namely the national, provincial, and local spheres of government. The constitution also states that the three governmental realms are distinctive, interdependent, and interrelated (RSA, 1996). This implies that each sphere has its specific area of activity, is expected to cooperate, and accept the area of jurisdiction of each other, and, lastly, a system of cooperative governance and

intergovernmental relations between the three spheres should be formed. There is, in other words, a clear separation of power between the three spheres of government. However, given the separation of powers, the three spheres of government are all obliged to work together without duplicating the duties of each other. This falls within the framework of cooperative governance, which is clarified in the constitution to mean that all arms of government in South Africa have a definite political and legal obligations to help and respond to each other on matters of common concern, to cooperate, and to establish sociable associations (RSA, 1996).

2.10.5 The Role of the National and Provincial Government

The national government's structure consists of a cabinet consisting of the president as head of the state and thirty-nine national departments. The cabinet members are accountable to parliament collectively or separately for the way they exercise their duties (Pumzile, 2017:56). The Republic of South Africa has nine provinces, namely the Northern Cape, KwaZulu-Natal, Mpumalanga, Eastern Cape, Western Cape, North West, Gauteng, Limpopo, and Free State (RSA, 1996). The provincial legislature and executive are the two main entities of the provincial sphere of government (Public Service Act 103, 1994, Schedule 1). The provincial government is expected to supervise local government to ensure that basic standards are upheld or to set minimum standards for the delivery of services. The responsibility for managing water is conferred onto the national government while the local government is responsible for controlling and managing water service delivery for everyone. Thus, two Acts regulate both functions, the Water Service Act and the National Water Act (RSA, 1998).

In virtue of section 154(1) and 115(7) of the constitution of South Africa, the national and provincial governments are tasked by legislation and other measures to support and reinforce local governments in managing their affairs, to exercise their powers, and to carry out their duties. In virtue of the Bill of Rights, both the national and provincial governments are provided with legislative and executive authority to see the current performance by municipalities in their duties in respect to matters

mentioned in schedules four and five, by controlling the exercise of their executive authority (Act 108 of the Constitution, 1996).

2.10.5.1 Local Government

Local government is the third branch of government that is interdependent and interrelated with other government spheres. The local government is constituted of municipalities. These municipalities are governed by municipal councils with legislative and executive authority on matters relating to their populations. Furthermore, the local government has government departments that ensure the effective execution of policies. Nevertheless, to ensure continuity of the state, municipal governmental policies and action plans must adhere to national and provincial legislation. South Africa consists of 283 municipalities that are legally divided into three categories: metropolitan municipalities, district municipalities, and local municipalities. Section 152 of the Constitution lays out the local government's goals: to provide the democratic and accountable government of local communities, to ensure the provision of services to communities in a sustainable manner, to promote social and economic development, to promote a safe and healthy environment, and to encourage the environment of communities and community organisation in the matters of local government (Bowman and Kearney, 2017; Ndevu and Muller, 2017:13).

The primary responsibility of providing water services lies with the local government. As per section 84 of the municipality Act, it is the district and metropolitan municipalities that are responsible for supplying water services (Act 117, 1998). Schedule four, section b of the constitution allows local authorities to provide water, limited to the provision of drinking water. Those municipalities are recognised as water authorities. The following primary duties lie with municipalities as water service authorities: firstly, to realise the right of access to basic water supply (Water Service Act 108, 1997). The Water Service Act specifies that the role of water supply is conferred to the municipalities. The Act stipulates that water service authorities can be any of the following: district officials, municipal officials, or rural councils, as

outlined in the local government transition Act, and these parties are responsible for making water supplies available (Act 209, 1993, Chapter XIX).

The Water Service Act specifies that all water management authorities have to ensure increasingly reliable, effective, economical, and sustainable access to water for all customers in the region of their jurisdiction (Water Services Act 108, 1997). Also, water services authorities' duties include ensuring progressive implementation of the right to basic water services according to available resources as well as preparing plans for the development of water services infrastructure to increasingly ensure secure, effective, economical, and sustainable water access. Secondly, the collection, procurement, and contracting obligation lies with water service providers. As a service authority, the local municipality has the right to contract the function of the provider to an alternative agent (private sector) acting under its authority. The process of recruiting an external agent is regulated by the Municipal System Act. Lastly, they have the duty of informing customers about the value of water as a natural resource (Act 32 of 2000).

Section 11 of the Water Services Act stipulates that the local government has the responsibility to provide the facilities and infrastructure required to meet the needs of those in need. The Act, thus, provides a robust legislative structure under which the municipalities will function. This requires the water service authorities ensure that customers have reliable, reasonable, affordable, sustainable access to water services, to prepare a development plan of water service, and to formulate a suitable mechanism for delivering water services.

2.10.6 Department of Water Affairs

The Department of Water Affairs (DWAF) is solely responsible for the fundamental legislative framework of transformation within the water sector (Maphela, 2016:88). Thus, the DWAF is vested with the authority to secure water and distribute water resources (Water Services Act No. 108, 1997). Eberhard (2012:9), as cited by Maphela (2016:88), defines the Department of Water Affairs as the guardian of water resources and claims that they play a leadership role in the water sector by making water policy and regulating the water sector. All activities of the water sector are

regulated by the Department of Water Affairs as well as the planning of the national water resources. As a legal authority, the Department of Water Affairs assesses water resource availability and provides a legal framework that includes the scenario of the South African situation. Furthermore, the DWAF ensures that the National Water Resource Strategy guidelines are executed to alleviate the possible shortage of water. As well as this, the DWA negotiates avenues of securing water for the economy, human consumption, and natural environment (Maphela, 2016:89). The regulation of the water system in South Africa by the Department of Water Affairs is done through the water boards. Thus, the DWA acts as the regulator and owner of the Umgeni Board.

2.10.6.2 Establishment of Water Boards

A water board is established by the Minister of Water Affairs and Forestry (DWAF, 2005). The primary function of a water board is to provide water services to other water service institutions. Water boards may carry out secondary activities as long as they do not interfere with the board's primary function of supplying other institutions or create financial problems for the board. Secondary activities of a water board may include:

- Providing management services, training, and other support services.
- Supplying untreated water to end-users who do not use the water for household purposes.
- Providing catchment management services with the approval of the water service authorities.
- Supplying water directly for industrial use.
- Accepting industrial effluent.
- Acting as a water services provider to consumers.
- Performing water conservation functions.

The department of Water and Sanitation has nine state-owned water boards that provide bulk water services in the country. The largest water boards are Umgeni Water in the province of KwaZulu-Natal, Rand Water in the province of Gauteng, and Overberg Water in the province of the Western Cape. Amatola Water, Bloem Water,

Lepelle Northern Water, Magalis Water, Mhlathuze Water, and Sedibeng Water are the remaining six water boards in South Africa (Toxopeus, 2019).

In terms of the National Water Act (Act 36, 1998), each water management area must be managed by a catchment management agency. Its mandate is to provide equitable, efficient, and sustainable water-resource management. To carry out its task the catchment management agency must establish a governing board to develop and administer a catchment management strategy. The members of these boards must be constituted to represent water consumers, potential water consumers, the local and provincial government, and environmental interest groups.

2.10.6.3 Brief Overview of Umgeni Water

Umgeni Water is a state-owned entity, founded in 1974, which provides water services, such as water supply and sanitation services, to other water resource institutions within its service area. The SOE works under, inter alia, the Water Services Act (Act of 108 of 1997) and the Public Finance Management Act (Act 1 of 1999) and is listed as a national government enterprise. Umgeni water reports to the Department of Water and Sanitation. The organisation's income is generated from the selling of bulk potable water to its six clients, namely iLembe District Municipality, eThekwini Metropolitan Municipality, Harry Gwala District Municipality, Msunduzi Local Municipality, uMgungundlovu district municipality, and Ugu District Municipality. These clients receive a total of 472 million m^3 of potable water per annum (uMgeni).

2.11 Water Service Delivery in South Africa

Euromarket (2003) describes water services as all services that provide water for homes, government agencies, or some other economic operations. In the European Union (EU), the definition of water services ranges from the abstraction of raw water at the source to the supply of (treated) water to the customer and from the user to water supplies. According to van Hofwegen (2001), the implementation and management of water services may be shared between an authority responsible for the general organisation and political decision makers and operators (utility) are responsible for operation maintenance, management, and in some cases

investment. To carry out the services' functions and to run and maintain the infrastructure, the utility should meet multiple accountability requirements, including liability related to the performance of its functions, political and social obligations reflected in the efficacy of the utility in meeting government, and consumer expectations.

The DWAF (2003) describes the term water services like water supply services and/or sanitation services or any part thereof. Water services are made available to domestic consumers, industries, and businesses. The DWAF (2003) focuses appropriately on the importance of ensuring that households have equal access to at least basic water and sanitation service. However, it is equally necessary to provide effective and reliable water services to meet the economic demand of all consumers (domestic and non-domestic).

Weaver, O'Keeffe, Hamer, and Palmer (2017:398) claim that water service delivery in South Africa is recognisably multi-scaled and intractable, comprising of many sectors and elements which do not have a single solution. The municipalities in South Africa that are experiencing household water supply challenges are local or category B2 municipalities (Clifford-Holmes, 2015:3).

Most South African citizens do not have reliable, secure access to potable water, despite clear legal and policy commitments. Citizens' frustrations with the provision of municipal water services are illustrated by regular civil protests (Hamer *et al.*, 2018:603). In support of that, Alexander, Runciman, Ngwane, Moloto, Mokgele, and Staden (2018: 27-28) claim that while the need for community involvement is protected in South African legislation, such as the Municipal Services Act (No. 32, 2000) and the National Water Act (No.36, 1998), the high level of protests related to service delivery is one indicator that the new service delivery does not meet citizens' demands and aspirations. Small municipalities are plagued by inadequate administrative and water management systems (Clifford-Holmes *et al.*, 2016:999). One aspect of this inadequate administrative and water management system is that when it comes to addressing the problems of unreliable, inadequate water supply, the voices of the local people are rarely heard or accepted (Hamer *et al*., 2018:3).

Furthermore, according to Ruiters (2013) and Mokgobu (2017), some municipalities in South Africa face serious issues in maintaining their water infrastructure which results in poor water provision services. Municipalities are experiencing difficulties in filling vacant posts due to a lack of technical knowledge, skills, and expertise which affects the delivery of water services, especially in rural areas (Toxopeus, 2019, para. 8(12)).

In a study conducted by Hamer *et al.* (2018:609-611), it was found that water access to residents of Vukani township was generally satisfactory. However, the residents are experiencing a lot of interruptions. The study further claims that residents were not satisfied with the municipality's responses to water complaints as there was no response at all in some cases or delayed responses in other cases. Additionally, the problem of payment for water supply was highlighted by the residents. Residents received dysfunctional billing, and municipalities responded by accusing residents of non-payment. In a study conducted in peri-urban areas in South Africa by Majuru (2015:23) it was found that the community was experiencing water technical problems, such as not enough booster pumps to boost the pressure of water provided to the community. In another study conducted by Mogakane (2018:iv), it was found that the community of Hluvukani complained about water access and the effectiveness of the water services provided by the municipality. The study further outlined that there was a gap between what the municipal manager claimed about the effectiveness of their water services and what the villagers experienced. The community claimed that water delivery performance was very low while the manager claimed that the water delivery system was effective and performant.

Malatjie (2016:66) also found that the community perceived water service delivery in Giyani Municipality to be ineffective. A lack of communication between municipal officials, councillors, and communities was also a barrier to effective water service delivery. As water service delivery is still lagging behind, many states have been trying to implement public-private partnership to improve water service.

2.12 Public-Private Partnership in Water

Most developing nations need water infrastructure to boost their citizens' livelihoods and life quality and South Africa is no exception (Ruiters and Matji, 2016:291).

Public-Private Partnerships (PPPs) have recently become an important method for water-related infrastructure delivery (Purbo *et al.*, 2020:28). PPPs' approach has been adopted in developing nations since the early 1990s (Jensen, 2017:20). The concept of Public-Private Partnerships has recently become an important means of providing infrastructure, considering the constraints of the public sector budget (Purbo *et al.*, 2018:1). Most scholars interpret the concept of Public-Private Partnerships as a governance system between the public and private sectors focused on joint decision-making with a common goal and involving shared responsibility, risk sharing, and mutual benefits for both parties (Silvestre *et al.*, 2018:612). A closer look at the inside of the PPPs projects reveals that the essence of PPPs is the concept of the transferring of construction, market demands, and operating risks to the private sector, which is then encouraged to control costs and to try to optimise operational efficiencies to maximise profit over a contractual timeline (Carpintero and Petersen, 2016:963).

In South Africa, PPP is defined as, “a contract between a government institution and private party where the private party performs an institutional function and/or uses state property in terms of output specifications; substantial project risk is transferred to the private party and the private party benefits through unitary payments from government budgets and/or user fees” (National Treasury, 2007:5). According to the World Bank’s PPIAF database, between 1990 and 2017 around 250 countries had adopted Public-Private Partnerships for water service projects (Purbo *et al*., 2019:29).

According to Carpintero and Petersen (2016:958), local governments are gradually using the public-private partnership model as a way of coordinating service delivery in the public-private sector. The shortage of water infrastructure provision and inadequate access to service delivery for deprived communities has prompted a new strategy for governments, businesses, financiers, and other key players (Ruiters and Matji, 2016:291). In South Africa, municipalities, with the status of water service authorities, face numerous challenges, such as a lack of technological, planning, and management expertise, limited financial resources, and a lack of operation and maintenance resulting in the dilapidating and aging of water and sanitation services infrastructure (Mokgobu, 2017:30). Thus, the South African Government has

acknowledged the need for new delivery models, such as public-private partnership models, to close the infrastructure delivery gap to extend communities' access to water and sanitation services (Ruiters and Matji, 2016:298).

2.12.1 Selected Types of Public-Private Partnerships

+

Public-private partnerships are expanding in South Africa and are becoming widely used. Their scope ranges from short-term contracts and outsourcing to long-term large-scale concessions.

.lll

2.12.1.1 Build-Operate-Own-Transfer

In the Build-Operate-Own-Transfer model (BOOT), during the duration of the agreement, the private organisation(s) builds, operates, and owns the infrastructure. The asset is returned to the state after the contract. The Build -Operate-Own-Transfer model stipulates that the service provider is responsible for the design, planning, construction, funding, logistics, maintenance, and business risks associated with the projects. The Durban Wastewater Reclamation Plant is an example of the Build-Operate-Own-Transfer (BOOT) model in South Africa.

2.12.1.2 The Build-Own-Transfer (BOT)

During the duration of the agreement, the private party builds and owns the facilities. The asset is returned to the state after the contract agreement. The toll road project on the N4 highway from Johannesburg to Maputo is an example of the Build-Own-Transfer (BOT) model.

2.12.1.3 Design-Build-Finance-Own-Transfer (DBFOT)

During the duration of the agreement, the private contractor designs, builds, funds, and owns the facilities. The asset is returned to the government at the end of the contract. The Inkosi Albert Luthuli Hospital in KwaZulu-Natal Department of Health in

2001 and the three Eco-tourism Manyeleti sites in Limpopo are examples of the Design-Build-Finance-Own-Transfer (DBFOT) model.

2.12.1.4 Equity partnership

The private party and government equally share ownership, comprising the project's expenses, risks, and benefits. It can be a short- or long-term agreement. The state vaccine institute is an example of equity partnership in South Africa. According to the National Business Initiative (2019:11), the main public-private partnerships opportunities in the water value chain in South Africa are in resource development, such as new dams, wastewater (water reuse), and groundwater extraction; bulk infrastructure such as water treatment works, bulk water pipelines; distribution and reticulation such as non-revenue water (performance-based contract), non-revenue water (physical losses only); and wastewater such as wastewater treatment works. Sector experts have consistently identified desalination, all types of water reuse, wastewater treatment, and non-revenue water as the main initial public-private partnership opportunities in South Africa at present (National Business Initiative, 2019:12). The next section will review the water institutional framework in South Africa.

2.13 A Summary of the Water Institutional Framework in South Africa

At a national level, the Department of Water and Sanitation (DWS) is responsible for policy design, support, and regulation in the water sector (DWAF, 2014a). At a regional level, Catchment Management Agencies (CMAs) are responsible for undertaking water resource management or at a catchment level and engage local communities in line with the national water resource strategy (DWAF, 2014a; Beck *et al.*, 2016:6). Furthermore, Water Boards offer water services (bulk potable) to other water service institutions within their respective service areas (DWAF, 2014a). In a mandate from DWS, the Regional Water Utilities (RWUs) manage provincial water resources as well as provincial bulk and wastewater facilities (DWA 2014b). At a local level, municipalities are invested as Water Services Authorities which are responsible for ensuring water services within their COGTA-regulated area of jurisdiction (Beck *et al*., 2016:6). Water Service Providers (WSPs), which can be

private, public, or PPP, carry out contractual responsibilities as laid down by WSA and deliver water and/or sanitation services for municipalities (DWS, 2015). Water user associations are cooperative groups of individual water users who wish to conduct water-related activities at a local level for their mutual benefit (DWA, 2014a).

2.14 A Summary of Key Post-Apartheid Water Governance Legislation and Policies in South Africa

- The White Paper on Water Supply and Sanitation addresses the inequity in water resource allocation from the apartheid era (DWAF, 1994).
- The Constitution of South Africa (1996) stipulates that access to adequate water is a right of all citizens (Bill of Rights, Constitution of South Africa, 1996, Section 27 (1)(b) and section 24 (a) and (b)).
- The White Paper on the National Water Policy (1997) describes water as a public trust (DWA, 2014a).
- The water Service Act outlines the function of the Department of Water Affairs and Forestry (DWAF), which became the Department of Water and Sanitation. Furthermore, the Act defines the role of municipalities as water service providers and water boards.
- The National Water Act aborted the riparian system of the water Act of 1956 and established a novel framework to regulate water resources. The integrated management of water resources (IWRM) is promoted by this Act.
- The White Paper on a Basic Household Sanitation (2001), which favours a demand-responsive approach as opposed to the supply-driven approach of the free basic water policy (SALGA, 2008)
- The Strategic Framework for Water Services.
- The Water Allocation Reform Strategy (WARS) (2008) aims to change apartheid era water allocation (DWAF, 2008).
- The National Water Resource Strategy (NWRS) (2013) aims to protect and conserve water resources.

2.15 An Overview of the uMgungundlovu District Municipality

The uMgungundlovu district municipality was designated as the location for this study. The Municipality has a population of 1,095 865 (Stat SA, 2017). Of this total

population, 68, 029 are Indian or Asian (6.68 per cent); 862,543 are Black Africans (84.75 per cent); 63,935 are White (6.28 per cent); 20,538 are Coloured (2.02 per cent), and 2, 718 represent other groups (0.27 per cent) (Statistics South Africa, 2016). The uMgungundlovu Municipality is one of the eleven district municipalities in the province of KwaZulu-Natal (KZN), with its capital in Pietermaritzburg. The district is mainly a rural area with mostly traditional settlements (uMgungundlovu Integrated Development Plan, 2017/2018).

The Municipality is South Africa's largest district municipality in South Africa, encompassing seven different local municipalities, including uMngeni, uMsunduzi, Mpofana, Impendle, uMshwathi, Richmond, and uMkhambathini. The South African Local Government Act specifies that a minimum of 45 councilors must be included in the municipality's administration (the Municipal Structures Act, 1998). Furthermore, there are five departments within the uMgungundlovu district municipality, namely the Office of the Municipal Manager, the Community Services Department, the Financial Services Department, the Corporate Services Department, and the Technical Services Department. The main functions of the uMgungundlovu district municipality are to deliver water, electricity, firefighting forces, environmental health, sewerage services, and sanitation as well as solid waste services.

The uMgungundlovu district municipality is the Water Service Authority of all local municipalities in its jurisdiction, except for the Msunduzi local municipality. Table 4.1 below displays the levels of water service per LM in the uMgungundlovu district municipality, provided by Umgeni Water (Umgeni, 2016:10).

Table 2.1 Levels of Water Service per LM in UMDM (SMEC-UAP Phase 1)
Source: Umgeni Water

Access to Water	Standpipe	Private	Unable to Confirm	Grand Total
Impendle	5726	617	619	6962
Mkhambathini	0	3622	8872	12494
Mpofana	0	0	8364	8364
Richmond	0	2520	11650	14170

Msunduzi	0	0	115845	115845
uMngeni	0	6595	17217	23813
uMshwathi	0	4996	14828	19824
Total	**5726**	**18350**	**177395**	**201472**
	3%	**9%**	**88%**	**100%**

2.15.1 Brief description of Impendle Municipality

Impendle is mainly classified as a deep rural area. Much of the land is mainly devoted to agriculture and forestry. Impendle is supplied through stand-alone surface water and groundwater systems (Umgeni, 2016:15).

2.15.2 Brief Description of Mkhambathini Municipality

Mkhambathini is a predominantly rural region, with Camperdown being the most urbanised area. uMgungundlovu and Umgeni Water are the water suppliers of Mkhambathini. The Upper Umgeni Water supply scheme provides water to Camperdown, Table Mountain, and Emakholmeni. This is through an off take on the sub-system of the Umlaas Road reservoir. As of 2016, the areas of Dwanhu and Mpangisa are supplied from the Upper Umgeni system (Umgeni, 2016:15).

2.15.3 Brief Description of Mpofana Municipality

Mpofana is a deep rural region with one major city/town (Mooi River Town) and a couple of smaller towns. These urban areas have all been served through stand-alone ground and surface water systems owned and run by the uMgungundlovu district municipality. Increasing demand, however, raised questions about sustainability, and the Greater Mpofana Water Supply Scheme was scheduled for implementation once the Spring Grove dam was completed (Umgeni, 2016:15).

2.15.4 Brief Description of Richmond Municipality

Richmond is made up of urban as well as rural areas. The most heavily populated area is Richmond Town, also known as eNdaleni, situated in central Richmond. Hopewell, situated in the northeast part of Richmond, is the second most densely populated town. Recently, the greater urban area of Richmond was connected via the Richmond pipeline to the Umgeni system. This pipeline is now also supplying water for Thornville, Hopewell, and Baynesfield. The remaining areas of Richmond are supplied by boreholes and springs which are managed by UMDM (Umgeni, 2016:15).

2.15.5 Brief description of uMshwathi Municipality

The uMshwathi is a blend of rural and urban areas. The uMgungundlovu district municipality and Umgeni Water supply the water to uMshwathi. Bruyns Hill, Cool Air, New Hanover, Wartburg, Claridge, Swayimane, Mpolweni, Albert Falls, and Trustfeeds are all supplied by the Wartburg sub-system of the Upper Umgeni Water Supply Scheme (Umgeni, 2016:15).

2.15.6 Brief Description of uMngeni Municipality

The Umgeni Water system supplies the urban areas of uMngeni municipality, namely Hilton, Howick, Merrivale, and Mpophomeni (Umgeni, 2016:15).the next section tackles the issue of housing in South Africa as housing is another issue linked to water service delivery.

2.16 The Reconstruction and Development Programme (RDP)

Most governments in developing countries have not yet totally addressed the adequate provision of housing for the poor. However, developing countries around the world are trying to address the issue of housing for the poor by designing and implementing policies and legislation that can be used as a framework within which housing provision for the poor can be undertaken (Femi and Khan, 2013).

In South Africa, the post-apartheid government has been under pressure to redress the imbalances in the society whereby black citizens have been poorly housed. The post-apartheid government has been bound up in the delivery of development in the form of providing improved transport, basic infrastructure, improved water services and housing, and better electricity supplies for underprivileged citizens. As a response, in 1993, RDP began as a collectively conceived effort to formulate a series of social, political, and economic policies intended to turn South Africa into a just and equitable society. Developing low-income housing continues to be a political imperative and a priority for urban reconstruction, and it is a prime pillar for the Republic of South Africa's post-apartheid transformation.

"The formulation of South Africa's Housing policy commenced before the democratic elections in 1994, with the formulation of the National Housing Forum. This Forum was a multi-party, non-governmental negotiating body comprising nineteen members from business, the community, government, and development organisations. At these negotiations, several intricate legal and institutional interventions were researched and developed upon which South Africa's National Housing Policy was formulated" (Honkins, 2006). Amoah, Kajimo-Shakantu, and Van Shalkwyk, (2019:2) supported the above-mentioned claim by stating that the government of South Africa has been designing and implementing social housing policies since the don of democracy, which has aimed to alleviate the housing needs of previously disadvantaged citizens.

After the democratic election In South Africa, there have been several changes made to the country's policies and statutes to transform housing for the marginalised. The Reconstruction and Development Programme policy framework (1994); the Growth, the Accelerated, and Shared Growth Initiative (South Africa (ASGI-SA), 2005); Employment and Redistribution (GEAR) strategy (1996); and the Housing Act are among the policy frameworks adopted to give effect to a new approach to housing. The Reconstruction and Development Programme (RDP) is a policy framework for coherent and integrated socio-economic progress (Ngwenya, 2016:6).

The RDP seeks to mobilise all citizens and the country's resources towards the final extermination of the effects of apartheid (Department of Housing, 1994:7). The housing policy which includes the provision of RDP houses to the poor was decided by the governing party along with all its allies. Thus, the government instituted the Department of Housing to support the abovementioned course. The DHS is mandated to ensure that every citizen has access to decent housing, hence the development of the Housing White Paper.

In South Africa, three spheres (national DHS, provincial DHS, and municipality) of government work together to ensure that RDP is given to the poor. The DHS (2013, p.16) explicates that, "the Housing Act Number 107 of 1997 advocates that the three spheres of government, namely national, provincial, and local government which is required to give priority to the needs of the poor in respect of housing development, to promote the establishment, development, and maintenance of socially and economically viable communities and safe and healthy living conditions to ensure the elimination and prevention of slums and slum conditions as well as to promote higher density in respect of housing development to ensure the economic utilisation of land and services". Idyllically, the division of the responsibilities and functions of national DHS, provincial DHS, and the municipality or local DHS are as follow: the national DHS develops housing policy and regulations, monitors policy implementation, and maintains housing data bank; the provincial DHS creates an enabling environment for policy implementation, allocates housing subsidies to municipalities, and provides feedback on the progress of implementation; the local DHS addresses land issues and ensures that RDP houses are built within the prescribed framework and legislation.

2.16.1 Social Housing Act No. 56 of 2003

The 2003 social Housing Act (2003:4) provides basic guidelines concerning the provision of social housing and also clarifies who the stakeholders of social housing programmes are. The specific objectives of the policy document are:

- To define key terms to ensure common understanding and synergy in the sector.

- To lay down general principles for the social housing sector.
- To define the legislative, institutional, and regulatory environment in which the sector will operate.
- To provide for a government funding mechanism for the social housing sector to facilitate the specific targets mentioned in the policy.
- To provide measures to encourage the sustainability and growth of the sector at scale.
- To promote capacity building for the sector.

The government of South Africa has been designing and implementing social housing policy since the dawn of democracy and has aimed to alleviate the housing needs of previously disadvantaged citizens (Amoah *et al.*, 2019:2). The next section focuses on the challenges of water provision.

2.17 Challenges of Water Provision

2.17.1 Water pricing

Anything scarce and in-demand commands a price; this is one of the rudimentary principles of economics. Water is scarce in some contexts (drought or degraded quality for example), so water pricing is increasingly seen as an acceptable instrument of public policy (OECD). In South Africa, water pricing, in the form of progressive block tariffs, was introduced to the policy framework in South Africa as a cost-recovery measure in 1994 through the White Paper (1994) on Water Policy. A three-tier rise in the domestic block tariff was introduced, which includes a life-line tariff for the consumption of fewer than 25 litres per day, a standard tariff based on average historical consumption costs between 25 litres per day and 250 litres per day, and a marginal tariff based on long-term marginal consumption costs of more than 250 litres per day (DWAF, 2002). Block tariffs are geared towards making the initial consumption rates more affordable, or even free, while charging increasingly higher prices as consumption levels increase, raising the possible advantage of reducing demand at the top end, thus, generating conservation incentives (Makhari, 2016:28).

“In the post-1994 period, the only right to water is the reserve. According to the National Water Act (Act 36, 1998), the reserve is the basic human subsistence amount that every person is entitled to (define commonly as 25 litres a person per day or 6,000 litres per household a month) and the needs of the environment. Water management is based on the subsidiarity principle – management takes place at the lowest practical level in a politicised environment. Citizens are, increasingly, viewed as consumers, with rights as well as obligations” (Makhari, 2016:28).

The norms and standards for water services, tariffs, and regulations are listed under Section 10 of the Water Services Act (Act 108, 1997), whereby a water service institution must, when setting tariffs for water service consumers, differentiate, where applicable, between the following categories at least:

- Water supply services to households and others.
- Industrial use of water supplied through water services works.
- Water supply services.
- Sanitation services to households and others.
- Discharge of industrial effluent to a sewage treatment plant.
- Sanitation services.

Also, a water services institution must, according to the Water Services Act (Act 108, 1997), when setting tariffs for providing water services to households, differentiate, where applicable, between at least the following levels of service:

- The supply of water to a household through a communal water service works.
- The supply of water to a household through a water services works, or consumer installation designed to provide a controlled volume of water.
- The supply of water to a household through a water services works, or consumer installation designed to provide an uncontrolled volume of water.
- The provision of sanitation services to a household not connected to a sewer.
- The provision of sanitation services to a household connected to a sewer.

.

2.17.2 Water and Climate Change

In evaluating the state of water resources, attention must be given to the effects of global climate change. Climate change is regarded as one of humanity’s greatest

environmental and economic threats. Climate change can be characterised as altering the chemical composition of the atmosphere, which produces relevant effects in terms of variability in temperature and precipitation (Avolio, 2016:45). The overall effect is mainly the warming of the earth's climate. The bulk of warming over the last 50 years has been due to human activity (Gosling and Arnell, 2016:379). With a certain degree of precision, the impacts of climate change are still uncertain. Climate models are still unable to make accurate regional forecasts (Null and Prudencio, 2016:945). This means being vigilant in evaluating the changes that can be forecast and preparing the capacity of countries to adapt to the new environmental conditions. Nonetheless, with relatively high confidence, certain forms of changes can be forecast (Avolio, 2016:46).

Climate warming could cause hydrological changes affecting freshwater resources (Gosling and Arnell, 2016:376; Avolio, 2016:46). Scientists have predicted that the rise in global temperature will impact the precipitation and runoff regimes, which could have serious effects on the regeneration of aquifers and river erosion rates (Gosling and Arnell, 2016:376; Null and Prudencio, 2016). As a consequence, precipitation in some areas is likely to increase and in others may decrease. Precipitation is the principal driver of water balance variability over time and space, and a shift in precipitation may have very vital consequences for hydrology and water resources (Kisakye and Van der Bruggen, 2018:50). Thus, changing patterns of precipitation can affect how much water can be collected (Wang *et al.*, 2016:3).

2.18 Water service in Africa

According to the Organization for Socio-Economic Development and Cooperation (OECD) (2015), 40 percent of human-use water sources are under stress, and demand is expected to rise by at least 50 percent by 2050. The overexploitation, pollution, and shortage of water resources in Sub-Saharan Africa describe the situation (United Nations [UN], 2014). More than 500 million people in rural Africa do not have access to safe drinking water (UNICEF/WHO, 2019). Hundreds of millions of dollars have been spent since the 1980s to enhance and maintain improved outcomes. However, improvement has been uneven and sporadic, resulting in significant and needless health costs (Davis, Iyer, & Yavuz, 2006; Fuente, Allaire, Jeuland, & Whittington, 2020). As a result, throughout the previous 50 years, various

policy trajectories have favored a basic needs approach, community management, a rights-based framework, and result-based contracts (Harvey, & Reed, 2004). The rising realization that sustainable drinking water service delivery is a defining but elusive goal is common across global policy and country practice (Hope & Ballon, 2021).

With yearly costs for basic water services in Africa anticipated to be approximately $1 billion each year (Hutton & Varughese, 2016), it brings up the question of which drinking water service features, such as quality, price, proximity, or reliability, matter more to rural water users. The answer has ramifications for how consumer preferences and citizen rights may converge in rural Africa in order to attain and maintain universal drinking water services (Hope & Ballon, 2021).

The concept of a human right to water has gained traction during the 1990s, culminating in a resolution endorsed by the United Nations General Assembly in 2010 (UN, 2010). Despite its lack of legal effect, the political resolution resulted in constitutional commitments to the human right to water, which South Africa enacted in 1996 and Kenya followed in 2010. Measured outcomes, on the other hand, haven't always matched policy goals. In a national census in 2019, more than one-fifth of Kenyans (24%) stated that surface water, such as rivers and streams, is their primary source of drinking water (Kenya National Bureau of Statistics, 2019). Kenya is hardly alone in its struggle to balance political ambitions for basic service delivery with quantifiable results. Between 2016 and 2018, a survey of 43,544 Africans revealed that governments were handling water and sanitation delivery "extremely badly" or "pretty badly" in both rural and urban settings, with fewer than 1 in 10 respondents believing that governments were doing "very well"(Afrobarometer,2020). African governments face a number of issues, including the lowest relative coverage of drinking water access, rising maintenance costs, and the need to supply new services over time. These issues are exacerbated in rural areas, where various levels of hardship and a history of poor service delivery compound rural water customers' affordability problems (Katuva, Hope, Foster, Koehler, & Thomson, 2020; Foster, 2013).

2.19 The Gap

The review of literature has demonstrated that numerous scholars have investigated the issue of water service delivery in different context. However, to the researcher

best knowledge no study has proposed a framework based on the Servqual model. Thus, making this study suitable to fill that gap.

2.20 Summary of the Chapter

This chapter discussed the issues of water service, service quality, local municipalities, water scarcity, and water security. This is important in positioning the study within its context and to establish the study gap thereof. This literature review, therefore, seeks first to provide useful insight into the nature of the water service supply. The context of the uMgungundlovu district municipality was also discussed. A discussion on the water policy framework was provided. Chapter three discusses the methodology employed in this study.

CHAPTER Three
RESEARCH METHODOLOGY

3.1 Introduction

This chapter reflects on the research paradigm and the methodology adopted in collecting and analysing data. According to Kumar (2019:46), research methodology is a systematic manner used to solve a research problem, a science that studies how research is done scientifically since a research study is an effort to expand knowledge in a particular field of study. The research methodology includes both the research study, data collection methods, and analysis.

Diverse scholars differentiate between research methods and methodology, where methods epitomise how the research was carried out and methodology is the general science or philosophy that guides the research study. Moreover, research methods provide ideas, instruments, and models that demonstrate how to conduct sound research (Babin and Zikmund, 2015:107). Creswell and Creswell (2017:95-97) further claim that research methods are research techniques and strategies, while methodology is the driving structure that blends methods with the findings of the study.

This chapter describes the research paradigm in the context of public affairs, as well as the design and methodology adopted to achieve the aim and objectives of the research. A brief description of the research philosophy and design is followed by an explanation of the sampling procedure, as well as data collection methods, the location of the study, data analysis, the validity and reliability of the measuring instrument, as well as the administration of the questionnaire. In deciding on which methodology and methods to adopt, the below research objectives were considered.

3.2 The Study Research Paradigm in the Context of Public Affairs

The term ‘paradigm’ is rooted in Kuhn’s research (1962) which focused on the nature of scientific revolutions (Richards and Daston, 2016:16). However, using the definition developed by Urbach (2017:105), a paradigm is a “set of ideas,

hypotheses, and beliefs that influenced, shaped and guided a particular scientific community's activity". According to Kelly, Dowling, and Miller (2018:5), a paradigm, as an epistemological framework, identifies a set of shared values that influence the way research questions are asked and investigated. "Paradigms provided important frameworks of ideas for research methodology" (Somekh and Lewin, 2011). Paradigms have been regarded to some extent as research traditions or assumptions since the early 1990s (Blaikie, 2010:20).

The concept of a paradigm has since become more common in academic research (Aliyu *et al.*, 2014: 79). Babbie (2014:31-32) claims that, "social scientists have developed some paradigms to understand social behaviour". The use of paradigms in research studies varies depending on the selection of the researcher and the essence of the studied phenomenon (Kankam, 2019:85).

Four main paradigms could be considered for academic research, according to Creswell and Plano Clark (2011:40-41) and Creswell (2007:19), namely post-positivism, social constructivism, participatory, and pragmatism. Based on Kuhn's work (1996), this study, therefore, generates ideas about how to use paradigms during the research process. Blaikie (2010:62) and Kaczynski, Salmona, and Smith (2014:127) assert that researchers need to determine the paradigm suitable for a specific study, having considered the research problem and the key research questions. Ryan (2018:1) indicates that the significance of a selected paradigm should be clearly explained by the researcher.

Creswell and Clark (2017:40) note that quantitative research is more closely linked to the post-positivism paradigm. DeCuir-Gunby (2008:127) regarded post-positivism as a renewed version of positivism. Although positivism and post-positivism are sometimes grouped under one paradigm, their ontological and epistemological viewpoints vary in many ways (Kelly *et al*., 2018:8). Furthermore, post-positivism, as a paradigm, represents an evolutionary epistemological and ontological mechanism in the understanding of the world, emphasising the epistemological role that research results include an approximation of reality as opposed to absolute truth, as expressed in the positivism paradigm (Creswell, 2014; Kelly *et al*., 2018).

Patton (2002:92-93) clarifies that the post-positivism paradigm reflects that some appropriate theories can be effectively used to comprehend observable reality. Sale and Brazil (2004:353) note that positivists suggest that quantitatively, “all phenomena can be reduced to empirical indicators which represent the truth”. Von Glasersfeld (2005:33) states that, from an academic viewpoint, positivism logically has some connections with the behavioural approach. “Positivists believe that reality is stable and can be observed and described from an objective viewpoint, for example, without interfering with the phenomena being studied” (Hall, 2014:308).

Interpretivism

Interpretivism argues that, “only through the subjective interpretation of and intervention, in reality, can that reality be fully understood” (Wynn and Williams, 2012:788).

Realism

Realism refers to the scientific inquiry that emphasises the reality that one’s senses perceive as truth. Realism implies that the objects have an autonomous existence from the human mind. However, this viewpoint diverges between direct realists and critical realists (Wynn and Williams, 2012).

Pragmatism

Pragmatism emphasises views and treats both interpretivism and positivist philosophy as a continuum rather than paradoxes. A pragmatist avoids debating about concepts of truth and reality and focuses on researching the issues of interest and value and finding different ways to bring positive consequences (Miller and Sullivan De Estrada, 2017:27).

Positivism refers to a philosophical approach held by natural scientists when dealing with observable facts in the community, which contributes to the development of generalisations. Positivism focuses on the value of what is given in general, with a stricter emphasis on pure data and evidence that is not distorted by human interpretation bias (Alharahsheh and Pius, 2020:41). In this study, positivism and interpretivism were adopted to explore the experiences and expectations of the

community on water service delivery (Mastin, 2017). The positivist paradigm was adopted for the quantitative data and interpretivism for qualitative data. Interpretivism varies from positivism in that it seeks to provide variety in the observations gathered rather than trying to provide definite and universal laws that can be generalised and applied to all, regardless of certain main variables and influences.

3.3 Research Objectives

- To determine communities' expectations of water service quality in the uMgungundlovu district municipality.
- To ascertain communities' experiences of water service quality in the uMgungundlovu district municipality.
- To identify the mechanisms in place that ensure quality water services supplied to the community.
- To identify and understand the gap between communities' expectations and experiences of the water service quality in the uMgungundlovu district municipality.
- To recommend a framework that enhances the water service quality in the uMgungundlovu district municipality.

3.4 Research Questions

- What are the communities' expectations on the provision of water at the uMgungundlovu District Municipality?
- What is the community's experience of the water service delivery at the uMgungundlovu District Municipality?
- What are the mechanisms in place that ensure the quality water service is supplied to the community?
- What is the gap between the community's expectations and experiences of water service quality at the uMgungundlovu District Municipality?

- How can a framework for enhancing water service quality at uMgungundlovu District Municipality be implemented?

3.5 Research Design and Approach

The research design refers to the overall strategy that you choose to combine the various components of the study coherently and logically with, thus ensuring that you solve the research problem effectively. The study is guided by phenomenology, which is understood as the study of a phenomenon or a manifest of things as they appear in the experiences of people (Van Manen, 2017:775).

Hopkins, Regehr, and Pratt (2017:1) assert that phenomenological studies are grounded in how people experience things that are significant and how they are meaningful in their experiences. This philosophical paradigm is suitable for this study because this study's aim is to investigate the expectations and experiences of water service quality of the community and how the uMgungundlovu district municipality provides water services.

The literature identified three major types of research studies, such as a descriptive research study, the main objective of descriptive research is to provide a detailed and accurate representation of the variables related to the research problem. This type of research is more structured. There are also explanatory studies, in which the main objectives are to establish any causal links between the factors or variables linked to the research problem. Exploratory research is conducted to gain new insights, discover new ideas, and increase knowledge of a phenomenon (Ponelis, 2015:536-537; Harrison *et al.*, 2017).

There are different approaches in the research field, such as qualitative, quantitative, and mixed methods. The quantitative approach results in data that can be interpreted and condensed into numbers. Quantitative data includes close-ended information, such as that found to measure attitudes, behaviours, and performance instruments (Blackstone, 2018:7).

The analysis of this type of data involves statistically analysing data collected using tools such as questionnaires or checklists to address the research objectives or test the research hypothesis (Creswell and Creswell, 2017:145). Survey research is probably the most common quantitative approach in sociology, but approaches such as content analysis and interviews can also be carried out to generate quantitative data (Blackstone, 2018:8).

Qualitative data consists of open-ended information that the researcher usually gathers through interviews, focus groups, and observations. Typically, analysing qualitative data follows a path of aggregating it into information categories and presenting the diversity of ideas collected during data gathering (Creswell and Creswell, 2017:173; Bryman, 2017).

A qualitative approach is one in which the investigator (researcher) frequently makes claims about knowledge, based primarily on constructivist perspectives. For example, the multiple meanings of individual experiences or meanings socially and historically constructed are used to develop a theory or pattern. Advocacy and participatory perspectives (i.e., political, issue-oriented, collaborative, or change-oriented) can also be considered, in isolation or in conjunction with constructivist perspectives (Mohajan, 2018:25). The table below, as described by (Merriam, 2009: 18), shows a comparison of qualitative and quantitative research features.

Table 3.1: Characteristics of qualitative and quantitative research

Point of comparison	Qualitative research	Quantitative research
Focus of research	Quality (nature and essence).	Quantity (how much, how many).
Philosophical Roots	Phenomenology, symbolic interactionism, constructivism.	Positivism, logical empiricism, realism.
Associated phrases	Fieldwork, ethnographic, naturalistic, grounded, constructivism.	Experimental, empirical, statistical.
Goal of investigation	Understanding, description, discovery, meaning, hypothesis generating.	Prediction, control, description, confirmation, hypothesis testing.
Design characteristics	Flexible, evolving, emergent.	Predetermined, structured.
Sample	Small, non-random, purposeful,	Large, random, representative.

	theoretical.	
Data collection	Research as primary instrument, interviews, observations, documents.	Inanimate instruments : Scales, tests, Survey, questionnaires, computers.
Primary mode of analysis	Inductive, constant comparative method.	Deductive, numerical.
Findings	Comprehensive, holistic, expansive, richly descriptive.	Precise, numerical.

It also uses investigative strategies such as narratives, phenomenology, ethnography, grounded theory, or case studies (Creswell and Creswell, 2017:15). The researcher collects open-ended, emerging data with the primary purpose of developing data topics. Qualitative approaches are ways to collect data that yield results such as words or images. In sociology, some of the most common qualitative approaches include field study, intensive interviews, and focus groups (Barbour, 2018:25-36).

According to Kumar (2019:195), inductive reasoning should always be used in a qualitative investigation. Tjora (2018:5) affirms that, “the extent to which a qualitative approach is inductive or deductive differs along a continuum”. Flick (2018) states that the purpose of the qualitative approach is contextualised and interpreted by using the inductive mechanism to produce concrete explanations based on experiential phenomena. Likewise, in corroborating this affirmation, Fusch and Ness (2015:56) support that the qualitative approach is more appropriate, especially in situations where the research problem encompasses complex features. Qualitative research can be flexible for related changes (Quinlan *et al.,* 2019).

By mixing both qualitative and quantitative approaches, the researcher gains a breadth and depth of understanding and corroboration while at the same time compensating for the weaknesses inherent in using each approach alone (Bryman, 2017; Creswell and Creswell, 2017:16).

The mixed-methods approach provides the possibility of triangulation to investigate the same phenomenon. Triangulation makes it possible to identify aspects of a phenomenon more accurately by using different methods and techniques to

approach said phenomenon from different points of view. Successful triangulation needs a thorough assessment of each method's type of information, including its strengths and flaws (Creswell and Clark, 2018:38; Ness, 2015).

A mixed-method approach is one which the researcher will adopt, on pragmatic grounds, to base claims of knowledge (e.g., consequence-oriented, problem-cantered). The approach will use survey strategies that involve data collection, either simultaneously or sequentially, to better understand research problems. The collection of data also includes the collection of both numerical information (e.g., data collection instruments) as well as text information (e.g., interviews) so the final database is both quantitative and qualitative (Creswell, 2016:18).

This study uses mixed research methods, a research methodology involving the collection, analysis, and integration of quantitative and qualitative research (Creswell and Clark, 2017:2). Quantitative data incorporates close-ended information such as that found to measure attitudes, behaviours, and performance instruments (Creswell and Creswell, 2017). This study employed mixed methods to collect data about the expectations and experiences of water service quality in the uMgungundlovu district municipality.

3.5 Outline of the Research Process Followed in this Study

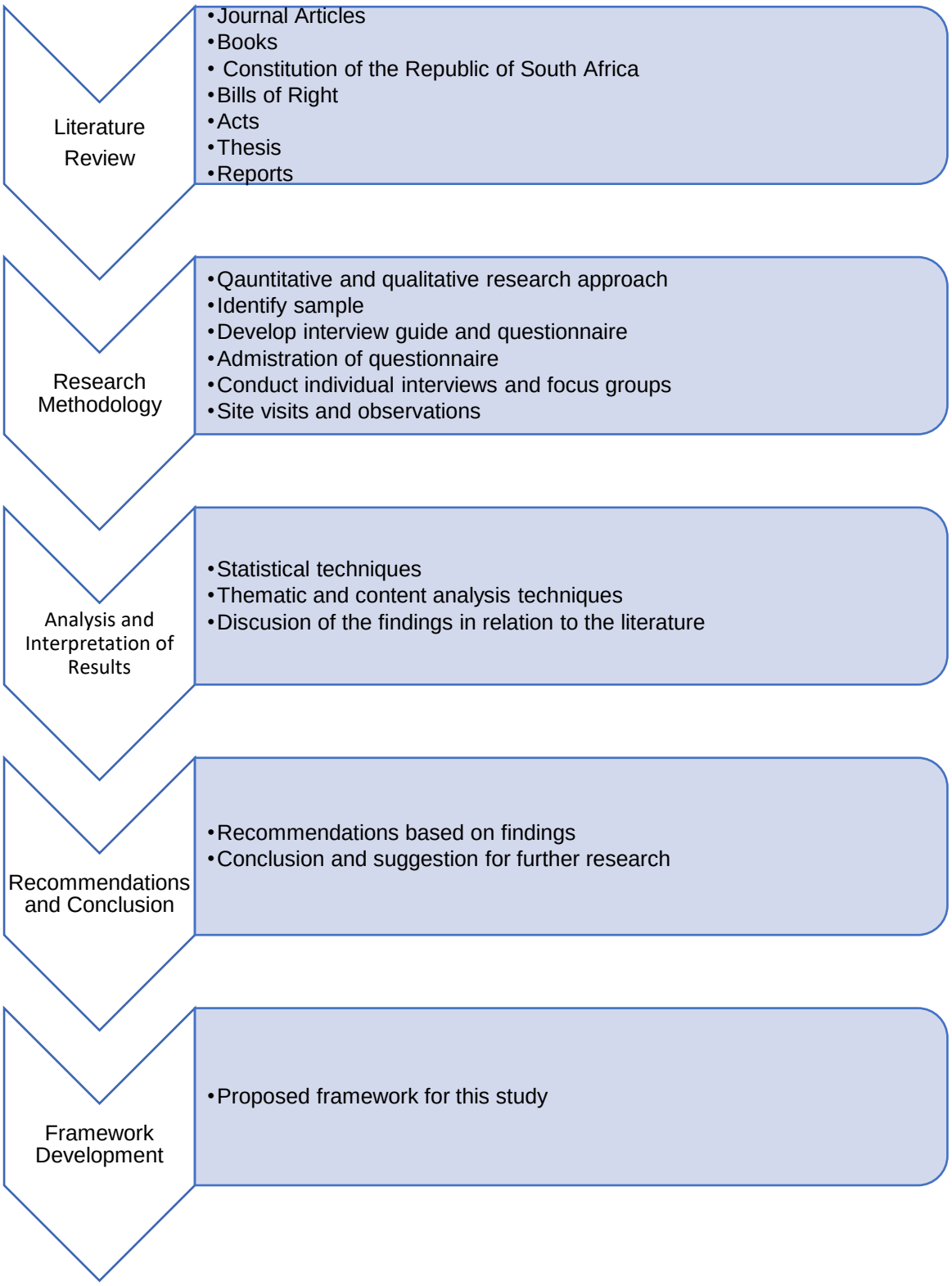

Figure 3. Outline of Research Process, Adapted from Srivastava (2009)

3.6 Study Site

A population is usually a large collection of people or objects that are needed to carry out a study, making it the focus of a scientific study (Etikan *et al.*, 2016). This study was conducted in the uMgungundlovu district municipality, with a population of 1,017,763, of which the majority are Black Africans (84.75 per cent) followed by Indian or Asian (6.68 per cent), White (6.28 per cent), Coloured (2.02 per cent), and other (0.27 per cent) (Statistics South Africa, 2014). Of the whole population, 33.1 per cent are under the age of 15, 62.8 per cent of the population is between 15 and 64, and 4.1 per cent of the population is over the age of 65 (Municipalities, 2016). The uMgungundlovu district municipality is one of the 11 district municipalities of KwaZulu-Natal province. The seat of uMgungundlovu is Pietermaritzburg (uMgungundlovu Integrated Development Plan, 2017/2018).

.

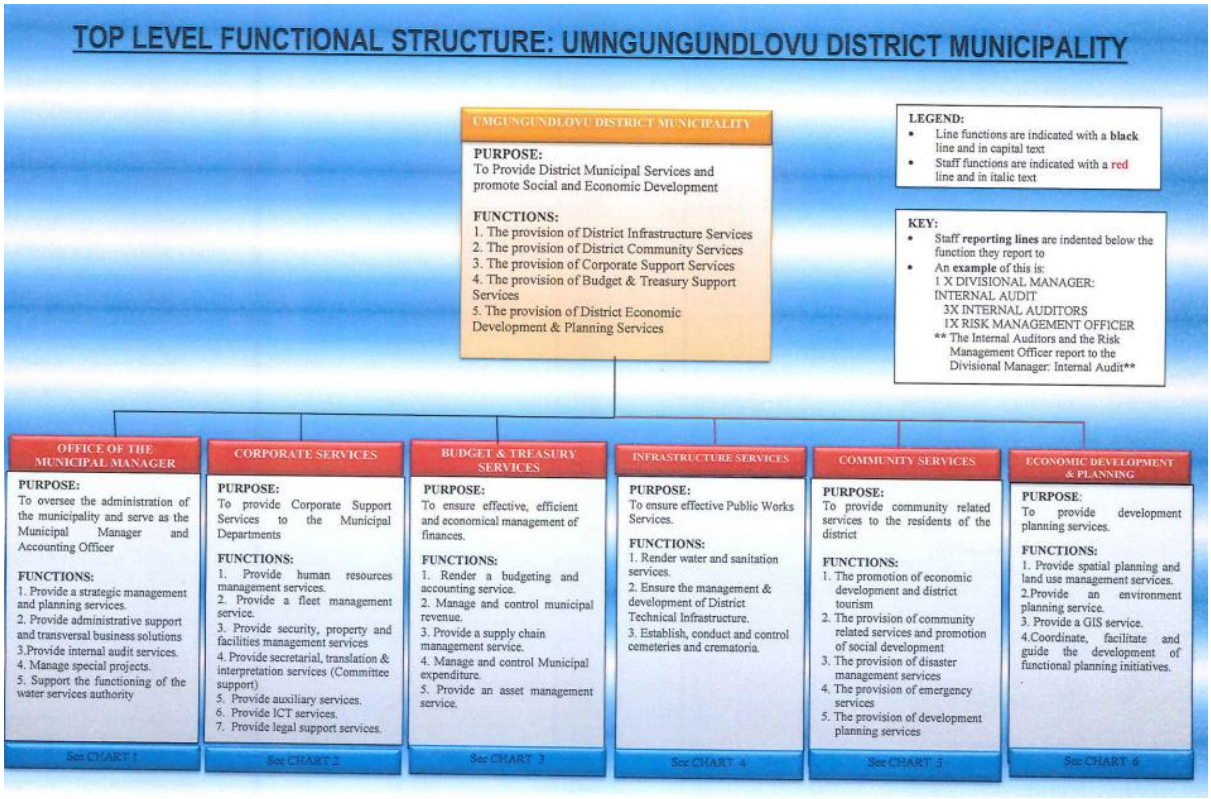

Figure 3.1 Top-Level Functional Structure: uMgungundlovu District Municipality

Source: umdm.gov.za

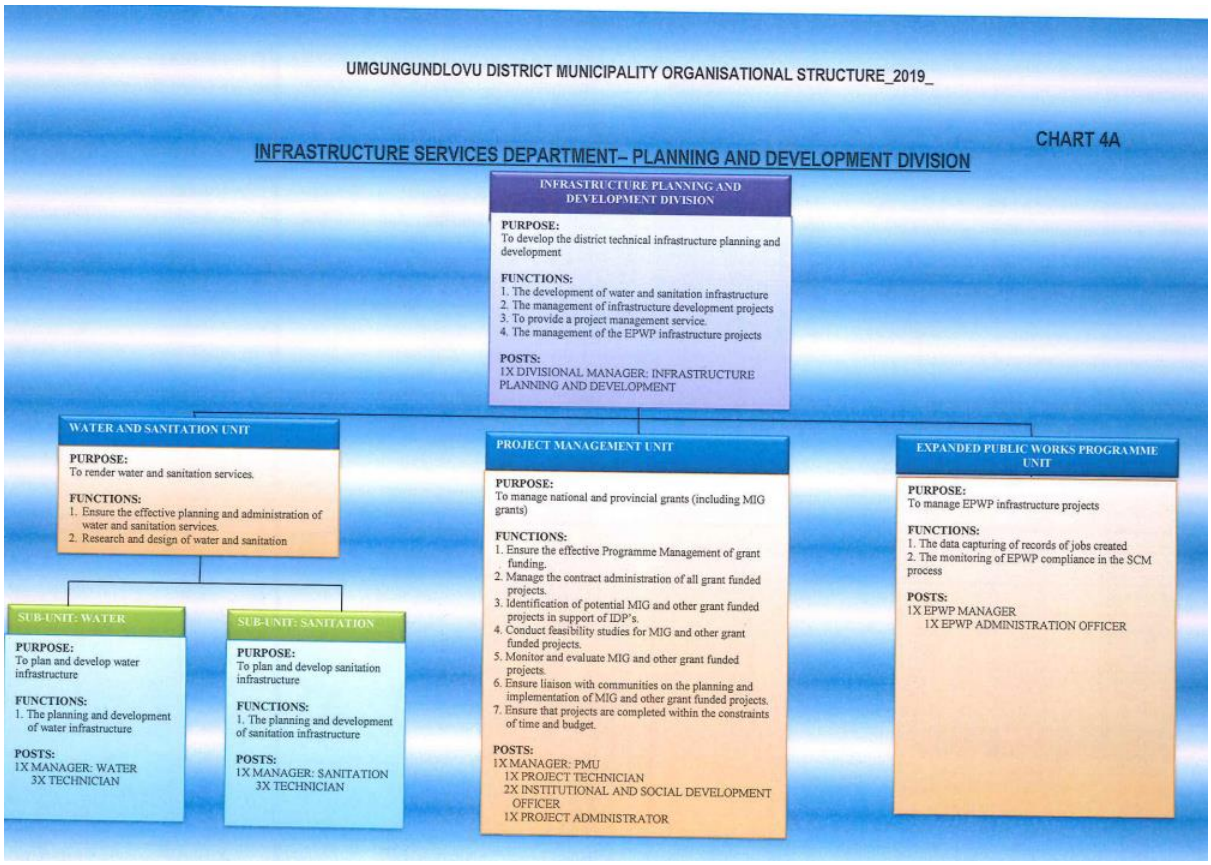

Figure 3.2 Infrastructure Services Department- Planning and Development Division

Source: umdm.gov.za

3.7 Study Sample

The target population relates to a set of individuals or items of interest to the study (Asiamah *et al.,* 2017). The study targeted people from the following seven local municipalities in uMgungundlovu district municipality; Impendle, Mkhambathini, Mpofana, uMsunduzi, Richmond, uMngeni, and uMshwathi.

Figure 3.3 uMgungundlovu District Municipality

Source: Municipalities.co.za

Sampling is described as a method of selecting a small demographic sample to engage in research (Gentles *et al.*, 2015:1775). Sampling techniques enable researchers to select a set of individuals or items from a larger community to be included in the research study (Palinkas *et al.*, 2015:534).

This study uses random sampling as a probability sampling method to select participants for quantitative data. In particular, stratified sampling is a probability technique in which the researcher splits the entire population into different subsets or strata, then the final subjects are randomly selected proportionally from the different strata (Palinkas *et al.*, 2015:535).

The non-probability sampling method, which uses the researcher's discretion, was employed to select respondents for the qualitative data (Patten, 2016). The purposive sampling method, which uses the researcher's knowledge of the

population and the purpose of the study is suitable for this study. Using a purposive sampling method, the researcher selected community members who were able to provide the information needed to address the research problem. Participants were selected purposively from the uMgungundlovu district municipality based on their use of water in their local municipalities.

3.8 Sample and Sample Size

A sample is a subset of the whole selected population chosen to partake in a study (Mlterud and Siersma, 2016:3). The sample in this study was made up of households' community members from six local municipalities in the uMgungundlovu district municipality which was purposively selected.

The sample size is defined as the entire number of people or items chosen to be part of the study (Creswell, 2014:42; Chow *et al.*, 2017:337). The total number of households' community members selected for the study is 310. Two hundred eighty-six household community members answered the questionnaire and 24 officials and ward committee leaders from each of the six local municipalities were interviewed (Impendle Local, Mkhambathini, Mpofana, uMsunduzi, Richmond, uMngeni, and uMshwathi), these participants were selected purposively. To obtain data saturation, it has previously been advised that qualitative investigations have a minimum sample size of 12 (Clarke & Braun, 2013; Fugard & Potts, 2015; Guest, Bunce, & Johnson, 2006). As a result, a sample size of 24 people was deemed enough for the qualitative analysis and scope of this study.

3.9 Sources of Data

Pan (2016:25) describes data as a collection of facts and statistics with quantitative and qualitative variables. This section discusses secondary and primary data. Some data collection methods were identified by Heap and Waters (2019:143), namely interviews, surveys/questionnaires, observations, and group focus. This research study employed interviews and questionnaires to collect primary data.

3.9.1 Primary data

Heap and Waters (2019:144) note that primary data is data collected for the first time and published by an individual or organisation responsible for collecting it. Newman (2013), as cited by Naidoo (2018:134), suggests that the benefit of using primary data is that the researcher can specify the variables to be used in the study and techniques to be employed to measure the specified variables. Primary data for this research study was collected from community members and municipality employees through interview guides and questionnaires.

3.9.2 Secondary data

According to Collis and Hussey (2014), secondary data is data that was already collected and released by an individual or organisation not responsible for its collection. Additionally, the researcher has little to no influence over the process of collecting data. However, the use of secondary data can save costs and time. This research study used the constitution, reports, official Acts, and government water strategy documents as secondary data sources.

3.10 Data Collection Methods

Data collection is the method of acquiring and evaluating the information on variables of interest in a systematic manner to address research objectives or to test hypotheses (Neelankavil, 2015; Sutton and Austin, 2015:227). The procedure for data collection must fit the type of mixed method design in the study (Creswell, 2017:43).

This research study used a questionnaire to gather quantitative data. A questionnaire is a data collection research tool with some questions and other prompts to collect data from the respondents (Patten, 2016:5). The questionnaire was developed by using descriptive, analytic, causal, and evaluative questions to conduct the quantitative research study. Regardless of certain limitations (Taherdoost, 2016:33), including a lack of control over the situation, moods, places, and loading speeds which meant that the validity of the questionnaire may be

compromised, a self-administered questionnaire was used because it is less costly, less time consuming, and reduces biases from differences in administration.

Another benefit of a self-administered questionnaire is that it provides more time for the respondents to think about their responses. Questionnaires were used because they are fairly easy to analyse and are familiar to community members who are being studied. Questionnaires provide an affordable way for researchers to study a large population and it is simple to administer.

The questionnaire contained closed-ended structured questions that focused on a particular area to reliably collect data that would enable statistical analysis. Using closed-ended, structured, Likert-scale questions, various predetermined answers had to be chosen by the respondents. The questionnaire consisted of structured questions with a mix which Sedmak and Longhurst (2010:82) suggest, and said mix is delineated below:

- Dichotomous questions that give only two fixed alternatives.
- Multiple-choice, single-answer questions where the answer is limited to one of the alternatives.
- Checklists, where the respondent is requested to rate the responses regarding the criteria given by their importance.

According to Joshi, Kale, Chandel, and Pal (2015:82), the Likert scale consists of statements reflecting either a favourable or unfavourable attitude towards the object of interest, which is the most commonly used version of the condensed rating scale because it is easy and fast to construct. In this research study, respondents were asked to choose from five levels of agreement, ranging from 'strongly agree' to 'strongly disagree'.

The main advantages of using closed-ended questions are that they reduce response variability, are less expensive to administer, and are relatively easier to code and analyse (Babin and Zikmund, 2015). All data captured was checked twice to ensure that no errors were made during the data capturing process. The questionnaire is divided into two (2) sections. Section one contains the demographic questions, of which there are seven questions. Section two is divided into two sub-

sections, namely expectations and perceptions. The expectation sub-section has 18 questions and the perceptions section has 18 questions as well.

Qualitative data are collected through semi-structured interviews and the collection of documents. A semi-structured interview “is designed to ascertain subjective responses from persons regarding a particular or phenomenon they have experienced. It employs a relatively detailed interview guide or schedule and may be used when there is sufficient objective knowledge about an experience or phenomenon, but the subjective knowledge is lacking” (Mclntosh and Morse, 2015:2). Semi-structured interviews are flexible, thus, this will allow for a flexible and focused data collection process. This made it easy to probe respondents and delve into the research problem. To complement data to be collected using semi-structured interviews, policies, frameworks, strategies, and other related documents were collected. The interview guide has two sections, namely section A and B. Section A has seven demographic questions and section B has 17 questions. The questionnaire and interview guide are included in the appendices.

3.11 Administration of the Questionnaire and Interview Guide

Due to the lockdown and pandemic regulations, data collection was done in different phases. The interview sessions were done through zoom meetings, WhatsApp calls, and phone calls to avoid any face-to-face contact. The interview sessions were recorded and then transcribed. For quantitative data, the researcher first identified households to partake in the study then distributed questionnaires to be collected after few days. The researcher administrated three hundred questionnaires but 14 were spoilt. Quantitative data collection took two and a half months and qualitative data collection took a month and a half. Although 14 questionnaires were spoilt, adherence to covid-19 protocols did affect the quality of data collected as the researcher put measure in place to ensure that data collected was reliable.

3.12 Data Analysis

Analysing data is the process of turning the data (research findings) into information that is used to clarify and make decisions on a determined situation (Anderson, 2015:156). Garrard and Narayan (2013:586) assert that there are many statistical techniques required to analyse the data, and the researcher always faces the dilemma of choosing the most appropriate techniques. The selected techniques depend, inter alia, on the nature of the survey carried out, the characteristics of the population, the degree of measurement, and the sample size.

3.12.1 Quantitative Data

Data analysis is defined as the organisation and interpretation of the data collected during a study (Ott and Longnecker, 2015:98).

The Statistical Package for the Social Sciences (SPSS) version 26 was used to analyse the coded responses to the various questions. Both descriptive and inferential statistical analyses were conducted, and the data and information were presented in the form of tables and figures where appropriate. Statistical tests such as t-tests, descriptive, Anova, and regression analysis were performed in this study.

3.12.1.2 Descriptive Statistics

Raich, Muller, and Abfalter (2014:739) indicate that descriptive statistics refer to the description and/or summarisation of the data collected from a group of people as units of analysis, which are the most effective means of summing up the characteristics of large sets of data. Rowley (2014:324) reports that most quantitative data statistics are central-tendency measurements, where the data are centred, or dispersion measurements where data are distributed. Although the mean is used more frequently, the median may be a better description of the data when extreme values occur.

Variance is, according to Christensen, Johnson, and Turner (2011:402), a measure of score dispersion about the mean. If all the scores are identical, the variance is zero (0). The larger the scores distributed, the greater the variance will be. With interval and ratio data, both the variance and the standard deviation are used. The standard deviation sums up how far away from the average the data values usually are. For descriptive statistics, the standard deviation is an important concept as it reveals the amount of variability within the data set. As with the mean, extreme scores affect the standard deviation (Christensen *et al.*, 2011:402).

Bar charts and graphs offer visual representations of information that can be taken into account at a glance. Bar charts are utilised to compare two or more values and to display correlations between bars. Bar graphs enable comparisons between two or more values and allow data displayed in categories to be summarised by visually, easily, and conveniently displaying the main features of the distribution of data (Zondi, 2015:147).

In descriptive data, the researcher may analyse data using a table with a combination of two or more frequency tables grouped in individual cells, each of which has their value. Descriptive statistics, such as means, standard deviations, and frequencies, were used in this study.

3.12.1.3 Inferential Statistics

Though descriptive statistics allow an initial analysis of data, Amrhein, Trafimow, and Greenland (2019:262) claim that inferential statistics allow the researcher to extrapolate from the sample information regarding the population. Inferential statistics aim to empower the researcher to establish whether a difference between two treatment conditions happened by chance or where it is a true difference. Inferential statistics comprise inter-alia, ANOVA, correlations, ChiSquare tests, and regressions (Dancey and Reidy, 2011:170).

Correlation analysis is used to determine the relationship between variables. The correlation coefficient is a summary type of number that ranges in value from +1, meaning a perfect positive correlation/relationship, to -1, meaning a perfect negative

correlation/relationship, and a near-zero coefficient indicates no relationship at all (Arthur *et al*., 2012:348; Schober *et al.*, 2018:1763-1764).

Stangor (2015:194) claims that if a quantifiable variable is split into three or more separate groups using a descriptive variable, the researcher may determine whether these groups are substantially different, using a one-way analysis of variance (ANOVA). ANOVA analyses the variance (differences) between and within data classes by comparing their means; these variations are represented by the F ratio. If the means are substantially different between the groups, this disparity will be illustrated by a large F ratio, with a probability of less than 0.05.

The t-test establishes if the observed difference in the means of two classes, which is fittingly large, is due to a change in some variable, or whether it could only occur by chance (Dancey and Reidy, 2011:170).

The Wilcoxon Signed-rank test is a non-parametric-statistical hypothesis test used to compare two related samples, matched samples, or repeated measurements on a single sample to assess whether their population mean ranks differ. It was used in this study to test whether the average value is significantly different from a value of 3.5 (Haidous, 2012).

Friedman's test is a non-parametric statistical test developed by Milton Friedman. It is similar to the parametric repeated measures ANOVA, it was used to detect differences in treatments across multiple test attempts (Gray, 2020).

3.12.2 Qualitative Data Analysis

3.12.2.1 Thematic Analysis

Thematic analysis, according to Smith (2015), focuses on the documenting and evaluation of patterns or themes within a set of data. This approach allows for a rich, complex, and detailed description of data. Thematic analysis was used as a method for capturing patterns (themes) across qualitative datasets (Braun *et al.*, 2019:843). The researcher recorded and transcribed collected data from semi-structured

interviews and document collections. The results of the thematic analysis are presented in chapter four.

These are the following steps used in this study in analysing qualitative data:
Transcriptions were analysed using coding as the first stage of thematic analysis. After coding, data were interpreted and inferred as reference points by using theoretical concepts and findings from previous studies (Grbich, 2013:37). The process of data analysis is designed to enable the researcher to draw logical inferences from the collected data. A subset of the data was used to create a coding frame using the information gathered. Within the data acquired, the researcher read, reflected, and established concepts, then divided codes into categories and themes. The codes were merged to form categories, and the categories were then used to create the themes reported to address some research objectives in this study. An example is provided in table 3.2.

Based on the data collection method used in this study, the researcher consolidated the data from all the semi-structured interviews and documents that speak to one theme. The researcher then established connections between themes and ultimately answered the research questions or addressed the research aims and research objectives.

Table 3.2 An example of coding

Coding frame	**categories**	**themes**
Not adequately informed –we don't get involved even our councillors are not informed properly,	*Not adequately informed*	Not informed

3.12.3 Pilot Study and Validity

A pilot study was conducted for a quantitative and qualitative study to help to refine the questionnaire and semi-structured interview guides and to gain a general

understanding of how the questionnaire and semi-structured interview would proceed (Zarokanellou *et al.*, 2017:36).

This helped the researcher iron out some of the questionnaire and interview issues, such as improving the clarity of the questions and eliminating repetitions before proceeding with the sample (Whitehead *et al.*, 2016:1061-1062). Six participants were used to test the questionnaire and two participants were used for a semi-structured interview guide, one from every six local municipalities under study. Participants for the pilot study did not participate in the actual study. After conducting the pilot study, questions were submitted to subject experts again to ascertain relevance, accuracy, and alignment with research objectives. The pilot study also helped in measuring the validity and reliability of the research instruments used in this study.

3.13 Delimitations/Scope

The study was conducted with uMgungundlovu district municipality community members. Thus, employees of the uMgungundlovu district municipality did not participate in the study as the study focused on water quality expectations and experiences from a community perspective, an area under investigation. Only certain managers of the uMgungundlovu district municipality were selected for the qualitative study (interview guide).

Due to lockdown regulations, data collection was delayed, and the researcher faced some challenges in collecting data. The researcher could not have face-to-face interviews and had to wait until level one of the lockdown to collect both quantitative and qualitative data.

3.14 Reliability and Validity

Validity and reliability are employed in research studies to measure and improve the quality of the research tools (Noble and Smith, 2015:34-35).

3.14.1 Validity

“The principles underlying naturalistic and/or qualitative research are based on the fact that validity is a matter of trustworthiness, utility and dependability put into it by the evaluator and the various research stakeholders” (Zohrabi, 2013:258). Merriam and Tisdell (2015:242) asserts that, “in qualitative research, the reality is holistic, multidimensional and ever-changing”. It is, therefore, up to the researchers and research participants to seek validity in the various phases of research from data collection to data analysis and interpretation. The main issue of validity is whether the research study is credible and true and whether it evaluates what it is supposed to evaluate.

In quantitative research, there is content validity, internal validity, and external validity. For the quantitative data of this study, the researcher used content validity and the judgment of a panel of experts to assess the validity of the research instrument. Content validity is linked to a type of validity in which various elements, skills, and behaviours are properly and accurately measured (Zohrabi, 2013:258). The research instrument of this study was reviewed by experts in the field to assess the content and was revised accordingly.

Triangulation was used to ensure the validity of the qualitative data. Creswell and Creswell (2017:33) assert that, “triangulation strengthens a study by combining methods. This can mean using several kinds of methods or data, including both quantitative and qualitative approaches”. Furthermore, Turner, Cardinal, and Burton (2017:1) assert that triangulation refers to the use of various, distinct methods to better understand a theory or phenomenon. This research study collected data using semi-structured interviews, documents, and questionnaires to ensure the validity of the study.

3.14.2 Reliability

Reliability is described as the robustness, accuracy, and confidence (trustworthiness) of the research instrument to be used in the study (Noble and

Smith, 2015; Kitano *et al.*, 2017). For the quantitative data, Cronbach's alpha coefficient (the result of the Cronbach's alpha is presented in chapter 4) as an internal consistency and reliability technique was used. For the qualitative data, this study used conformability, triangulation, and dependability to ensure reliability.

3.14.2.1 Conformability

For the interview sessions, the researcher used an audio recording device to ensure that the findings from the interviews were not biased or based on his own beliefs or interests but were a true reflection of the participants' views. The researcher will ensure that the findings are confirmed or disconfirmed by the literature. The researcher uses the member check system which encompasses asking participants to read the researchers' notes and conclusions and comment on whether the researcher described exactly what he/she was told (Wimmer and Dominick, 2014).

3.14.2.2 Dependability

Dependability was maintained by ensuring that the questionnaire and semi-structured interviews were designed in a way that allowed future studies to produce similar results. Therefore, subject experts were asked to validate the semi-structured interview and questionnaire questions (Connelly, 2016).

3.15 Ethical Considerations

Ethics is a set of rules of behaviour that should be followed by a researcher in the study to eliminate any misconduct (Resnik, 2015:33). The researcher observed ethical principles based on the research paradigm and the values in public administration. The researcher obtained ethical clearance from the ethical committee of the Durban University of Technology. Rules such as voluntary participation, no harm to the participants, anonymity, and confidentiality were strictly followed by the researcher.

3.15.1 Voluntary Participation

Social research often, though not always, is an intrusion into the lives of people. Participation in a social experiment interferes with the usual activities of the subject. Moreover, social research often requires individuals to disclose their private information to strangers (researchers). Therefore, measures were in place to ensure that participants in the study were willing to participate, but not forced to participate. Moreover, participants should be aware beforehand that their participation is voluntary and that they can withdraw from the study at any given time (Babbie, 2015:32-33). Informed consent was used to inform participants about their right to participate and withdraw if needed.

3.15.2 No Harm to the Participants

After ensuring the voluntary participation of the participants, the researcher ensured that three key principles, namely respect to persons, beneficence, and justice, were implemented in the course of the research study to ensure no harm to the participants. Respect for people meant that participation was voluntarily in this study and based on a complete comprehension of what is involved. Beneficence refers to the fact that research should not harm the subjects and, ideally, the subjects should benefit from it. Justice means that the burdens and advantages of research should be reasonably shared with society (Babbie, 2015:33-34). No questions susceptible to harm participants were used in this research study.

3.15.3 Anonymity and Confidentiality

Anonymity and confidentiality are two techniques that were observed since they allowed the researcher to protect the identity and well-being of the research subjects. Anonymity refers to the protection of the study participants so that even the researcher cannot connect the participant to the information given (King *et al.*, 2018:67).

3.15.4 Anonymity

Anonymity was guaranteed in the research study when the researcher and the readers could not connect a given response with a given respondent (Babbie, 2015:35). The anonymity in this research study was ensured by omitting participants' identities.

3.15.5 Confidentiality

A research study ensures confidentiality if the researcher can recognise the answers of a particular respondent but fundamentally promises not to do so publicly (Babbie, 2015:35). No confidential information of the respondents was revealed in the study.
All participants remained anonymous. The names of the participants were not mentioned at any point in the discussion of the findings. Respondents were informed of all their rights, as specified in the requirements of the university ethics committee. Respondents were not required to answer any uncomfortable questions and were reminded of their right to withdraw from the study at any time.

3.16 Limitations of the Study

This research is not without limitations, the semi-structured interview process took place during the lockdown due to the pandemic and, thus, the researcher was not able to effectively probe some questions to get more clarity on certain issues, and it might be difficult to replicate the results of this study. Furthermore, the questionnaires were distributed, and it was arranged that the researcher collected them after a week or so, thus, not allowing the researcher to have full control of the process, resulting in fourteen questionnaires being spoilt as they were duplicated.

3.17 Summary of the Chapter

This chapter discussed the research methodology, research design, study sample, study context, the target population, sample size, quantitative methods, qualitative method, reliability and validity, and ethical considerations. The study, further, justified the reasons for choosing the particular methodology, techniques, and types of respondents selected for this study. The design of the questionnaire and interview guide was fully explained in this chapter. The chapter also explained descriptive and inferential statistics as well as the thematic analysis used in this study.

The next chapter presents the analysed data and discussion in relation to the literature.

CHAPTER FOUR
DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter provides an analysis of research findings from the primary data that was collected from 310 participants using interviews and questionnaires. This study adopted a mixed research methodology. Quantitative data analysis was adopted as a process of applying statistical techniques to describe, clarify, summarise, outline, and evaluate data. The thematic method was used to analyse data. Furthermore, Miles, Huberman, and Saldana (2014:12-13) define "data analysis as three concurrent flows of activity, namely: data condensation, data display, and conclusion drawing or verification". The Statistical Package for Social Software (SPSS) was used to analyse quantitative data. Quantitative data were coded using Microsoft Excel then transferred to SPSS for analysis. Descriptive and inferential statistics (Wilcoxon signed ranks test) were used and are presented in this chapter. Content analysis was used for qualitative data. Sub-categories expressed what was said about the main categories, while main categories represented a fraction of the material the researcher was most interested in. Data were analysed to address the research objectives:

- To determine communities' expectations of water service quality at the uMgungundlovu District Municipality
- To ascertain communities' experiences of water service quality at the uMgungundlovu District Municipality.
- To identify the mechanisms in place that ensure water quality service supply to the community.
- To identify and understand the gap between communities' expectations and experiences of the water service quality at uMgungundlovu District Municipality.
- To recommend a framework that enhances the water services quality at the uMgungundlovu District Municipality.

4.2 Response Rate

A total of 300 questionnaires were handed out to the respondents, while the researcher expected to collect 300 correctly filled questionnaires, 286 questionnaires were collected and considered which represents a 95 per cent response rate. Fourteen questionnaires were duplicated and thus spoiled. The researcher did not consider the fourteen spoilt questionnaires for analysis. Furthermore, twenty-four interviews were collected from respondents.

4.3 Statistical Analysis

In this chapter, for the convenience of the readers, only some of the tables and graphs are presented. The rest of the tables and graphs are provided in Appendix A

4.3.1 Descriptive Statistics

Descriptive statistics provided simple summaries about the sample and the observations that have been made. It describes and presents the key features of the data collected in a meaningful and simple way (Fialho and Zyngier, 2014). Means and standard deviations were used, where applicable, and frequencies are represented in tables or graphs. In this chapter, only a few descriptive statistics graphs, tables, and charts are used.

4.3.2 Inferential Statistics

Inferential statistics help to assess the strength of the relationships between the independent variables and the dependent variables (Lowry, 2014). The tests used in this study are as follows: the Wilcoxon Signed Ranks test is a non-parametric test used to test whether the average value is significantly different from a value of three (the central score). This is applied to Likert-scale questions. It is also used in the comparison of the distributions of two variables. One sample t-test is used to test

whether a mean score is significantly different from a scalar value (Colman & Pulford, 2006; Cai *et al.*, 2000).

4.3.3 Reliability Analysis

Kansara (2020) defines reliability as the extent to which results obtained from a research project can be replicated under a similar methodology. To measure the reliability, Cronbach's coefficient is used and a Cronbach's alpha value superior to 0.7 for a combined measure is declared reliable (Kiliç, 2016).

Table 4.1 Reliability Statistic of Expectation Constructs

	EXPECTATIONS		
Construct	**NAME**	**Items**	**Cronbach's alpha**
Tangibles	EXP_TAN	1 – 5	.874
Reliability	EXP_REL	6 – 10	.869
Responsiveness	EXP_RES	11 – 14	.866
Assurance	EXP_ASS	15 – 18	.888
Empathy	EXP_EMP	19 - 23	.859

All these values for alpha are more than 0.7, as depicted in Table 4.1, indicating that single composite measures for all these constructs are reliable.

Table 4.2 Reliability Statistic of Perception Constructs

	PERCEPTIONS		
Construct	**NAME**	**Items**	**Cronbach's alpha**
Tangibles	PER_TAN	1 – 5	.855
Reliability	PER_REL	6 – 10	.832
Responsiveness	PER_RES	11 – 14	.789
Assurance	PER_ASS	15 – 18	.808

Empathy	PER_EMP	19 - 23	.847

All these values for alpha are more than 0.7, as depicted in Table 4.2, indicating that single composite measures for all these constructs are reliable.

Table 4.3 Reliability Statistic of Gap Between Constructs

	GAP		
Construct	**NAME**	**Items**	**Cronbach's alpha**
Tangibles	GAP_TAN	1 – 5	.852
Reliability	GAP_REL	6 – 10	.842
Responsiveness	GAP_RES	11 – 14	.805
Assurance	GAP_ASS	15 – 18	.811
Empathy	GAP_EMP	19 - 23	.845

As depicted in Table 4.3, all these values for alpha are more than 0.7, indicating that single composite measures for all these constructs are reliable. Single measures are formed by calculating the average of the scores of the items in each construct.

4.4 Results of the Data Analysis

4.4.1 Biographical information

This section presents the demographic data from the respondents. It provides background information about respondents' ages, genders, time lived in the area, employment status, marital status, and level of education. A total of 310 respondents participated in this study. There was a total of 286 valid questionnaires from the quantitative data collection and 24 interviews were conducted.

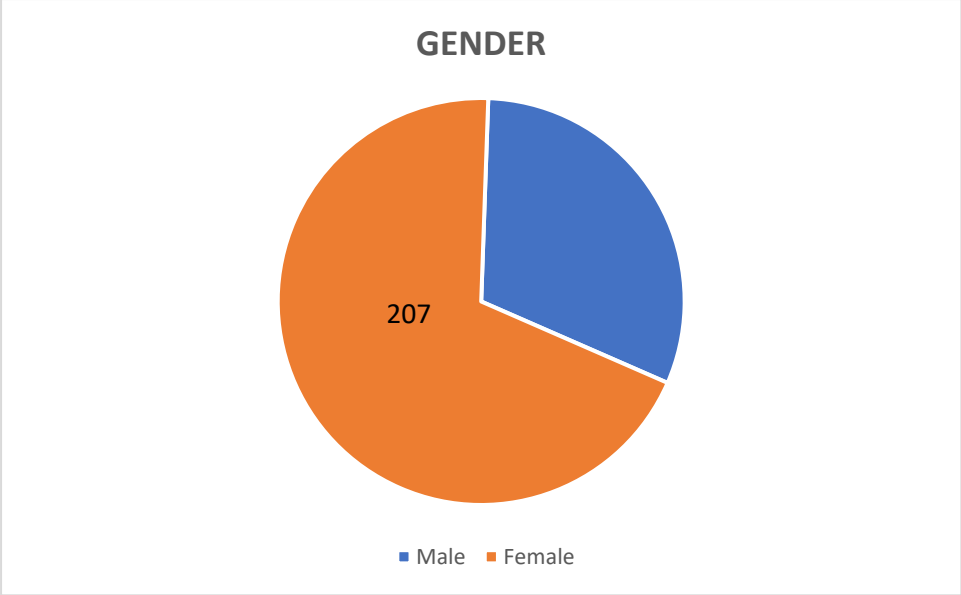

Figure 4.1 Gender of the respondents

Table 4.4. Gender Profile

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Male	93	31.0	31.0	31.0
	Female	207	69.0	69.0	100.0
	Total	300	100.0	100.0	

The rationale for generating a gender profile is to determine whether diversity is practiced in the municipality. The majority of participants, 69 per cent of respondents, were females, compared to 31 per cent being male respondents. Hanrahan and Mercer (2019:211) assert that gender was identified as an increasingly significant determinant of water insecurity in the subarctic community. Thus, it was important to get the views of women as they are the ones who suffer the most when there is inadequate water service quality. The results of this study indicate that both males and females participate in managing water service quality in the uMgungundlovu district municipality.

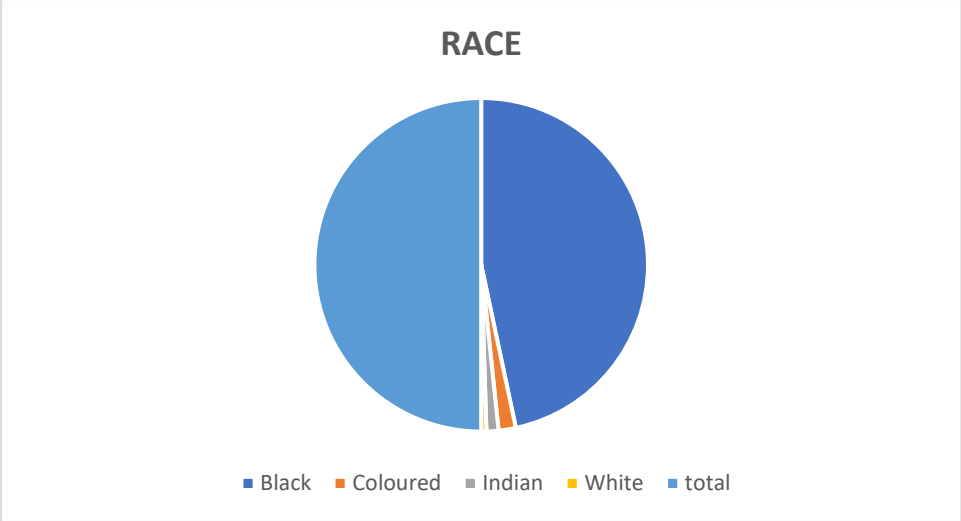

Figure 4.2 Race of the respondents

Table 4.5. Race

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Black	280	93.3	93.3	93.3
	Coloured	10	3.3	3.3	96.7
	Indian	7	2.3	2.3	99.0
	White	3	1.0	1.0	100.0
	Total	300	100.0	100.0	

Race profile also maters in water affairs. The table above reflects that most of the participants are black, as indicated by 93.3 per cent of respondents being black, followed by coloured at 3.3 per cent, and Indian at 2.3 per cent. Research indicates that 40 per cent of the population of South Africa, of which the majority are black, live in rural areas and 19 per cent of the rural population lacks access to a reliable water supply (Bowring *et al*., 2017). Thus, it was important to investigate water service quality in the community.

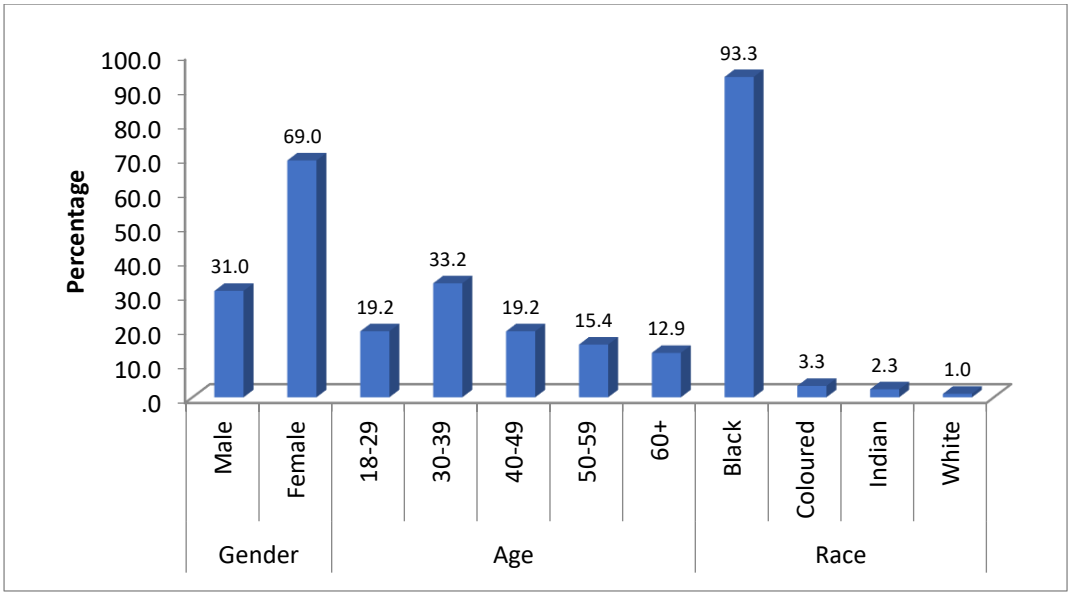

Figure 4.3 Age, Gender, and Race

The combined results in Figure 4.1 reveal that the majority of the respondents were black (93.3 per cent), followed by coloured (2.3 per cent), Indian (2.3 per cent), white (1.0 per cent), and the age of the majority of respondents are between 30 and 39 (33.2 per cent), followed by participants between 40 to 49 (19.2 per cent), participants between 18 to 29 (19.2 per cent), participants between 50 to 59 (15.4 per cent), and participants 60 and older (12.9 per cent).

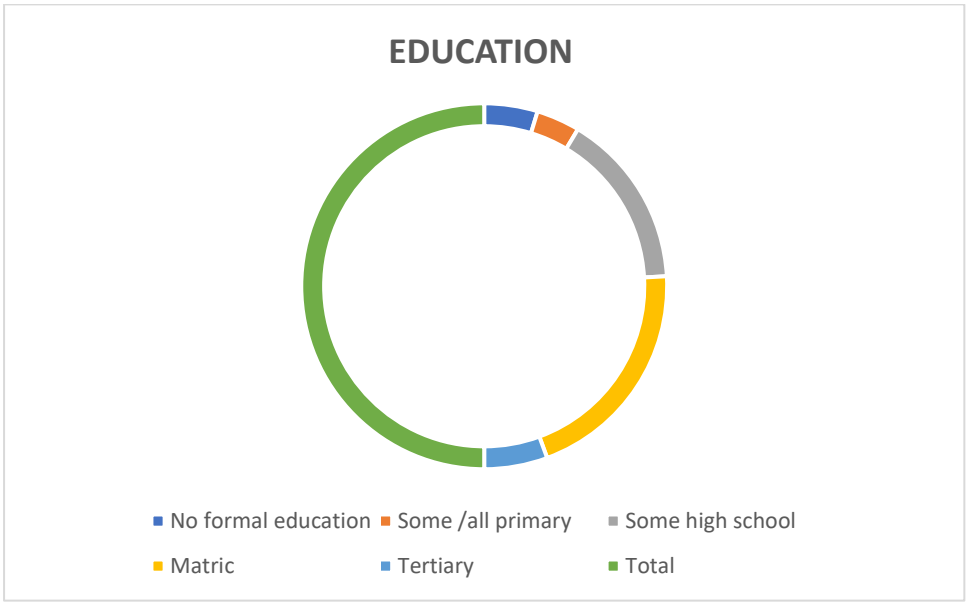

Figure 4.4 Education of respondents

Table 4.6 Education

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	No formal education	27	9.4	9.4	9.4
	Some/all primary school	22	7.7	7.7	17.1
	Some high school	89	31.1	31.1	48.3
	Matric	116	40.6	40.6	88.8
	Tertiary education	32	11.2	11.2	100.0
	Total	286	100.0	100.0	

In as far as the education levels, a majority of 40 per cent of respondents have matriculated, while some (31.1 per cent) have completed high school levels. Also, some of them (11.2 per cent) have obtained the tertiary qualifications, some (9.4 per cent) have no formal education, and some participants (7.7 per cent) have obtained some/all of their primary school education, as depicted in table 4.6. In this study, the level of education was important as it helped participants to somehow understand the aim of the study, the questionnaire, and the interview process.

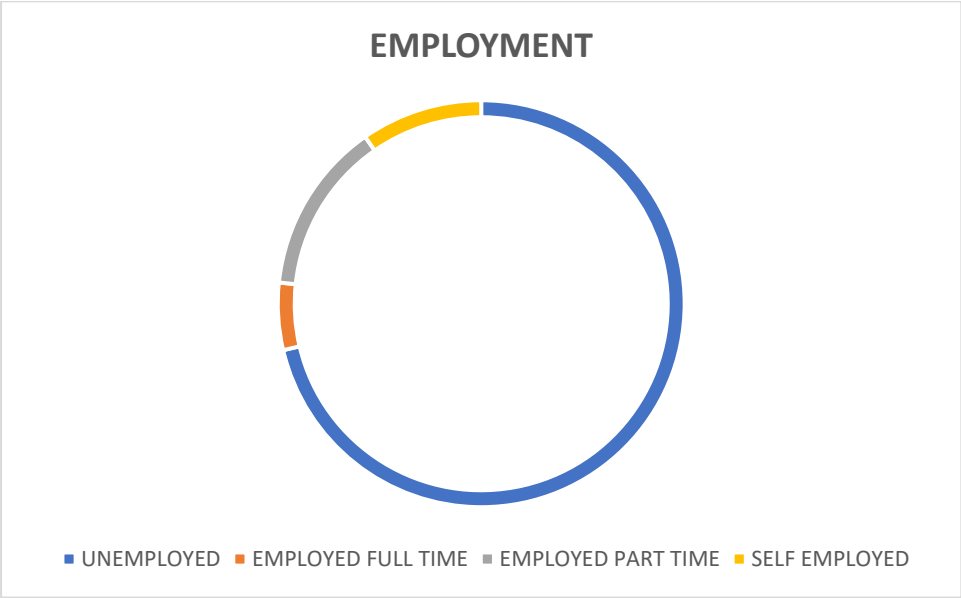

Figure 4.5 Employment Status

Table 4.7 Employment

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Unemployed/ student/ housewife/ pensioner	214	71.3	71.3	71.3
	Employed full time	16	5.3	5.3	76.7
	Employed part time	41	13.7	13.7	90.3
	Self employed	29	9.7	9.7	100.0
	Total	300	100.0	100.0	

Regarding employment status, the majority of respondents (71.3 per cent) are either unemployed or students or housewife or pensioners, followed by those employed part-time (13.7 per cent), self-employed (9.7 per cent), and some had full-time employment (5.3 per cent), as depicted in figure 4.2. According to Rananga & Gumbo (2015:231), monthly income is a determinant to the willingness to pay water bills.

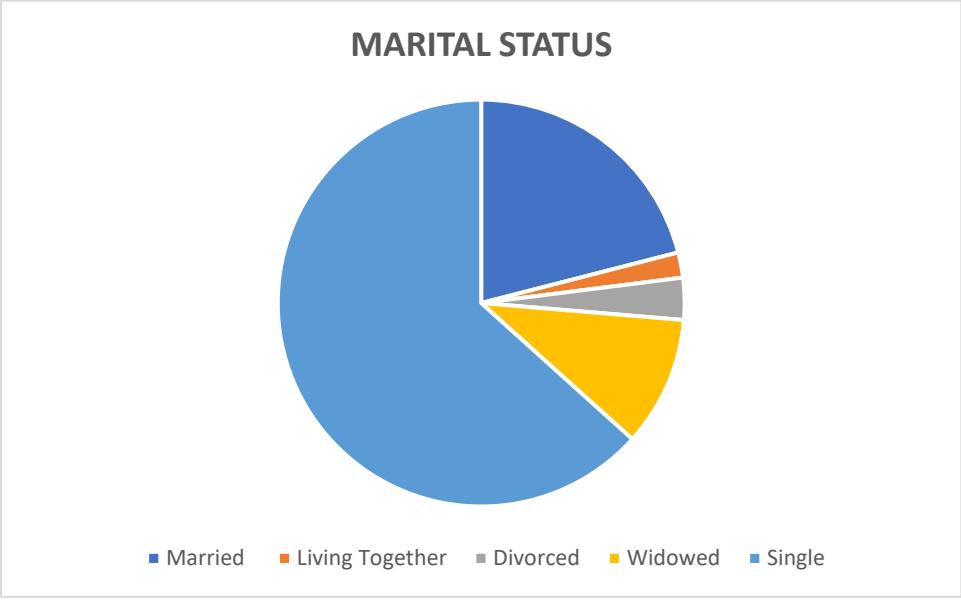

Figure 4.6 Marital Status of Respondents

Table 4.8 Marital Status

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Married	63	21.0	21.0	21.0
	Living together	6	2.0	2.0	23.0
	Divorced/separated	10	3.3	3.3	26.3
	Widowed	31	10.3	10.3	36.7
	Single	190	63.3	63.3	100.0
	Total	300	100.0	100.0	

The majority of respondents (63.3 per cent) were single, followed by married people (21 per cent), widowed people (10.3 per cent), divorced people (3.3 per cent), and people living together (2 per cent). Marital status creates specific financial, healthcare, tax, and other shared opportunities and obligations. A change in one marital status can affect one's life (and the lives of their family members).thus, it was important to investigate the marital status of the respondents of this study.

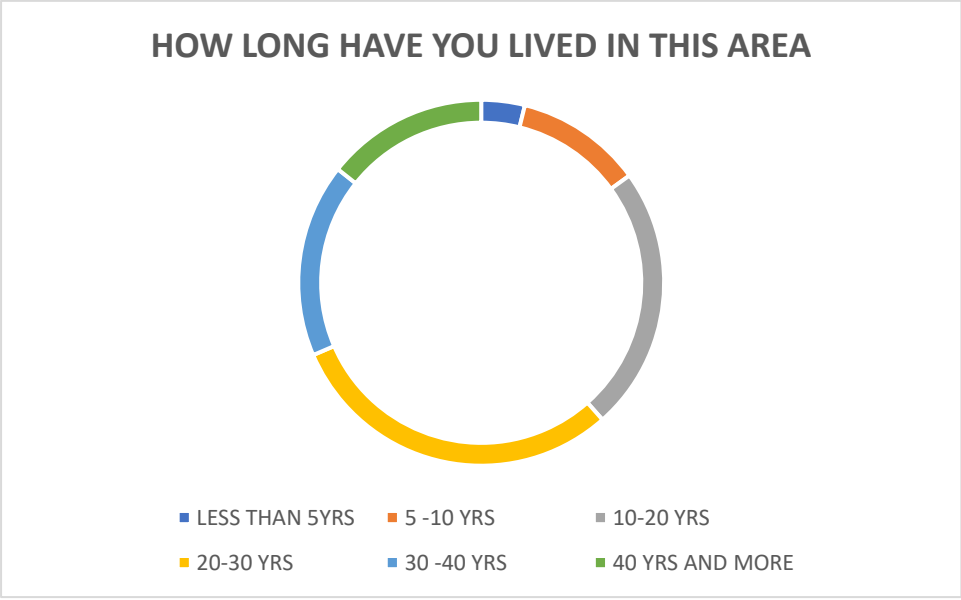

Figure 4.7 Lived in the Area

Table 4.9. How Long Have You Lived in this Area

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	<5 years	11	3.8	3.8	3.8
	5 - <10 years	32	11.2	11.2	15.0
	10 - <20 years	67	23.4	23.4	38.5
	20 - <30 years	86	30.1	30.1	68.5
	30 - <40 years	49	17.1	17.1	85.7
	40+ years	41	14.3	14.3	100.0
	Total	286	100.0	100.0	

The majority of the respondents (63.3 per cent) were single, followed by those married (21 per cent), widowed (10.3 per cent), and divorced (3.3 per cent), as depicted in figure 4.3. The majority of respondents (30.1 per cent) lived in the area for 20 to 30 years, followed by 10 years to less than 20 years (23.4 per cent), 30 years to less than 40 years (17.1 per cent), 40 years or more (14.3 per cent), 5 years to less than 10 years (11.2 per cent), and less than 5 years (3.8%), respectively. It was important to investigate the time lived in the area so that the researcher can rest assured that the respondents were providing water service delivery lived experiences.

4.4.2 Ranking of Overall Perceptions, Expectations, and Service Quality Gaps

To measure service quality levels, this study used the five dimensions of SERVQUAL, which is composed of 23 features, to measure customer's expectations and the municipality's actual perception of the performance of a water utility based on the table below.

DIMENSION	DESCRIPTION	INDICATOR	Findings
1. Tangibles (physical environment)	The appearance of physical facilities, equipment, personnel, and communication materials.	-Municipality has up-to-date and old equipment. -Having visibly appealing facilities -Having employees that are well dressed and appear neat -Having water pipes that are well maintained	Gap exists between what they perceive and what is expected.
2. Reliability	Ability to perform the service dependably and accurately.	Living up to the promises made *Showing sincere interest in solving customer's problems. *Providing water at the promised time. *Ensuring billing accuracy. *Ensuring few water interruptions.	Gap exists between what they perceive and expect.
3. Responsiveness	Willingness to help customers and provide prompt service.	*Customers given individual attention. *Identifying customer's needs. *Having customers' interests at heart. *Prompt handling of complaints.	Gap exists between what they perceive and expect.

4. Assurance	Knowledge and courtesy of employees and their ability to convey trust and confidence.	*Customers trusting employees. *Customers considering water to be safe. *Employees being polite. *Employees having the knowledge to address customer's questions.	Gap exists between what they perceive and expect.
5. Empathy	Caring, individualised attention provided to the customer.	*Timely information on likely water disconnections. *Adequate time given for water bill clearance. *Length of queues while clearing water bills. *Willingness of employees to help.	Gap exists between what they perceive and expect.

4.5 Research Objective one: To determine communities' expectations of water service quality in the uMgungundlovu district municipality.

Twenty-three questions were formulated to address this research objective. The respondents' views on the expectations of water service quality are presented below.

4.5.1Tangible (Physical Environment)

4.5.1.1. uMgungundlovu district municipality will have modern/up to date machinery.

Table 4.10. EX_TAN1 The Water Equipment and Machinery Will Be Modern/Up to Date

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	2	.7	.7	.7
	Slightly agree	3	1.0	1.1	1.8

	Agree	106	37.1	37.2	38.9
	Strongly agree	174	60.8	61.1	100.0
	Total	285	99.7	100.0	
Missing	System	1	.3		
Total		286	100.0		

Tangibles included all those existing physical assets in the physical environment of the municipality. Moletsane, de Klerk and Bevan-Die (2014:283) describe tangibility as, “the appearance of physical facilities, equipment, personnel, and communication materials”. Table 4.10 indicates the expectations of the clients in as far as the existing physical environment of the uMgungundlovu municipality based on the statement probing the expectations of the respondents.

The 98.9 per cent of the respondents reported that they expect the water equipment and machinery to be modern and up to date to provide quality water services to the community (agree + strongly+ slightly agree), while 0.7 per cent of respondents strongly disagree that they expect the water equipment and machinery to be modern and up to date to provide quality water services to the community. This finding supports the study by Mpinganjira (2015:77-79) which found that customers expect equipment and machinery to be modern and up to date in order to provide expected quality standards.

The results shows that there is significant agreement that residents of the area (respondents) expect water equipment and machinery to modern/up to date. As depicted in table A.1 and A.2 in the Appendix, (Mean=5.57, SD = .638) p is less than .0005; this tells us that the community expects water equipment and machinery to be modern/up to date.

4.5.1.2. The physical facilities will be visually appealing/well maintained

Table4.11 EX_TAN2 The Physical Facilities Will Be Visually Appealing / Well Maintained

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	1	.3	.3	.3
	Agree	130	45.5	45.5	45.8
	Strongly agree	155	54.2	54.2	100.0
	Total	286	100.0	100.0	

This study aimed to ascertain the expectations of the respondents on the physical facilities of the uMgungundlovu district municipality. There were 45.5 per cent (agree) and 54.2 per cent (strongly agree) of the respondents who reported that they expect the physical facilities to be visually appealing/well maintained; while 0.3 per cent of respondents strongly disagree that they expect the physical facilities to be visually appealing/well maintained. These results show that there is significant agreement that residents of the area (respondents) expect the physical facilities to be visually appealing/well maintained. As depicted in table A.3 and A.4 in the Appendix (Mean=5.53, SD = .566), p is less than .0005; this tells us that the community expects the physical facilities to be visually appealing/well maintained. This finding is aligned with the study of Chingang and Lukong (2010) and LŐKE, KOVÁCSa, and BACSI (2018:136) which had similar findings of expectations in as far as facilities being well maintained in order to produce expected quality.

4.5.1.3. The technology used in the office will be modern.

Table 4.12 EX_TAN3 The Technology Used in the Office Will Be Modern

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	1	.3	.3	.3
	Slightly agree	2	.7	.7	1.0
	Agree	116	40.6	40.6	41.6
	Strongly agree	167	58.4	58.4	100.0
	Total	286	100.0	100.0	

This study aimed to ascertain the expectations of the respondents on the technology used in the office in the uMgungundlovu district municipality. There were 58.4 per cent (strongly agree), 40.6 per cent (agree), and 0.7 per cent (slightly agree) of the respondents who reported that they expected that the technology used in the office will be modern; while 0.3 per cent of respondents strongly disagreed that they expected the technology used in the office to be modern. These results shows that there is significant agreement that residents of the area (respondents) expect the technology used in the office to be modern. As depicted in table A.5 and A.6 in the Appendix, (Mean=5.56, SD = .575) p is less than .0005; this tells us that the community expects the technology used in the office to be modern. This is aligned with the study conducted by Almomani (2018:35-37) which found that customers expect the technology used in the office to be modern. The Water Service Development Plan (WSDP) 2017 report stipulates that available technologies were being investigated to harness existing infrastructure in order to achieve the most economical platforms to achieve WSDP aims.

4.5.1. 4. The employees will be neatly dressed in uniform.

Table 4.13 EX_TAN4 The Employees Will Be Neatly Dressed in Uniform

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	1	.3	.3	.3
	Slightly agree	2	.7	.7	1.0
	Agree	116	40.6	40.6	41.6
	Strongly agree	167	58.4	58.4	100.0
	Total	286	100.0	100.0	

In as far as employee appearance, 99.7 per cent of the respondents agreed that the employees should be well presented when dealing with clients and be neatly dressed in uniform while 0.3 per cent of respondents strongly disagree that they expect the employees will be neatly dressed in uniform. These results show that there is significant agreement that residents of the area (respondents) expect the employees to be neatly dressed in uniform. As depicted in table A.7 and A.8 in the Appendix, (Mean=5.56, SD = .575) p is less than .0005; this tells us that the community expects the employees to be neatly dressed in uniform. This finding supports the findings of the study conducted by Mpinganjira (2015:77) and Almomani (2018:35-37) which found that customers expect employees to be neatly dressed.

4.5.1.5. Materials associated with the water services (pamphlets or statements) will be visually appealing.

Table 4.14 EX_TAN5 Materials Associated With the Water Services (Pamphlets or Statements) Will Be Visually Appealing

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	1	.3	.3	.3
	Slightly agree	3	1.0	1.0	1.4
	Agree	110	38.5	38.5	39.9
	Strongly agree	172	60.1	60.1	100.0
	Total	286	100.0	100.0	

In figure 4.14 respondents were probed to rate the statement on the materials associated with water services of the municipality. Sixty per cent of the respondents strongly agreed that they expect materials associated with the water services (pamphlets or statements) to be visually appealing, while 0.3 per cent of respondents strongly disagreed that they expect the materials associated with the water services (pamphlets or statements) to be visually appealing. These results show that there is significant agreement that residents of the area (respondents) expect the materials associated with the water services (pamphlets or statements) to be visually appealing. As depicted in table A.9 and A1.0 in the Appendix, (Mean=5.58, SD = .580) p is less than .0005; this tells us that community expects the materials associated with the water services (pamphlets or statements) to be visually appealing. Almomani (2018:35-37) found that customers will expect the materials associated with services to be visually appealing. Thus, the finding of this study supports Almomani (2018). Also, Batho Pele Principles compel the municipality to make sure that the information must reach all customers through newspapers and public notices to make sure that clients are well informed about the services provided

by public institutions like municipalities. Therefore, municipalities must ensure that there is good quality in the tools and devices used for communication at all times.

4.5.2 Reliability

The reliability dimension of the service quality refers to the ability of service organisations to perform the promised services dependably and accurately, and thus reflects the consistency and dependability of an organisation's performance (Rodriguez *et al.*, 2011; Ali *et al.*, 2019). The study aims to determine to what extent the respondents expect the water service from the uMgungundlovu district municipality to be reliable.

4.5.2.1. When the municipality promises to do something by a certain time, it will be done.

Table 4.15 EX_REL6 When The Municipality Promises to do Something by a Certain Time, It Will Be Done

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	1	.3	.3	.3
	Slightly agree	1	.3	.3	.7
	Agree	111	38.8	38.8	39.5
	Strongly agree	173	60.5	60.5	100.0
	Total	286	100.0	100.0	

In figure 4.15 respondents were probed to rate the statement 'when the municipality water service promises to do something by a certain time, it will be done'. Of the respondents, 99.6 per cent agreed that they expect the municipality to provide services as promised, while 0.3 per cent of respondents strongly disagreed that they expect when the municipality promises to do something by a certain time, it will be done. These results show that there is significant agreement that residents of the

area (respondents) have more expectations of the municipality to do something according to the promised time. As depicted in table A.11 and A.12 in the Appendix, (Mean=5.59, SD = .566) p is less than .0005; this tells us that the community expects when the municipality promises to do something by a certain time, it will be done. The finding is aligned with the studies of Almomani (2018:35) and Chingang and Lukong (2010) which concluded that customers expect the promised services to be done as promised.

4.5.2.2. When a customer has a water problem, the municipality will show sincere interest in solving it.

Table 4.16 EX_REL7 When a Customer Has a Water Problem, The Municipality Will Show Sincere Interest in Solving It.

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	1	.3	.3	.3
	Slightly agree	4	1.4	1.4	1.7
	Agree	94	32.9	32.9	34.6
	Strongly agree	187	65.4	65.4	100.0
	Total	286	100.0	100.0	

In figure 4.16 respondents were probed to rate the statement ‘when a customer has a water problem, the municipality water service will show sincere interest in solving it’. Of the respondents, 99.7 per cent reported (agreed) that they expect when a customer has a water problem, the municipality will show a sincere interest in solving it, while 0.3 per cent of respondents strongly disagreed that they expect when a customer has a water problem, the municipality will show sincere interest in solving it. These results show that there is significant agreement that residents of the area (respondents) expect when a customer has a water problem, the municipality will show sincere interest in solving it. As depicted in table A.13, A.14 in the Appendix, (Mean=5.60, Median= 6.00) p is less than .0005; this tells us that community expects

when a customer has a water problem, the municipality will show sincere interest in solving it. This finding is aligned with the study by Almomani (2018:35-37) who found similar results in that customers expect the service provider will solve their issues with great interest.

4.5.2.3. A service will be performed right the first time.

Table 4.17 EX_REL8 A Service Will Be Performed Right the First Time

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	1	.3	.3	.3
	Slightly agree	2	.7	.7	1.0
	Agree	106	37.1	37.1	38.1
	Strongly agree	177	61.9	61.9	100.0
	Total	286	100.0	100.0	

In figure 4.17 respondents were probed to rate the statement ‘a service will be performed right the first time’. Of the respondents, 99.7 per cent reported (agreed) that they expect a service will be performed right the first time, while 0.3 per cent of respondents strongly disagreed that they expect a service will be performed right the first time**.** These results show that there is significant agreement that residents of the area (respondents) expect a service will be performed right the first time. As depicted in table A.15 and A.16 in the Appendix, (Mean=5.64, Median = 6.00), p is less than .0005; this tells us that the community expects a service will be performed right the first time. This result corroborates the study of Almomani (2018:37) which found that customers expect the service provider to perform their service right the first time.

4.5.2.4. A service will be provided at the time the municipality promises to do so.

Table 4.18 EX_REL9 A Service Will Be Provided at the Time The Municipality Promises to do so

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	1	.3	.3	.3
	Slightly agree	2	.7	.7	1.0
	Agree	81	28.3	28.3	29.4
	Strongly agree	202	70.6	70.6	100.0
	Total	286	100.0	100.0	

In figure 4.18 respondents were probed to rate the statement ‘a service that will be provided at the time the municipality promise to do so’. Of the respondents, 99.6 per cent agreed that they expect services will be provided at the time the municipality promises to do so, while 0.3 per cent of respondents strongly disagreed that they expect services will be provided at the time promised. These results show that there is significant agreement that residents of the area (respondents) expect services will be provided at the time the municipality promises to do so. As depicted in table A.17 and A.18 in the Appendix, (Mean=5.69, Median = 6.00) p is less than .0005; this tells us that the community expects services will be provided at the time the municipality promises to do so. This result corroborates the study by Almomani (2018:36-37) and Ali, Ali, and Ahmad (2019).

4.5.2.5. The records will be error-free.

Table 4.19 EX_REL10 The Records Will Be Error-Free

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	1	.3	.4	.4
	Slightly agree	2	.7	.7	1.1
	Agree	93	32.5	32.6	33.7
	Strongly agree	189	66.1	66.3	100.0
	Total	285	99.7	100.0	
Missing	System	1	.3		
Total		286	100.0		

In figure 4.19 respondents were probed to rate the statement 'the records of the uMgungundlovu district municipality water service will be error-free'. Of the respondents, 99.3 per cent agreed that they expect the records to be error-free while 0.3 per cent of respondents strongly disagreed that they expect the records to be error-free. These results show that there is significant agreement that residents of the area (respondents) expect the records to be error-free. As depicted in table A.19 and A.20 in the Appendix, (Mean=5.64, Median = 6.00) p is less than .0005; this tells us that the community expects the records to be error-free. Almomani (2018) also agrees that customers expect error free service as they are promised.

4.5.3 Responsiveness

4.5.3.1. Customers will be informed as to exactly when services will be carried out.

Table 4.20 EX_RES11 Customers Will Be Informed as to Exactly When Services Will Be Carried Out

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	.3	.4	.4
	Slightly agree	1	.3	.4	.7
	Agree	94	32.9	33.0	33.7
	Strongly agree	189	66.1	66.3	100.0
	Total	285	99.7	100.0	
Missing	System	1	.3		
Total		286	100.0		

In figure 4.20 respondents were probed to rate the statement ‘customers will be informed as to exactly when uMgungundlovu district municipality water services will be carried out’. Of the respondents, 99.3 per cent reported that they expect customers will be informed as to exactly when services will be carried, out while 0.3 per cent of respondents strongly disagreed that they expect customers will be informed as to exactly when services will be carried out. These results show that there is significant agreement that residents of the area (respondents) expect customers will be informed as to exactly when services will be carried out. As depicted in table A.21 and A.22 in the Appendix, (Mean=5.65, Median = 6.00) p is less than .0005; this tells us that the community expects customers will be informed as to exactly when services will be carried out. This result is aligned with the study conducted by Almomani (2018:35-37) which found that customers will expect to be informed as to exactly when services will be carried out. Almomani (2018:38) agrees that responsiveness is the willingness to help customers and to provide prompt service.

4.5.3.2. The Service to customers will be prompt.

Table 4.21 EX_RES12 The Service to Customers Will Be Prompt

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	1	.3	.4	.4
	Slightly agree	1	.3	.4	.7
	Agree	106	37.1	37.2	37.9
	Strongly agree	177	61.9	62.1	100.0
	Total	285	99.7	100.0	
Missing	System	1	.3		
Total		286	100.0		

In figure 4.21 respondents were probed to rate the statement 'the service to customers will be prompt'. Of the respondents 99.3 per cent agreed that they expect the service to customers to be prompt, while 0.3 per cent of respondents strongly disagreed that they expect the service to customers to be prompt. These results show that there is significant agreement that residents of the area (respondents) expect the service to customers to be prompt. As depicted in table A.23 and A.24 in the Appendix, (Mean=5.60, Median = 6.00) p is less than .0005; this tells us that the community expects the Service to customers to be prompt. The results are in line with previous research by Ali *et al.* (2019:143) which says that students (customers) expect the service of public institutions to be prompt.

4.5.3.3. The employees will always be willing to help customers.

Table 4.22 EX_RES13 The Employees Will Always be Willing to Help Customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	.3	.4	.4
	Slightly agree	1	.3	.4	.7
	Agree	100	35.0	35.1	35.8
	Strongly agree	183	64.0	64.2	100.0
	Total	285	99.7	100.0	
Missing	System	1	.3		
Total		286	100.0		

In figure 4.22 respondents were probed to rate the statement on the employees will always be willing to help customers. A sum of 99.3 per cent of the respondents agreed that they expect the employees will always be willing to help customers, while 0.3 per cent of respondents strongly disagree that they expect the employees will always be willing to help customers. The result shows that there is significant agreement that residents of the area (respondents) expect the employees will always be willing to help customers. As depicted in table A.25 and A.26 in the Appendix, (Mean=5.62, Median = 6.00) p is less than .0005; this tells us that community expect the employees will always be willing to help customers. These results are in line with previous studies by Ali *et al.* (2019); Akhlaghi, Amini, and Akhlaghi, (2012) that say that customers expect employees to be willing to help customers.

4.5.3.4. The employees will never be too busy to respond to customers' requests.

Table 4. 23 EX_RES14 The Employees Will Never Be Too Busy to Respond to Customers' Requests

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	1	.3	.4	.4
	Slightly agree	1	.3	.4	.7
	Agree	98	34.3	34.4	35.1
	Strongly agree	185	64.7	64.9	100.0
	Total	285	99.7	100.0	
Missing	System	1	.3		
Total		286	100.0		

In figure 4.23 respondents were probed to rate the statement 'the employees of uMgungundlovu district municipality water services will never be too busy to respond to customers' requests. A sum of 99.3 per cent of the respondents agreed that they expect employees will never be too busy to respond to customers' requests, while 0.3 per cent of respondents strongly disagreed that they expect the employees will never be too busy to respond to customers' requests. These results show that there is significant agreement that residents of the area (respondents) expect the employees will never be too busy to respond to customers' requests. As depicted in table A.27, A.28 in the Appendix, (Mean=5.63, Median = 6.00) p is less than .0005; this tells us that community expect the employees will never be too busy to respond to customers' requests. The results are in line with the study of Ali *et al.* (2019:142-143) which says customers expect employees to not be busy when it comes to responding to customers' requests.

4.5.4 Assurance

The assurance dimension of service quality addresses the competence of the organisation, the courtesy it extends to its customers and the security of its operations (Bateson and Hoffman, 2011; Ali *et al.*, 2019).

4.5.4.1. The behaviour of the employees will instil confidence in customers.

Table 4.24 EX_ASS15 The Behaviour of the Employees Will Instil Confidence in Customers (Community)

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	1	.3	.4	.4
	Agree	115	40.2	40.6	41.0
	Strongly agree	167	58.4	59.0	100.0
	Total	283	99.0	100.0	
Missing	System	3	1.0		
Total		286	100.0		

In figure 4.24 respondents were probed to rate the statement ‘the behaviour of the employees will instil confidence in customers (community)’. A sum 98.6 per cent of the respondents agreed that they expect the behaviour of the employees to instil confidence in customers, while 0.3 per cent of respondents strongly disagreed that they expect the behaviour of the employees to instil confidence in customers. These results show that there is significant agreement that residents of the area (respondents) expect the behaviour of the employees to instil confidence in customers. As depicted in table A.29 and A.30 in the Appendix, (Mean=5.58, Median = 6.00) p is less than .0005; this tells us that community expect the behaviour of the

employees to instil confidence in customers. These results are in line with the study of Martinović Pavlić, and Šuman Tolić (2017:601) which says customers expect the behaviour of the employees of public service to instil confidence in customers. Batho pele principles stipulate that citizens should be treated with courtesy and consideration. Citizens should be given full, accurate information about the public services they are entitled to receive.

4.5.4.2. The community (customers) will feel safe/secure in their transaction with the employees.

Table 4.25 EX_ASS16 The Community (customers) Will Feel Safe/Secure in Their Transaction With the Employees

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	1	.3	.4	.4
	Agree	127	44.4	44.9	45.2
	Strongly agree	155	54.2	54.8	100.0
	Total	283	99.0	100.0	
Missing	System	3	1.0		
Total		286	100.0		

In figure 4.25 respondents were probed to rate the statement ‘the community (customers) will feel safe/secure in their transaction with the employees’. A sum of 98.6 per cent of the respondents agreed that they expect the community (customers) to feel safe/secure in their transaction with the employees, while 0.3 per cent of respondents strongly disagreed that they expect the community (customers) to feel safe/secure in their transaction with the employees. These results show that there is significant agreement that residents of the area (respondents) expect the community (customers) to feel safe/secure in their transaction with the employees. As depicted

in table A.31 and A.32 in the Appendix, (Mean=5.53, Median = 6.00) p is less than .0005; this tells us that the community expects the community (customers) to feel safe/secure in their transaction with the employees. These results are aligned with the study by Martinović *et al.* (2017:601-603) which says customers expect to feel safe/secure in their transaction with the employees of public service.

4.5.4.3 Employees will be polite to customers

Table 4. 26 EX_ASS17 Employees Will Be Polite to Customers

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	1	.3	.4	.4
	Slightly agree	1	.3	.4	.7
	Agree	113	39.5	40.1	40.8
	Strongly agree	167	58.4	59.2	100.0
	Total	282	98.6	100.0	
Missing	System	4	1.4		
Total		286	100.0		

In figure 4.26 respondents were probed to rate the statement ‘employees will be polite to customers’. A sum of 98.2 per cent of the respondents agreed that they expect employees to be polite to customers, while 0.3 per cent of respondents strongly disagreed that they expect employees to be polite to customers. The result shows that there is significant agreement that residents of the area (respondents) expect employees to be polite to customers. As depicted in table A.33 and A.34 in the Appendix, (Mean=5.57, Median = 6.00) p is less than .0005; this tells us that the community expects employees to be polite to customers. The results are in line with

a study by Martinović *et al.* (2017) which says customers expect employees to be polite.

4.5.4.4. Employees will have the knowledge to answer customer/community water-related queries

Table 4. 27 EX_ASS18 Employees Will Have the Knowledge to Answer Customer/Community Water-Related Queries

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	1	.3	.4	.4
	Agree	115	40.2	40.6	41.0
	Strongly agree	167	58.4	59.0	100.0
	Total	283	99.0	100.0	
Missing	System	3	1.0		
Total		286	100.0		

In figure 4.27 respondents were probed to rate the statement ‘employees will have the knowledge to answer customer/community water-related queries’. A sum of 98.6 per cent of the respondents agreed that they expect employees to have the knowledge to answer customer/community water-related queries, while 0.3 per cent of respondents strongly disagreed that they expect employees to have the knowledge to answer customer/community water-related queries. These results show that there is significant agreement that residents of the area (respondents) expect employees to have the knowledge to answer customer/community water-related queries. As depicted in table A.35 and A.36 in the Appendix, (Mean=5.58, Median = 6.00) p is less than .0005; this tells us that the community expects employees to have the knowledge to answer customer/community water-related queries. The results of this study support the outcome of the study by Martinović *et al.* (2017:600-603) that says customers expect employees to have the necessary knowledge to answer public service-related queries.

4.5.5 Empathy

According to Choi, Ann, Lee, and Park (2018), the essence of empathy is conveying, through personalised or customised service, that the customers are unique and special and that their needs are understood.

4.5.5.1. Customers will receive individual attention.

Table 4.28 EX_EMP19 Customers Will Receive Individual Attention

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	1	.3	.4	.4
	Agree	108	37.8	38.2	38.5
	Strongly agree	174	60.8	61.5	100.0
	Total	283	99.0	100.0	
Missing	System	3	1.0		
Total		286	100.0		

In figure 4.28 respondents were probed to rate the statement ‘customers will receive individual attention’. A sum of 98.6 per cent of the respondents agreed that they expect customers will receive individual attention, while 0.3 per cent of respondents strongly disagreed that they expect customers will receive individual attention. These results show that there is significant agreement that residents of the area (respondents) expect customers will receive individual attention. As depicted in table A.37 and A.38 in the Appendix, (Mean=5.60, Median = 6.00) p is less than .0005; this tells us that community expect customers will receive individual attention. The

results are in line with Ali *et al.* (2019) and Akhlaghi *et al.* (2012) who say customers expect to receive individual attention.

4.5.5.2. Operating hours will be convenient for all customers in the community.

Table 4. 29 EX_EMP20 Operating Hours Will Be Convenient for All Customers in the Community

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	1	.3	.4	.4
	Slightly agree	2	.7	.7	1.1
	Agree	106	37.1	37.6	38.7
	Strongly agree	173	60.5	61.3	100.0
	Total	282	98.6	100.0	
Missing	System	4	1.4		
Total		286	100.0		

In figure 4.29 respondents were probed to rate the statement ‘operating hours will be convenient for all customers in the community’. A sum of 97.6 per cent of the respondents agreed that they expect operating hours to be convenient to all customers in the community, while 0.3 per cent of respondents strongly disagreed that they expect operating hours to be convenient to all customers in the community. These results show that there is significant agreement that residents of the area (respondents) expect operating hours to be convenient to all customers in the community. As depicted in table A.39 and A.40 in the Appendix, (Mean=5.59, Median = 6.00) p is less than .0005; this tells us that the community expects operating hours to be convenient to all customers in the community. The results are

in line with the studies of Ali *et al.* (2019) and Akhlaghi *et al.* (2012) which say customers expect operating hours to be convenient.

4.5.5.3. The municipality will have the community's best interest at heart

Table 4. 30 EX_EMP21 The Municipality Will Have the Community's Best Interest at Heart

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	1	.3	.4	.4
	Slightly agree	1	.3	.4	.7
	Agree	100	35.0	35.5	36.2
	Strongly agree	180	62.9	63.8	100.0
	Total	282	98.6	100.0	
Missing	System	4	1.4		
Total		286	100.0		

In figure 4.30 respondents were probed to rate the statement 'the municipality will have the community's best interest at heart'. A sum of 98.2 per cent of the respondents agreed that they expect the municipality to have the community's best interest at heart, while 0.3 per cent of respondents strongly disagreed that the municipality will have the community's best interest at heart. These results show that there is significant agreement that residents of the area (respondents) expect the municipality to have the community's best interest at heart. As depicted in table A.41 and A.42 in the Appendix, (Mean=5.62, Median = 6.00) p is less than .0005; this tells us that the community expects employees to have the community's best interest at heart. These results are in line with previous studies by Ali *et al.* (2019) and Akhlaghi

et al. (2012) which say customers expect public service employees to have customers best interest at heart.

4.5.5.4 The Municipality will tailor the water service to meet the specific needs of the community

Table 4. 31 EX_EMP22 The Municipality Will Tailor the Water Service to Meet the Specific Needs of the Community

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	1	.3	.4	.4
	Agree	102	35.7	36.2	36.5
	Strongly agree	179	62.6	63.5	100.0
	Total	282	98.6	100.0	
Missing	System	4	1.4		
Total		286	100.0		

In figure 4.31 respondents were probed to rate the statement 'the municipality will tailor the water service to meet the specific needs of the community'. A sum of 98.3 per cent of the respondents agreed that they expect the municipality to tailor the water service to meet the specific needs of the community, while 0.3 per cent of respondents strongly disagreed that they will tailor the water service to meet the specific needs of the community. These results show that there is significant agreement that residents of the area (respondents) expect the municipality to tailor the water service to meet the specific needs of the community. As depicted in table A.43 and A.44 in the Appendix, (Mean=5.62, Median = 6.00) p is less than .0005; this tells us that the community expects that the municipality will tailor the water service to meet the specific needs of the community. The findings are in line with Ali *et al.* (2019) and Akhlaghi *et al.* (2012) that says customers expect the service to be tailored to meet customers' specific needs.

4.5.5.5 There will be specific employees to give customers personal attention

Table 4. 32 EX_EMP23 There Will Be Specific Employees to Give Customers Personal Attention

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	4	1.4	1.4	1.4
	Slightly agree	4	1.4	1.4	2.8
	Agree	89	31.1	31.6	34.4
	Strongly agree	185	64.7	65.6	100.0
	Total	282	98.6	100.0	
Missing	System	4	1.4		
Total		286	100.0		

In figure 4.32 respondents were probed to rate the statement ‘there will be specific employees to give customers personal attention’. A sum of 97.2 per cent of the respondents agreed that they expect there to be specific employees to give customers personal attention, while 1.4 per cent of respondents strongly disagreed that there will be specific employees to give customers personal attention. These results show that there is significant agreement that residents of the area (respondents) expect there to be specific employees to give customers personal attention. As depicted in table A.45 and A.46 in the Appendix, (Mean=5.59, Median = 6.00) p is less than .0005.; this tells us that the community expects there to be specific employees to give customers personal attention. The results are in line with Ali *et al.* (2019) and Akhlaghi *et al.* (2012).

The results of this study reveal that expectation dimensions, namely tangibles, reliability, responsiveness, assurance, and empathy, show significant agreement. This shows us that the community expect the water service quality to be tangible and reliable; furthermore, the community expect the water service from the municipality to be responsive and to show empathy and assurance. The community expect the water equipment to be up to date, the physical facilities to be visually appealing/well maintained, the technology used in the office to be modern, the employees to be neatly dressed in uniform, and materials associated with the water services (pamphlets or statements) to be visually appealing. Moreover, the community expects when the municipality promises to do something by a certain time that they do it at that time, when a customer has a water problem for the municipality to show sincere interest in solving it, services to be performed right the first time, community to be informed as to exactly when services will be carried out, the employees to never be too busy to respond to customers' requests, the behaviour of the employees to instil confidence in the community, employees to have the knowledge to answer community water-related queries, the municipality to tailor the water service to meet the specific needs of the community, and to ensure that operating hours are convenient to all customers in the community. In other words, the respondents (community) have high expectations for the water services provided. The findings support the study conducted by Moletsane *et al*. (2014:286), which concluded that the community in South Africa has high expectation of municipality service delivery. Furthermore, this finding is aligned with the study of Sershen, Rodda, Stenstrom, Schmidt, Dent, Bux, Hanke, Buckley, and Fennemore (2016) which explored the public expectations of water service. Thompson, Masiya, and Tsolekile De Wet (2013:v) said that many of poor people in urban areas hold the expectation of an improved status of their objective living conditions, including water services.

4.6 Research Objective two: To ascertain communities' experiences of water service quality in the uMgungundlovu district municipality.

4.6.1Tangibles

4.6.1.1The water equipment and machinery are modern/up to date.

Table 4. 33 PER_TAN1 The Water Equipment and Machinery Are Modern/Up to Date

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	84	29.4	29.4	29.4
	Disagree	64	22.4	22.4	51.7
	Slightly disagree	18	6.3	6.3	58.0
	Slightly agree	59	20.6	20.6	78.7
	Agree	46	16.1	16.1	94.8
	Strongly agree	15	5.2	5.2	100.0
	Total	286	100.0	100.0	

In figure 4.33 respondents were probed to rate the statement ‘the water equipment and machinery are modern/up to date’. A sum of 41.9 per cent of the respondents agreed that they perceive that the water equipment and machinery are modern/up to date, while 58.1 per cent of respondents disagreed that the water equipment and machinery are modern/up to date. These results show that there is a significant disagreement that residents of the area (respondents) believe water equipment and machinery is modern/up to date; (Mean=2.87, Median = 2.00) p is less than .0005. This tells us that the community believe the water equipment and machinery are not

modern/up to. The result is in line with a study by Salleh (2016:5-8) which says customers have bad perceptions of equipment and machinery.

4.6.1.2. The physical facilities are visually appealing/well maintained.

Table 4. 34 PER_TAN2 The Physical Facilities Are Visually Appealing/Well Maintained

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	63	22.0	22.0	22.0
	Disagree	60	21.0	21.0	43.0
	Slightly disagree	39	13.6	13.6	56.6
	Slightly agree	60	21.0	21.0	77.6
	Agree	43	15.0	15.0	92.7
	Strongly agree	21	7.3	7.3	100.0
	Total	286	100.0	100.0	

In figure 4.34 respondents were probed to rate the statement ‘the physical facilities are visually appealing/well maintained’. A sum of 43.3 per cent of the respondents agreed that they perceive the physical facilities to be visually appealing/well maintained, while 56.6 per cent of respondents disagreed and claim that the physical facilities are not visually appealing/well maintained. These results show that there is a significant disagreement that residents of the area (respondents) believe the physical facilities are visually appealing/well maintained; (Mean=3.08, Median = 3.00) p is less than .0005. This tells us that community believe the physical facilities are not visually appealing/well maintained. This result is in line with a study by

Almomani (2018:38-39) which found that customers were not satisfied with the physical appearance of facilities.

"Not well maintained, if you drive around our areas you will see burst pipes that have been like that for months and if it not years and they are failing to fix water pumps on time" R8.

Most ward committees interviewed support the views of the community, saying that the uMgungundlovu district municipality's physical facilities and equipment are not well maintained.

4.6.1.3. The technology used in the office is modern.

Table 4. 35 PER_TAN3 The Technology Used in the Office is Modern

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	51	17.8	17.8	17.8
	Disagree	69	24.1	24.1	42.0
	Slightly disagree	36	12.6	12.6	54.5
	Slightly agree	43	15.0	15.0	69.6
	Agree	57	19.9	19.9	89.5
	Strongly agree	30	10.5	10.5	100.0
	Total	286	100.0	100.0	

In figure 4.35 respondents were probed to rate the statement 'the technology used in the office is modern'. A sum of 45.4 per cent of the respondents agreed that they perceive the technology used in the office to be modern, while 54.5 per cent of respondents disagreed that the technology used in the office is modern. These

results show that there is neither significant agreement nor significant disagreement that residents of the area (respondents) believe the technology used in the office is modern; (Mean=3.27, Median = 3.00) p is equal to .057. This tells us that the community was not sure whether the technology used in the office is modern.

4.6.1.4. The employees are neatly dressed in uniform.

Table 4. 36 PER_TAN4 The Employees Are Neatly Dressed in Uniform

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	60	21.0	21.0	21.0
	Disagree	51	17.8	17.8	38.8
	Slightly disagree	30	10.5	10.5	49.3
	Slightly agree	49	17.1	17.1	66.4
	Agree	70	24.5	24.5	90.9
	Strongly agree	26	9.1	9.1	100.0
	Total	286	100.0	100.0	

In figure 4.36 respondents were probed to rate the statement ‘the employees are neatly dressed in uniform’. A sum of 50.7 per cent of the respondents agreed that the employees are neatly dressed in uniform, while 49.3 per cent of respondents disagreed that the employees are neatly dressed in uniform. The result shows that there is neither significant agreement nor significant disagreement that residents of the area (respondents) believe the employees are neatly dressed in uniform; (Mean=3.34, Median = 4.00) p is equal to .057. This tells us that community was not sure whether the employees are neatly dressed in uniform.

4.6.1.5. Materials associated with the water services (pamphlets or statements) are visually appealing.

Table 4. 37 PER_TAN5 Materials Associated With the Water Services (Pamphlets or Statements) Are Visually Appealing

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	68	23.8	23.8	23.8
	Disagree	62	21.7	21.7	45.5
	Slightly disagree	30	10.5	10.5	55.9
	Slightly agree	66	23.1	23.1	79.0
	Agree	47	16.4	16.4	95.5
	Strongly agree	13	4.5	4.5	100.0
	Total	286	100.0	100.0	

In figure 4.37 respondents were probed to rate the statement ‘materials associated with the water services (pamphlets or statements) are visually appealing’. A sum of 44 per cent of the respondents agreed that materials associated with the water services (pamphlets or statements) are visually appealing, while 56 per cent of respondents disagreed that materials associated with the water services (pamphlets or statements) are visually appealing. These results show that there is a significant disagreement that residents of the area (respondents) believe materials associated with the water services (pamphlets or statements) are visually appealing;

(Mean=3.00, Median = 3.00) p is less than .0005. This tells us that community believe the Materials associated with the water services (pamphlets or statements) are not visually appealing. This result is in line with a study by Awortwe (2018:62) which finds that the materials associated with the water services of the Ghana water company were not visually appealing.

4.6.2 Reliability

4.6.2.1. When they promise to do something by a certain time, it is done

Table 4. 38 PER_REL6 When the Municipality Promise to do Something by a Certain Time, it is Done

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	108	37.8	37.8	37.8
	Disagree	87	30.4	30.4	68.2
	Slightly disagree	28	9.8	9.8	78.0
	Slightly agree	33	11.5	11.5	89.5
	Agree	19	6.6	6.6	96.2
	Strongly agree	11	3.8	3.8	100.0
	Total	286	100.0	100.0	

In figure 4.38 respondents were probed to rate the statement ‘when the municipality promise to do something by a certain time, it is done’. A sum of 21.9 per cent of the respondents agreed that when the municipality promises to do something by a certain time, it is done, while 78 per cent of respondents disagreed that when they promise to do something by a certain time, it is done. These results show that there

is a significant disagreement that residents of the area (respondents) believe that when the municipality promises to do something by a certain time, it is done; (Mean=2.30, Median = 2.00), p is less than .0005. This tells us that community does not believe that when the municipality promises to do something by a certain time, it is done. This result is in line with the study of Martinović *et al.* (2017:603-606) which says customers did not agree with the public service being able to fulfil their promises timely.

4.6.2.2. When a customer has a water problem, the municipality shows sincere interest in solving it.

Table 4. 39 PER_REL7 When a Customer Has a Water Problem, the Municipality Shows Sincere Interest in Solving it

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	81	28.3	28.3	28.3
	Disagree	66	23.1	23.1	51.4
	Slightly disagree	35	12.2	12.2	63.6
	Slightly agree	55	19.2	19.2	82.9
	Agree	42	14.7	14.7	97.6
	Strongly agree	7	2.4	2.4	100.0
	Total	286	100.0	100.0	

In figure 4.39 respondents were probed to rate the statement ‘when a customer has a water problem, the municipality shows sincere interest in solving it’. A sum of 36.3 per cent of the respondents agreed that when a customer has a water problem, the municipality shows sincere interest in solving it, while 63.6 per cent of respondents disagreed that when a customer has a water problem, the municipality shows sincere interest in solving it. These results show that there is a significant

disagreement that residents of the area (respondents) believe when a customer has a water problem, the municipality show sincere interest in solving it; (Mean=2.76, Median = 2.00) p is less than .0005. This tells us that the community does not believe that when a customer has a water problem, the municipality shows sincere interest in solving it. This result is in line with a study by Martinović *et al.* (2017: 603-606) which says that customer did not agree with the public service showing interest in solving customer problem.

4.6.2.3 Services are performed right the first time.

Table 4. 40 PER_REL8 A Service is Performed Right the First Time

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	65	22.7	22.7	22.7
	Disagree	78	27.3	27.3	50.0
	Slightly disagree	34	11.9	11.9	61.9
	Slightly agree	53	18.5	18.5	80.4
	Agree	42	14.7	14.7	95.1
	Strongly agree	14	4.9	4.9	100.0
	Total	286	100.0	100.0	

In figure 4.40 respondents were probed to rate the statement ‘a service is performed right the first time’. A sum of 38.1 per cent of the respondents agreed that a service is performed right the first time, while 61.9 per cent of respondents disagreed that a

service is performed right the first time. These results show that there is a significant disagreement that residents of the area (respondents) believe that a service is performed right the first time; (Mean=2.90, Median = 2.50) p is less than .0005. This tells us that the community does not believe a service is performed right the first time. This result supports the study by Martinović *et al.* (2017:603-606) which says customers do not agree that public services are being performed right the first time.

4.6.2.4 Services are provided at the time the municipality promises to do so.

Table 4.41 PER_REL9 A Service is Provided at the Time the Municipality Promises to Do So

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	94	32.9	32.9	32.9
	Disagree	91	31.8	31.8	64.7
	Slightly disagree	33	11.5	11.5	76.2
	Slightly agree	40	14.0	14.0	90.2
	Agree	20	7.0	7.0	97.2
	Strongly agree	8	2.8	2.8	100.0
	Total	286	100.0	100.0	

In figure 4.41 respondents were probed to rate the statement ‘a service is provided at the time the municipality promises to do so’. A sum of 23.8 per cent of the respondents agreed that a service is provided at the time the municipality promises to do so, while 76.2 per cent of respondents disagreed that a service is provided at the time they promise to do so. These results show that there is a significant disagreement that residents of the area (respondents) believe a service is provided

at the time the municipality promises to do so; (Mean=2.39, Median = 2.00) p is less than .0005. This tells us that the community does not believe a service is provided at the time the municipality promises to do so. This result supports the study by Martinović *et al.* (2017: 603-606) that claims customers do not believe public services are provided at the time they are promised.

4.6.2.5. The records are error-free.

Table 4.42 PER_REL10 The Records Are Error-Free

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	79	27.6	27.6	27.6
	Disagree	73	25.5	25.5	53.1
	Slightly disagree	35	12.2	12.2	65.4
	Slightly agree	60	21.0	21.0	86.4
	Agree	31	10.8	10.8	97.2
	Strongly agree	8	2.8	2.8	100.0
	Total	286	100.0	100.0	

In figure 4.42 respondents were probed to rate the statement ‘the records are error-free’. A sum of 34.6 per cent of the respondents agreed that the records are error-free, while 65.3 per cent of respondents disagreed that the records are error-free. These results show that there is a significant disagreement that residents of the area (respondents) believe the records are error-free; (Mean=2.70, Median = 2.00) p is less than .0005. This tells us that community does not believe the records are error-

free. This result supports the study by Martinović (2017:603-606) which claims customers do not believe the records of public services are error-free.

Table 4.43 Test Statistics[b]

	Three point five - PER_REL6 When the Municipality promises to do something by a certain time, it is done	Three point five - PER_REL7 When a customer has a water problem, the municipality shows sincere interest in solving it	Three point five - PER_REL8 A service is performed right the first time	Three point five - PER_REL9 A service is provided at the time the municipality promises to do so	Three point five - PER_REL10 The records are error-free
Z	-10.540[a]	-6.993[a]	-5.650[a]	-10.120[a]	-7.431[a]
Asymp. Sig. (2-tailed)	.000	.000	.000	.000	.000

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

4.6.3 RESPONSIVENESS

4.6.3.1. Customers are informed as to exactly when services will be carried out.

Table 4. 44 PER_RES11 Customers Are Informed as to Exactly When Services Will Be Carried Out

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	90	31.5	31.5	31.5
	Disagree	77	26.9	26.9	58.4
	Slightly disagree	35	12.2	12.2	70.6
	Slightly agree	46	16.1	16.1	86.7
	Agree	33	11.5	11.5	98.3
	Strongly agree	5	1.7	1.7	100.0
	Total	286	100.0	100.0	

In figure 4.44 respondents were probed to rate the statement ‘customers are informed as to exactly when services will be carried out’. A sum of 29.3 per cent of the respondents agreed customers are informed as to exactly when services will be carried out, while 70.6 per cent of respondents disagreed that customers are informed as to exactly when services will be carried out. The result shows that there is a significant disagreement that residents of the area (respondents) believe customers are informed as to exactly when services will be carried out; (Mean=2.54,

Median = 2.00) p is less than .0005. This tells us that the community does not believe customers are informed as to exactly when services will be carried out. This result supports the study by Martinović *et al.* (2017:603-606) which claims customers do not believe that the public services inform customers as to exactly when services will be carried out.

"Not adequately informed – we don't get involved even our councillors are not informed properly, water get cuts and open as an when the municipality feels" R5.

In the interview with the ward committees, most respondents claim that they are not adequately informed by the uMgungundlovu district municipality about water services.

4.6.3.2. The service to customers is prompt.

Table 4.45 PER_RES12 The Service to Customers is Prompt

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	70	24.5	24.5	24.5
	Disagree	84	29.4	29.4	53.8
	Slightly disagree	43	15.0	15.0	68.9
	Slightly agree	49	17.1	17.1	86.0
	Agree	33	11.5	11.5	97.6
	Strongly agree	7	2.4	2.4	100.0
	Total	286	100.0	100.0	

In figure 4.45 respondents were probed to rate the statement 'the service to customers is prompt'. A sum of 31 per cent of the respondents agreed that the service to customers is prompt, while 68.9 per cent of respondents disagreed that the service to customers is prompt. These results show that there is a significant

disagreement that residents of the area (respondents) believe the service to customers is prompt; (Mean=2.69, Median = 2.00) p is less than .0005. This tells us that community does not believe the service to customers is prompt. This result supports the study by Martinović *et al.* (2017: 603-606) which says the customers do not believe the public service to customers is prompt.

4.6.3.4. The employees are always willing to help customers.

Table 4. 46 PER_RES13 The Employees Are Always Willing to Help Customers

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	56	19.6	19.6	19.6
	Disagree	81	28.3	28.3	47.9
	Slightly disagree	33	11.5	11.5	59.4
	Slightly agree	65	22.7	22.7	82.2
	Agree	45	15.7	15.7	97.9
	Strongly agree	6	2.1	2.1	100.0
	Total	286	100.0	100.0	

In figure 4.46 respondents were probed to rate the statement ‘the employees are always willing to help customers’. A sum of 40.5 per cent of the respondents agreed that the employees are always willing to help customers, while 59.4 per cent of respondents disagreed that the employees are always willing to help customers. These results show that there is a significant disagreement that residents of the area (respondents) believe the employees are always willing to help customers;

(Mean=2.93, Median = 3.00) p is less than .0005. This tells us that community does not believe the employees are always willing to help customers. This result supports the study by Martinović *et al.* (2017: 603-606) that says customers do not believe the employees of public service are always willing to help.

4.6.3.5. The employees are never too busy to respond to customers' requests.

Table 4.47 PER_RES14 The Employees Are Never Too Busy to Respond to Customers' Requests

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	70	24.5	24.5	24.5
	Disagree	67	23.4	23.4	47.9
	Slightly disagree	27	9.4	9.4	57.3
	Slightly agree	67	23.4	23.4	80.8
	Agree	38	13.3	13.3	94.1
	Strongly agree	17	5.9	5.9	100.0
	Total	286	100.0	100.0	

In figure 4.47 respondents were probed to rate the statement 'the employees are never too busy to respond to customers' requests'. A sum of 42.6 per cent of the respondents agreed the employees are never too busy to respond to customers' requests, while 57.3 per cent of respondents disagreed that the employees are never too busy to respond to customers' requests. The result shows that there is a significant disagreement that residents of the area (respondents) believe the

employees are never too busy to respond to customers' requests; (Mean=2.95, Median = 3.00) p is less than .0005. This tells us that the community does not believe the employees are never too busy to respond to customers' requests. This result supports the study by Martinović *et al.* (2017:603-606) that says customers do not believe the employees of public service are never too busy to respond to customers' requests.

Table4. 48 Test Statistics[b]

	Three point five - PER_RES11 Customers are informed as to exactly when services will be carried out	Three point five - PER_RES12 The service to customers is prompt	Three point five - PER_RES13 The employees are always willing to help customers	Three point five - PER_RES14 The employees are never too busy to respond to customers' requests
Z	-8.961[a]	-7.987[a]	-5.827[a]	-5.042[a]
Asymp. Sig. (2-tailed)	.000	.000	.000	.000

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

4.6.4 ASSURANCE

4.6.4.1 The behaviour of the employees instils confidence in customers (community).

Table 4.49 PER_ASS15 The Behaviour of the Employees Instils Confidence in Customers (Community)

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	68	23.8	23.8	23.8
	Disagree	63	22.0	22.0	45.8
	Slightly disagree	37	12.9	12.9	58.7
	Slightly agree	69	24.1	24.1	82.9
	Agree	42	14.7	14.7	97.6
	Strongly agree	7	2.4	2.4	100.0
	Total	286	100.0	100.0	

In figure 4.49 respondents were probed to rate the statement ‘the behaviour of the employees instils confidence in customers (community)’. A sum of 41.2 per cent of the respondents agreed that the behaviour of the employees instils confidence in customers (community), while 58.7 per cent of respondents disagreed that the behaviour of the employees does instil confidence in customers (community). These results show that there is a significant disagreement that residents of the area (respondents) believe the behaviour of the employees instils confidence in

customers (community); (Mean=2.91, Median = 3.00) p is less than .0005. This tells us that community does not believe the behaviour of the employees instils confidence in customers (community). This result supports the study by Martinović *et al.* (2017:603-606) that says customers do not believe that the behaviour of the employees instils confidence in customers.

4.6.4.2. The community (customers) feel safe/secure in their transaction with the employees

4.50 PER_ASS16 The Community (Customers) Feel Safe/Secure in Their Transaction With the Employees

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	58	20.3	20.3	20.3
	Disagree	57	19.9	19.9	40.2
	Slightly disagree	33	11.5	11.5	51.7
	Slightly agree	55	19.2	19.2	71.0
	Agree	66	23.1	23.1	94.1
	Strongly agree	17	5.9	5.9	100.0
	Total	286	100.0	100.0	

In figure 4.50 respondents were probed to rate the statement 'the community (customers) feel safe/secure in their transaction with the employees'. A sum of 48.2 per cent of the respondents agreed that the community (customers) feel safe/secure in their transaction with the employees, while 51.7 per cent of respondents disagreed that the community (customers) feel safe/secure in their transaction with the employees. These results show that there is a significant disagreement that residents of the area (respondents) believe the community (customers) feel safe/secure in their transaction with the employees; (Mean=3.23, Median = 3.00) p is

equal to .017. This tells us that the community does not believe that the community (customers) feel safe/secure in their transaction with the employees. This result supports the study by Martinović *et al.* (2017:603-606) which says customers do not believe they feel safe/ secure in their transaction with the employees.

4.6.4.3. Employees are polite to customers.

Table 4.51 PER_ASS17 Employees Are Polite to Customers

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	77	26.9	26.9	26.9
	Disagree	66	23.1	23.1	50.0
	Slightly disagree	38	13.3	13.3	63.3
	Slightly agree	54	18.9	18.9	82.2
	Agree	39	13.6	13.6	95.8
	Strongly agree	12	4.2	4.2	100.0
	Total	286	100.0	100.0	

In figure 4.51 respondents were probed to rate the statement ‘employees are polite to customers’. A sum of 36.7 per cent of the respondents agreed that employees are polite to customers, while 63.3 per cent of respondents disagreed that employees are not polite to customers. These results show that there is a significant disagreement that residents of the area (respondents) believe employees are polite to customers; (Mean=2.82, Median = 2.50) p is less than .0005. This tells us that the community does not believe employees are polite to customers. This result supports the study by Martinović *et al.* (2017: 603-606) which says customers do not believe employees of public service are polite to customers.

4.6.4.4. Employees have the knowledge to answer customer/community water-related queries

Table 4.52 PER_ASS18 Employees Have the Knowledge to Answer Customer/Community Water-Related Queries

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	64	22.4	22.4	22.4
	Disagree	59	20.6	20.6	43.0
	Slightly disagree	44	15.4	15.4	58.4
	Slightly agree	47	16.4	16.4	74.8
	Agree	36	12.6	12.6	87.4
	Strongly agree	36	12.6	12.6	100.0
	Total	286	100.0	100.0	

In figure 4.52 respondents were probed to rate the statement ‘employees have the knowledge to answer customer/community water-related queries’. A sum of 41.6 per cent of the respondents agreed that employees have the knowledge to answer customer/community water-related queries, while 58.4 per cent of respondents disagreed that employees do not have the knowledge to answer customer/community water-related queries. These results show that there is a significant disagreement that residents of the area (respondents) believe employees

have the knowledge to answer customer/community water-related queries; (Mean=3.14, Median = 3.00) p is equal to .002. This tells us that the community does not believe employees have the knowledge to answer customer/community water-related queries. This result supports the study by Martinović *et al.* (2017:603-606) that says the customers do not believe the employees of public service have the knowledge to answer customers queries.

Table 4.53 Test Statistics[b]

	Three point five - PER_ASS15 The behaviour of the employees instils confidence in customers (community)	Three point five - PER_ASS16 The community (customers) feel safe/secure in their transaction with the employees	Three point five - PER_ASS17 Employees are polite to customers	Three point five - PER_ASS18 Employees have the knowledge to answer customer/community water-related queries
Z	-5.599[a]	-2.384[a]	-6.527[a]	-3.067[a]
Asymp. Sig. (2-tailed)	.000	.017	.000	.002

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

Most ward committees interviewed claim that the uMgungundlovu district municipality does not understand water queries or the water services needed by the community. Furthermore, ward committees believe that the uMgungundlovu district municipality does not have skilled people who can deal with water services as they usually hire unskilled people, friends, or politically connected people. This result supports the study by

Martinović *et al.* (2017:603-606) which says employees of public service do not understand the service queries needed by the customers.

"They don't understand the kind of water services needed by the community and their service is very poor. For more than 10 years they have been supplying water-tankers and water get finished from the tankers very quickly" R9.

"There is no discipline and some of the officials are committed to their job, lack of supervision and they don't maintain their equipment and the infrastructure is too old" R7.

"No ,70 per cent of their employees are not doing their job and they don't want to work at all" R6.

"I don't think so. There is bad habit of employing friends and politically connected individually"R8

Most ward committees interviewed support the view of the uMgungundlovu municipality hiring incompetent and politically connected employees who do not do their work properly.

4.6.5 EMPATHY

4.6.5.1. Customers receive individual attention.

Table 4.54 PER_EMP19 Customers Receive Individual Attention

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	84	29.4	29.4	29.4
	Disagree	69	24.1	24.1	53.5
	Slightly disagree	43	15.0	15.0	68.5
	Slightly agree	46	16.1	16.1	84.6
	Agree	26	9.1	9.1	93.7
	Strongly agree	18	6.3	6.3	100.0
	Total	286	100.0	100.0	

In figure 4.54 respondents were probed to rate the statement ‘customers receive individual attention’. A sum of 31.5 per cent of the respondents agreed customers receive individual attention, while 68.5 per cent of respondents disagreed that customers receive individual attention. These results show that there is a significant disagreement that residents of the area (respondents) believe customers receive individual attention; (Mean=2.70, Median = 2.00) p is less than .0005. This tells us that the community does not believe customers receive individual attention. This result supports the study by Martinović *et al.* (2017:603-606) that says customers do not believe they receive individual attention.

4.6.5.2. Operating hours are convenient for all customers in the community.

Table 4.55 PER_EMP20 Operating Hours Are Convenient For All Customers in the Community

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	66	23.1	23.1	23.1
	Disagree	80	28.0	28.0	51.0
	Slightly disagree	37	12.9	12.9	64.0
	Slightly agree	66	23.1	23.1	87.1
	Agree	25	8.7	8.7	95.8
	Strongly agree	12	4.2	4.2	100.0
	Total	286	100.0	100.0	

In figure 4.55 respondents were probed to rate the statement ‘operating hours are convenient to all customers in the community’. A sum of 36 per cent of the respondents agreed that operating hours are convenient to all customers in the community, while 64 per cent of respondents disagreed that operating hours are convenient to all customers in the community. These results show that there is a significant disagreement that residents of the area (respondents) believe operating hours are convenient to all customers in the community; (Mean=2.79, Median = 2.00) p is less than .0005. This tells us that the community does not believe operating hours are convenient to all customers in the community. This result supports the study by Martinović *et al.* (2017:603-606) which says customers do not believe operating hours of public services are convenient to all.

4.6.5.3. The municipality has the community's best interest at heart.

Table 4.56 PER_EMP21 The Municipality Has the Community's Best Interest at Heart

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	75	26.2	26.2	26.2
	Disagree	73	25.5	25.5	51.7
	Slightly disagree	29	10.1	10.1	61.9
	Slightly agree	64	22.4	22.4	84.3
	Agree	35	12.2	12.2	96.5
	Strongly agree	10	3.5	3.5	100.0
	Total	286	100.0	100.0	

In figure 4.56 respondents were probed to rate the statement 'the municipality has the community's best interest at heart'. A sum of 38.1 per cent of the respondents agreed that the municipality has the community's best interest at heart, while 61.8 per cent of respondents disagreed that they have the community's best interest at heart. These results show that there is a significant disagreement that residents of the area (respondents) believe the municipality has the community's best interest at heart; (Mean=2.79, Median = 2.00) p is less than .0005. This tells us that the community does not believe the municipality has the community's best interest at heart. This result supports the study by Malatjie (2016) and Martinović *et al.* (2017: 603-606) which conclude that customers do not believe the public service sector has customers' best interests at heart.

4.6.5.4 The municipality tailors the water service to meet the specific needs of the community

Table 4.57 PER_EMP22 The Municipality Tailors the Water Service to Meet the Specific Needs of the Community

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	93	32.5	32.6	32.6
	Disagree	66	23.1	23.2	55.8
	Slightly disagree	33	11.5	11.6	67.4
	Slightly agree	48	16.8	16.8	84.2
	Agree	34	11.9	11.9	96.1
	Strongly agree	11	3.8	3.9	100.0
	Total	285	99.7	100.0	
Missing	System	1	.3		
Total		286	100.0		

In figure 4.57 respondents were probed to rate the statement ‘the municipality tailors the water service to meet the specific needs of the community’. A sum of 32.6 per cent of the respondents agreed that the municipality tailors the water service to meet the specific needs of the community, while 67.4 per cent of respondents disagreed that they tailor the water service to meet the specific needs of the community. These results show that there is a significant disagreement that residents of the area (respondents) believe the municipality tailors the water service to meet the specific needs of the community; (Mean=2.64, Median = 2.00) p is less than .0005. This tells us that the community does not believe the municipality tailors the water service to meet the specific needs of the community. This result supports the study by

Martinović *et al.* (2017: 603-606) which concluded that customers do not believe public services tailor their services to meet the specific needs of the customers.

In addition, most ward committees interviewed claim that the uMgungundlovu district municipality does not pay attention to the specific water demands of the community. Furthermore, most ward committees believe that the uMgungundlovu district municipality is not doing enough to address concerns raised by residents.

"I don't think they pay attention to the water services demands. I don't want to say they are useless but they are, they are failing to meet the demands" R11.

" Our complains are not taken serious and we fell they fell in defy ears. The only thing they are good at is to take complains down during izimbizo (public participation) and make empty promises, but nothing is happening" R12.

4.6.5.5 There are specific employees to give customers personal attention.

Table 4.58 PER_EMP23 There Are Specific Employees to Give Customers Personal Attention

		Frequency	Per Cent	Valid Per Cent	Cumulative Per Cent
Valid	Strongly disagree	84	29.4	29.6	29.6
	Disagree	72	25.2	25.4	54.9
	Slightly disagree	40	14.0	14.1	69.0
	Slightly agree	32	11.2	11.3	80.3
	Agree	38	13.3	13.4	93.7

	Strongly agree	18	6.3	6.3	100.0
	Total	284	99.3	100.0	
Missing	System	2	.7		
Total		286	100.0		

In figure 4.58 respondents were probed to rate the statement ‘there are specific employees to give customers personal attention’. A sum of 31 per cent of the respondents agreed that there are specific employees to give customers personal attention, while 69 per cent of respondents disagreed that there are specific employees to give customers personal attention. These results show that there is a significant disagreement that residents of the area (respondents) believe there are specific employees to give customers personal attention; (Mean=2.73, Median = 2.00) p is less than .0005. This tells us that the community does not believe there are specific employees to give customers personal attention. This result supports the study by Martinović *et al.* (2017:603-606) and Malatjie (2016) which conclude that customers do not believe there are specific employees to give customers personal attention.

Table 4.59 Test Statistics[b]

	Three point five - PER_EMP19 Customers receive individual attention	Three point five - PER_EMP20 Operating hours are convenient to all customers in the community	Three point five - PER_EMP21 The municipality has the community’s best interest at heart	Three point five - PER_EMP22 The municipality tailors the water service to meet the specific needs of the community	Three point five - PER_EMP23 There are specific employees to give customers personal attention
Z	-7.481[a]	-6.945[a]	-6.702[a]	-8.086[a]	-6.999[a]

Asymp. Sig. (2-tailed)	.000	.000	.000	.000	.000

a. Based on negative ranks.

b. Wilcoxon Signed Ranks Test

The results of this study reveal that perception dimensions, namely tangibles, reliability, responsiveness, assurance, and empathy, show significant disagreement. This shows us that the community perceives the water service quality to not be tangible, reliable, or responsive. Furthermore, the community perceives the water service from the municipality to not show empathy or assurance. The community perceive the water equipment to not be up to date, the physical facilities not to be visually appealing/well maintained, the technology used in the office to not be modern, the employees to not be neatly dressed in uniform, and the materials associated with the water services (pamphlets or statements) to not be visually appealing. Moreover, the community perceive that when the municipality promises to do something by a certain time it is not done, when a customer has a water problem the municipality does not show a sincere interest in solving it, services are not to be performed right the first time, the community is not informed as to exactly when services will be carried out, the employees do not always respond to customers' requests, the behaviour of the employees does not instil confidence in community, employees do not always have the knowledge to answer community water-related queries, the municipality does not always tailor the water services to meet the specific needs of the community, and operating hours are not convenient to all customers in the community. In other words, the respondents (community) have low perceptions of the water services provided. The findings support the study conducted by Martinović *et al.* (2017:606) which concludes that the community has a bad perception of the quality of public services, including water service. Furthermore, this finding is aligned with the study of Malatjie (2016) which explored the public perception of water services in the province of Limpopo in South Africa. Malatjie (2016) claims that the community does not have a good perception of water services as they experience challenges with a lack of water infrastructure, aging pipelines, and a low quality of clean water. Moreover, the results support the study by Sherry,

Juran, Kolivras, Krometis, and Ling (2019) which found that water services are generally perceived as poor.

4.7 Research Objective Three: To Identify the Mechanisms in Place that Ensure Quality Water Service Supply to the Community

The aim of this objectives was to ascertain the mechanisms in place in the uMgungundlovu district municipality water services to ensure quality service to the community.

4.7.1 Water Billing System and Water Statements

Boyle, Giurco, Mukheibir, Liu, Moy, White, and Stewart (2013) claim that the gradual recognition of the real importance of potable water to society has made water metering a crucial practice for many water services, central to both water supplies and infrastructure management.

Most respondents claim that in order to ensure the effectiveness of the water billing system, the district trains its meter readers to improve their skills. Naki, Boucher, and Nzewi (2018) assert that water billing is a critical aspect of water resource management for municipalities as it is a significant part of revenue collection. Mismanagement of metering and ineffective billing systems result in an average water wastage of 37 per cent annually in South Africa. Therefore, accurate water meter readings are crucial.

"We try to make sure that meter readers are trained and understand their function and what is expected from them" R3.

"We ensure that our staff are trained at all times and if there is a problem, we try to deal with it" R4.

Most respondents claim that water statements are properly checked by the managers to ensure they are correct and are a true reflection of what customer consume before sending them out. Furthermore, in case of incorrect water statements sent out, most respondents claim that the district rechecks them in collaboration with the customers. Faulty meters are checked and replaced. In cases

where faulty meters cannot be replaced the district uses estimation to charge its customers. These findings are in contrast with the uMgungundlovu district municipality Integrated Development Plan 2020/2021 report which found out that communities are still complaining about incorrect meter readings and billing. Naki *et al*. (2018) claim that to ensure accurate water billing to residents and businesses, municipalities must have reliable water meter reading processes to avoid water abuse and wastage. Water billing needs to be reliable, accurate, and efficient to ensure that municipalities are able to bill for revenues accrued to them from residents and businesses, which in turn enables them to make the payments for the water purchased from the given water authorities.

Respondents also claim that customers who do not pay their water bills are given notice before water services are cut off. This finding is in contradiction with the uMgungundlovu district municipality Integrated Development Plan 2020/2021 report which revealed that the community is complaining about a lack of communication from the uMgungundlovu district municipality in terms of informing the community before cutting water supplies. The findings reveal that most respondents acknowledge that when a new customer requests a water connection, the district requires the customer to fill up a form and plumbers are sent out to connect said water supply in cases where the customer resides in formal areas. For the communities which cannot afford to pay for water, the district municipality requests them to come forward to sign an indigent register in order to receive 6kl every month. The uMgungundlovu district municipality Integrated Development Plan 2020/2021 report revealed that the community requires education pertaining to the indigent registration process.

"To make sure that before the statement is sent out, the manager checks it properly" R1.

"They are verified and checked by the manager of the section before sending them out to the community" R4.

"Water statements are checked by seniors before are sent out. It is the duty of the manager to check it properly" R3.

“We investigate the cause and send out meter readers to those household who are affected recheck the reading and confirm with the owner and rectify the statement in the following month” R1.

“Meter readers are sent to those household who are affected for rechecking and ask the customer to confirm the reading and we conduct investigation thereafter” R4.

“Sometimes our meters are faulty, and we supposed to calibrate them but technical services are not doing, hence there are times where we rely on estimation” R2.

“We give them notice and that will be followed by cutting the service if there is no payment” R3.

“Give out intention to cut supply and that will be followed by cutting if payment is not made” R4.

“We fill his/her details on the form and capture on the system and send our plumbers for assessment and new connection after the payment has been made by the new customer” R5.

“Indigent registers are available for those who cannot afford to pay for services. Free 6kl of water is given every month to those who cannot afford” R8.

4.7.2 Water Queries, Communication with customers.

Most respondents claim that customers use phone calls and emails to lodge their water queries, but phone calls are used the most by customers. Moreover, the uMgungundlovu district municipality displays their emergency numbers on pamphlets, water vehicles, billboards, and on radio shows. Respondents acknowledge that the uMgungundlovu district municipality has thirteen operators in the call center to deal with water queries. However, respondents claim that the current number of operators is not sufficient to deal with all the water queries. Furthermore, respondents claim that after receiving queries, the query is logged and then they dispatch plumbers to fix the issue. Once the issue has been sorted out the query in the system will change the status of the query. In case the query is not resolved, the respondents said that they escalate the query to their supervisor for

further decisions and/or investigation. Lastly, the respondents claim that the call centre supervisor ensures that all operators are doing their job efficiently. These results reveal that customer service in the water sector is still using traditional tolls for communication, such as phone calls and emails. Xu, Liu, Guo, Sinha, and Akkiraju (2017) claim users are rapidly turning to social media to request and receive customer service. Thus, the uMgungundlovu should integrate social media tools for its customer service to accommodate many users who are using social media nowadays as a tool for communication.

"Emergency telephone lines and emails, emergency lines are mostly used" R3.

"Our internal newspaper do have emergency numbers and water vehicles are branded and have emergency call centre number. Sometimes the mayor has a slot on radio stations" R2.

"We are 13; red watch four, blue watch three, green watch three, and orange watch three" R1.

"Thirteen call operators which makes four shift system" R4.

"Not at all, challenges are experienced during busy where calls are ringing and not answered due non availability of staff members in other stations" R1.

"Incident will remain on the system until the incident is resolved the status change on the system" R3.

"Escalate them to the supervisor who is responsible for contacting our technician and to relevant managers" R4.

"Day shift supervisor are there at all times but the problem is at night because there is no supervisor although we work 24/7" R6.

4.7.3 Mechanisms in Place, Sources of Water

The senior managers interviewed acknowledge that the uMgungundlovu district municipality follows guidelines from the department of water affairs to manage and ensure water quality. Furthermore, senior managers assert that Umngeni water is the main source supplier of water. This finding is in line with the UMDM report of 2017 (UMDM, 2017).

"We use guidelines from department of water affairs, we use test kits to test the water. During izimbizo community is always given a chance to comment about our services/quality of our water services, our reservoir is maintained and proper test is done there and all standpipes are tested on a weekly basis" R23.

"Guidelines from department of water affairs is available and that guides us in terms of testing of rivers, boreholes, and standpipes" R24.

"Main supply is Umngeni water (bulk supply), we also boreholes and seldom use water from rivers" R23.

4.7.4 The Duties of the Person Responsible for Water Quality and Critical Stakeholders.

Managers claim that scientists from the technical department are responsible for water quality and their duties are to ensure compliance with department water guidelines and to test water quality. Cogta, councillors, traditional leaders, the community, and Umngeni water are the main stakeholders. This finding is in line with the uMgungundlovu water report of 2017 (UMDM, 2017).

"Ensure compliance with the relevant departments, carry on necessary test and samples to laboratories and ensure that our water meets the required standards" R24.

"Ensure that water is always clean, blue status obtained and compliance is there, conduct test and samples and obtained results from laboratories, and ensure that UMDM water meets the required standards" R23.

*"*umngeni water, cogta, department of water affairs, councillors, traditional leaders, and community itself*"* R24.

4.7.5 Water in the Upstream and Downstream, the Accuracy of the Sampling Equipment, and Water Quality Management Instruments.

Managers assert that the sampling of water upstream and downstream is done weekly, and every two hours in other plants, dams, and rivers. Moreover, they calibrate the testing kits according to the manufacturers' recommendations to ensure

the accuracy of the sampling equipment. The water quality management instruments, such as the regulatory, market-based, self-regulatory, and civil management tools, are implemented by the uMgungundlovu district municipality.

"We follow guidelines from DWAF and testing is done weekly and every two hours in other plants and dams and rivers" R24.

*"*We calibrate our testing kits according to manufactures recommendation; it is also part of our assessment" R23.

"*I would say yes because as far as i know most of the instruments/equipment that is used by UMDM are recommended by the department of water affairs****"*** R23.

4.7.6 Challenges

Managers claim that the causes of water shortages vary from droughts, high demands, population growth, and an insufficient budget. This is in line with Kheswa (2019) and Umgeni (2019). Managers also claim that most rural areas do not have appropriate water infrastructure, thus making it difficult to provide them with quality services.

This in line with the UNESCO rural water development report. The finding is also in line with a study by Grigg (2019). In addition, the uMgungundlovu district municipality does not own any laboratories which makes it difficult to control and test water quality in a timely manner as they rely on private laboratories.

"Drought, demand is higher than the supply, population growth, not enough budgets for water connection" R22.

"Demand is higher than the supply, population growth, not enough budgets for water connection and budget restricts us from attending to all community needs"R25

"Most of the communities are from rural areas and there is no formal infrastructure" R23.

"Unfortunately uMgungundlovu district municipality does not own even a single laboratory. Closely monitoring of water tankers is key because as UMDM we have to ensure that water gets collected from the right source. Strategic placed JoJo tanks

needs a proper checking and monitoring from time to time to ensure that lids are still in place" R24.

The findings of this study reveal that the preferred methods of contacting the water customer call centre by community members are phone calls and emails. The uMgungundlovu municipality ensures the efficiency of the customer call centre through the strictness of the supervisors. The findings stipulated above reveal that the uMgungundlovu district municipality follows guidelines from the department of water affairs to manage and ensure water quality. Furthermore, water quality is the responsibility of scientists from the technical department and their roles are to ensure compliance with the water guidelines of the department and to monitor water quality. Managers say that water sampling upstream and downstream is carried out on a weekly basis, and on other plants, dams, and rivers is done every two hours. In addition, the testing kits are configured according to the guidelines of the manufacturers to ensure the accuracy of the sampling equipment. The uMgungundlovu district municipality implements water quality management tools such as regulatory, market-based, self-regulatory, and civil management.

The causes of water shortages range from drought, high demand, population growth, and an inadequate budget, managers argue. Managers also say that most rural areas lack sufficient water infrastructure, making it difficult to provide quality services to them. This finding is in line with the UMDM IDP 2020/2021 report which found that the community expressed challenges with existing infrastructure.

Moreover, the uMgungundlovu district municipality does not own any laboratory, making it difficult to monitor and test water quality in a timely manner as they rely on private laboratories.

4.8 Research Objective Four: To Identify and Understand the Gap between Communities' Expectations and Experiences of the Water Service Quality in the uMgungundlovu District Municipality.

Based on consumer feedback, the difference between expected and perceived service is established (Kansara, 2020). The gap may be due to a lack of information or exaggerated promises and service delivery. These gaps represent the sequence

in the form of understanding the customer, the design of the service, conformance to the specifications, communication, and customers satisfaction (Parasuraman *et al.*, 1985)

4.8.1 Tangibles

Table 4.60 Statistics

		GAP_TAN1	GAP_TAN2	GAP_TAN3	GAP_TAN4	GAP_TAN5
N	Valid	285	286	286	286	286
	Missing	1	0	0	0	0
Mean		2.69	2.45	2.30	2.23	2.57
Median		3.00	3.00	2.00	2.00	3.00
Std. Deviation		1.753	1.632	1.737	1.789	1.667
Percentiles	25	1.00	1.00	1.00	1.00	1.00
	50	3.00	3.00	2.00	2.00	3.00
	75	4.00	4.00	4.00	4.00	4.00

Table 4.61 Test Statistics[b]

	zero - GAP_TAN1	zero - GAP_TAN2	zero - GAP_TAN3	zero - GAP_TAN4	zero - GAP_TAN5
Z	-13.649[a]	-13.628[a]	-13.260[a]	-12.960[a]	-13.918[a]
Asymp. Sig. (2-tailed)	.000	.000	.000	.000	.000

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

The results reveal that there is a significant gap in what the customers expect regarding modern equipment and machinery compared to what is actually used in the municipality; (Mean=2.69, Median=3.00) p is less than .0005. This finding is in line with a study by Almomani (2018). The results show that there is a significant gap in what they expect regarding the physical facilities being visually appealing/well maintained compared to what is actually used by the municipality; (Mean=2.45, Median=3.00) p is less than .0005. This is in line with a similar study conducted by Goran (2014). The results reveal that there is a significant gap in what they expect regarding the modern technology used in the office to what is actually being used in the municipality; (Mean=2.30, Median=2.00) p is less than .0005. This finding supports studies by Goran (2014) and Almomani (2018). The results reveal that there is a significant gap in what they expect regarding the employees being neatly dressed in uniform compared to how employees actually dress; (Mean=2.23, Median=2.00) p is less than .0005. This in line with studies by Awortwe (2018) and Almomani (2018). The results reveal that there is a significant gap in what they expect regarding materials associated with the water services (pamphlets or statements) being visually appealing compared to what the materials actually look like; (Mean=2.57, Median=3.00) p is less than .0005. The findings reveal that the gap is significantly different between what they expect and what they experience. Fourie and de Jager (2005) noted that evidence indicated that, almost without any exceptions, negative gaps existed between customers' expectations and their perceptions of service quality. These findings are aligned with the outcomes of the studies of Kansara (2020) and Mukokoma and Van Dijk (2011) which found that the expectations and perceptions of the tangible construct of water service were significantly different.

4.8.2 Reliability

Table 4.62 Statistics

		GAP_REL6	GAP_REL7	GAP_REL8	GAP_REL9	GAP_REL10
N	Valid	286	286	286	286	285
	Missing	0	0	0	0	1
Mean		3.28	2.86	2.70	3.30	2.94
Median		4.00	3.00	3.00	4.00	3.00
Std. Deviation		1.614	1.669	1.665	1.491	1.600
Percentiles	25	2.00	1.00	1.75	2.00	2.00
	50	4.00	3.00	3.00	4.00	3.00
	75	5.00	4.00	4.00	5.00	4.00

Table 4.63 Test Statistics[b]

	zero - GAP_REL6	zero - GAP_REL7	zero - GAP_REL8	zero - GAP_REL9	zero - GAP_REL10
Z	-14.301[a]	-14.027[a]	-13.831[a]	-14.399[a]	-14.195[a]
Asymp. Sig. (2-tailed)	.000	.000	.000	.000	.000

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

The results show that there is a significant gap between what the community expect regarding when the municipality promises to do something by a certain time compared to when it is actually done in the municipality; (Mean= 3.28, Median=4.00)

p is less than .0005. This is in line with the studies of Kansara (2020), Awortwe (2018), and Almomani (2018). The results show that there is a significant gap in what they expect regarding the interest the municipality shows when a customer has a water problem and what is actually done to solve a customer's water problem; (Mean=2.86, Median=3.00) p is less than .0005. This is aligned with similar studies by Kansara (2020), Awortwe (2018), and Almomani (2018). The results show that there is a significant gap in what they expect regarding services being performed right the first time compared to how a service is actually performed the first time; (Mean=2.70, Median=3.00) p is less than .0005. This is aligned with similar studies by Kansara (2020), Awortwe (2018), and Almomani (2018). The results show that there is a significant gap in what they expect regarding a service being provided at the time the municipality has promised to do so compared to when a service is actually provided; (Mean=3.30, Median=4.00) p is less than .0005. This is in line with the studies of Kansara (2020), Awortwe (2018), and Almomani (2018). The results show that there is a significant gap in what they expect regarding error-free records compared to how the records actually are; (Mean=3.30, Median=4.00) p is less than .0005. The findings reveal that there is a significant gap between the expectation score of reliability and the perception scores of reliability. These findings support the findings of Mukokoma and Van Dijk (2011), Kansara (2020), and Awortwe (2018).

4.8.3 Responsiveness

Table 4.64 Statistics

		GAP_RES11	GAP_RES12	GAP_RES13	GAP_RES14
N	Valid	284	285	285	285
	Missing	2	1	1	1
Mean		3.11	2.92	2.70	2.67
Median		3.00	3.00	3.00	3.00

Std. Deviation		1.534	1.562	1.541	1.706
Percentiles	25	2.00	2.00	2.00	1.00
	50	3.00	3.00	3.00	3.00
	75	4.00	4.00	4.00	4.00

Table 4.65 Test Statistics[b]

	zero - GAP_RES11	zero - GAP_RES12	zero - GAP_RES13	zero - GAP_RES14
Z	-14.285[a]	-14.175[a]	-14.140[a]	-13.853[a]
Asymp. Sig. (2-tailed)	.000	.000	.000	.000

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

The results show that there is a significant gap in what the community expect regarding customers being informed as to exactly when services will be carried out compared to what is actually done by the municipality; (Mean= 3.11, Median=3.00) p is less than .0005. This is in line with the studies of Martinović *et al.* (2017) and Manzini (2015). The results show that there is a significant gap in what they expect regarding the services to customers being prompt compared to what is actually done by the municipality; (Mean=2.92, Median=3.00) p is less than .0005. This is in line with Martinović *et al.* (2017) and Manzini (2015). The results show that there is a significant gap in what they expect regarding the employees being willing to help customers compared to what is actually done by the municipality; (Mean=2.70, Median=3.00) p is less than .0005. This is in line with studies by Martinović *et al.* (2017) and Manzini (2015). The results show that there is a significant gap in what they expect regarding the employees not being too busy to respond to customers' requests compared to what is actually done by the municipality; (Mean=2.70,

Median=3.00) p is less than .0005. This is in line with studies by Martinović *et al.* (2017) and Manzini (2015).

4.8.4 Assurance

Table 4.66 Statistics

		GAP_ASS15	GAP_ASS16	GAP_ASS17	GAP_ASS18
N	Valid	283	283	282	283
	Missing	3	3	4	3
Mean		2.68	2.32	2.77	2.44
Median		3.00	2.00	3.00	3.00
Std. Deviation		1.566	1.673	1.647	1.808
Percentiles	25	1.00	1.00	1.00	1.00
	50	3.00	2.00	3.00	3.00
	75	4.00	4.00	4.00	4.00

Table 4.67 Test Statistics[b]

	zero - GAP_ASS15	zero - GAP_ASS16	zero - GAP_ASS17	zero - GAP_ASS18
Z	-14.115[a]	-13.456[a]	-13.939[a]	-13.199[a]
Asymp. Sig. (2-tailed)	.000	.000	.000	.000

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

The results show that there is a significant gap between what the community expect regarding the behaviour of the employees instilling confidence in customers (community) compared to what is actually done by the municipality; (Mean= 2.68, Median=3.00) p is less than .0005. This is in line with studies by Manzini (2015), Awortwe (2018), and Almomani (2018). The results show that there is a significant gap in what they expect regarding the community (customers) feeling safe/secure in their transactions with the employees compared to what is actually done by the municipality; (Mean=2.32, Median=2.00) p is less than .0005. This is in line with studies by Manzini (2015), Awortwe (2018), and Almomani (2018). The results show that there is a significant gap in what they expect regarding employees being polite to customers compared to what is actually done in the municipality; (Mean=2.77, Median=3.00) p is less than .0005. This is in line with a study by Manzini (2015). The results show that there is a significant gap in what they expect regarding employees having the knowledge to answer customer/community water-related queries compared to what is actually done in the municipality; (Mean=2.44, Median=3.00) p is less than .0005. This is in line with studies by Manzini (2015), Awortwe (2018), and Almomani (2018).

4.8.5 Empathy

Table 4.68 Statistics

		GAP_EMP19	GAP_EMP20	GAP_EMP21	GAP_EMP22	GAP_EMP23
N	Valid	283	283	283	283	282
	Missing	3	3	3	3	4
Mean		2.92	2.82	2.83	2.98	2.85
Median		3.00	3.00	3.00	3.00	3.00
Std. Deviation		1.598	1.587	1.582	1.649	1.755
Percentile	25	2.00	2.00	2.00	2.00	2.00

s	50	3.00	3.00	3.00	3.00	3.00
	75	4.00	4.00	4.00	4.00	4.00

Table 4.69 Test Statistics[b]

	zero - GAP_EMP19	zero - GAP_EMP20	zero - GAP_EMP21	zero - GAP_EMP22	zero - GAP_EMP23
Z	-14.041[a]	-14.065[a]	-14.014[a]	-14.007[a]	-13.628[a]
Asymp. Sig. (2-tailed)	.000	.000	.000	.000	.000

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

The results show that there is a significant gap between what the community expect regarding customers receiving individual attention compared to what is actually done by the municipality; (Mean= 2.92, Median=3.00) p is less than .0005. This in line with studies by Awortwe (2018) and Almomani (2018). The results show that there is a significant gap in what they expect regarding operating hours being convenient to all customers in the community compared to what is actually done by the municipality; (Mean=2.82, Median=3.00) p is less than .0005. This in line with studies by Awortwe (2018) and Almomani (2018). The results show that there is a significant gap in what they expect regarding the municipality having the community's best interest at heart compared to what is actually done in the municipality; (Mean=2.83, Median=3.00) p is less than .0005. The results show that there is a significant gap in what they expect regarding the municipality tailoring the water services to meet the specific needs of the community compared to what is actually done in the municipality; (Mean=2.98, Median=3.00) p is less than .0005. This in line with studies by Awortwe (2018) and Almomani (2018). The results show that there is a significant gap in what they expect regarding specific employees from the municipality giving customers personal attention compared to what is actually done in the municipality;

(Mean=2.85, Median=3.00) p is less than .0005. This in line with Awortwe (2018) and Almomani (2018).

4.8.6 GAPS between Constructs

Analysis using Friedman's test on the five constructs shows that there is a significant difference in how the community perceive these constructs in their municipality, p is less than .0005. In particular, tangibles are perceived to be better than reliability, responsiveness, and empathy; responsiveness, assurance, and empathy are perceived to be better than reliability; assurance is perceived to be better than responsiveness; and assurance is perceived to be better than assurance. Basically no difference is found between tangibles and assurance or between empathy and reliability. All the others show differences as depicted in figure 4.4.

Table 4.70 Statistics

		GAP_TAN	GAP_REL	GAP_RES	GAP_ASS	GAP_EMP
N	Valid	286	286	285	283	283
	Missing	0	0	1	3	3
Mean		2.4463	3.0166	2.8491	2.5536	2.8799
Median		2.4000	3.2000	3.0000	2.7500	3.0000
Std. Deviation		1.35635	1.25941	1.25949	1.33860	1.28526
Percentiles	25	1.4000	2.2000	2.0000	1.5000	2.0000
	50	2.4000	3.2000	3.0000	2.7500	3.0000
	75	3.4000	4.0500	4.0000	3.5000	4.0000

Table 4.71 Test Statistics[b]

	zero - GAP_TAN	zero - GAP_REL	zero - GAP_RES	zero - GAP_ASS	zero - GAP_EMP
Z	-14.524[a]	-14.589[a]	-14.522[a]	-14.412[a]	-14.509[a]
Asymp. Sig. (2-tailed)	.000	.000	.000	.000	.000

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

Friedman's test shows that the gaps are significantly different across constructs, p is less than .0005. In particular, the gaps in reliability, responsiveness, and empathy are significantly bigger than in tangibles and assurance, as depicted in the figure 4.4.

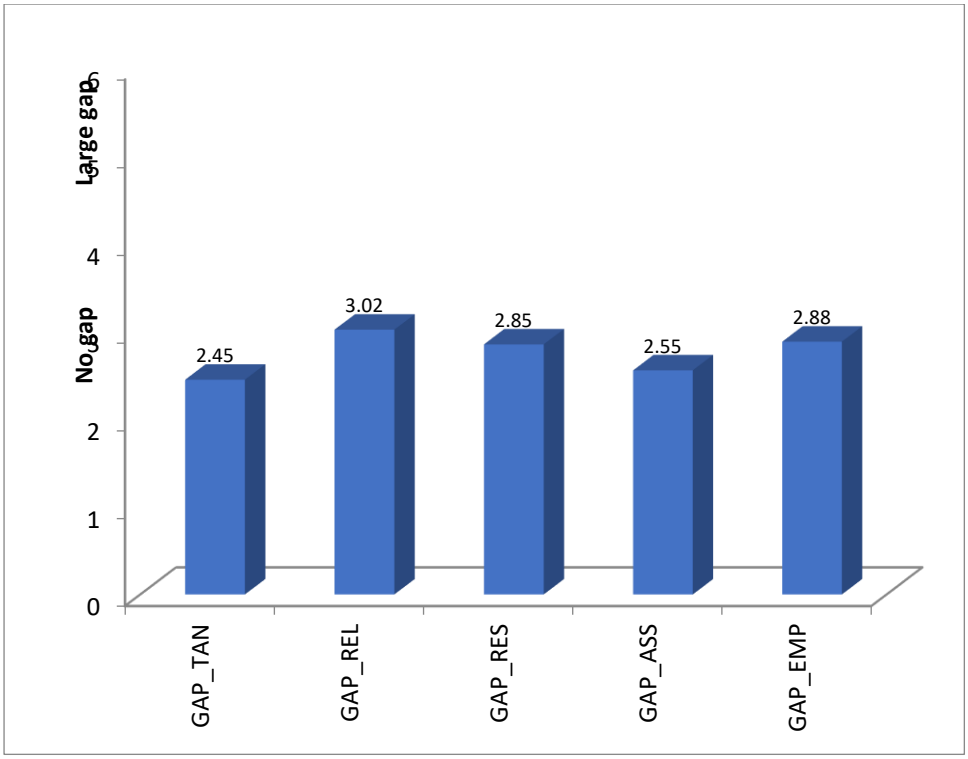

Figure 4.4 Gap between constructs

4.9 Conclusion

In this chapter, the analysis and interpretation of data collected through questionnaires and interviews were presented and discussed. The research objectives of this study guided the presentation of the findings and discussions. Discussions were undertaken in relation to the literature. The chapter presented the quantitative data from the community. The quantitative data address the research objectives one, two, and four. The qualitative data from ward committee chairpersons, the customer call centre, and managers addressed research objective three. The next chapter contains the recommendations, indicating the proposed model.

CHAPTER FIVE: GENERAL CONCLUSIONS, RECOMMENDATIONS, AND PROSPECTS FOR FURTHER RESEARCH

5.1 Introduction

This chapter is the concluding chapter and it recommends a conceptual framework that can stimulate improvement in water service quality in the uMgungundlovu district municipality. Thus, the following steps were followed:

Firstly, a summary of the findings of the study are provided in section 5.3. In this section, the findings of water service quality as perceived by the community, officials of the uMgungundlovu district municipality, and councillors are presented and interpreted.

Secondly, the classified issues are further grouped and discussed based on the ServQual model. Thirdly, recommendations for the uMgungundlovu district municipality water services are provided. Lastly, a conceptual framework for water service quality is incrementally developed.

5.2 Summary of the Study

The study started by introducing and contextualising water service quality under investigation. Chapter two positioned the phenomenon under investigation in the

body of knowledge and highlighted the gap. The study focused on water service quality at the uMgungundlovu district municipality.

Furthermore, chapter two gave an overview of the UMDM and how water service is run at the district and country level. Chapter 3 described the methodology employed for this study. This study opted for a mixed-method approach and collected data from 324 respondents. The findings reveal that there is a gap in the water service quality in all five dimensions. Chapter 5 provides recommendations as well as a concluding statement.

5. 3 Discussion of the Summary of the Main Findings in Relation to the Literature

5.3.1 Tangibles

This study revealed that there is a gap between what the community expects and what they experience in terms of modern equipment and machinery, which supports a study by Almomani (2018). The findings tell us that there is a gap between what the community expects and what they experience in terms of the physical facilities being visually appealing/well maintained, which is in line with a study by Goran (2014). The gap exists as well between what the community expects and what they experience in term of modern technology used in the office, and this finding supports a study by Goran (2014).

The findings tell us that there is a gap between what the community expects and experience in terms of the employees being neatly dressed in uniform. The results reveal that there is a gap in what they expect regarding materials associated with the water services (pamphlets or statements) being visually appealing and their actual state.

Su and Teng (2017) agree that tangibles refer to property environment (interior and exterior), such as cleanliness, authenticity, up-to-date technology, and attractiveness. This study has revealed that the community has a negative experience of the uMgungundlovu district municipality’s water property environment.

This study supports a study by Kansara (2020) which found that the expectations and perceptions of the construct tangibles of water service were significantly different. Alsaqre (2011) and Abdullah *et al*. (2013), in their studies, recommended that great attention must be given to all tangible factors of service quality because such factors have influence on customer loyalty and can bring more profits to an organisation.

5.3.2 Reliability

This study reveals that there is a gap between what communities expect and experience in term of when the uMgungundlovu district municipality water service promises to do something by a certain time and when it will be done. The finding is in line with a study by Awortwe (2018) which found timely service was an issue.

The study reveals that there is a gap between what the community expects and experiences in terms of when the municipality showing a sincere interest in solving customers' water problems and the actual actions of the municipality. This study reveals that there is a gap between what communities expect and experience in terms of services being performed right the first time, and this in line with a study by Kansara (2020).

This study reveals that there is a gap between what communities expect and experience in terms of services being provided at the time the municipality promises to do so. This study reveals that there is a gap between what the community expects and experiences in term of error-free records.

According to Wahid *et al.* (2017:46), reliability refers to the ability to perform the promised service dependably and accurately. The findings of this study inform us that the community has a negative experience with the uMgungundlovu water service's ability to perform the promised services dependably and accurately. Thus,

the uMgungundlovu district municipality should take further action to improve their service quality.

5.3.3 Responsiveness

The study reveals that there is a gap between what the community expects and experiences in term of customers being informed as to exactly when services will be carried out. The study shows us that there is a gap in what the community expects and experiences in terms of the services to customers being prompt, the employees will always being willing to help customers, and the employees never being too busy to respond to customers' requests.

According to Sricharoenpramong (2018), responsiveness refers to the willingness to help customers and to provide a prompt service. The study informs us that the community did not experience the uMgungundlovu district municipality water service's willingness to help the community and to provide a prompt service, and this is in line with the study by Martinović *et al.* (2017) which found the responsiveness of services to be negatively perceived by customers.

5.3.4 Assurance

The study reveals that there is a gap between what the community expects and experiences in terms of the behaviour of the employees being able to instil confidence in customers (community), the community (customers) feeling safe/secure in their transaction with the employees of uMgungundlovu district municipality, employees being be polite to the community, and employees having the knowledge to answer customer/community water-related queries.

According to Sricharoenpramong (2018), assurance refers to the knowledge and courtesy of employees and their ability to convey trust and confidence, the promise to the community, politeness, respect, and effective communication. The findings tell us that the community did not experience knowledgeable employees who were courteous and conveyed trust and confidence.

According to Narteh (2018), assurance is born out of the interaction between the community and the service provider (uMgungundlovu district municipality), with the evidence of the findings of this study, it can be concluded that assurance was not existent during the interaction between the community and the uMgungundlovu district municipality.

5.3.5 Empathy

The study reveals that there is a gap between what the community expects and experiences in terms of customers receiving individual attention, operating hours being convenient to all customers in the community, the municipality having the community's best interest at heart, the municipality tailoring water services to meet the specific needs of the community, and specific employees from the municipality giving customers personal attention.

According to Sricharoenpramong (2018), empathy refers to the provision of care as well as individualised attention to the community, which includes approaching the community speedily and trying to understand the customer's individual needs.

Empathy is also understood as a fundamental skill for employees, predominantly those involved with customer interfacing roles (Murray *et al.*, 2019). This encourages the growth of familiarity and affinity, which contributes to higher levels of emotional loyalty to the service provider (Hennig-Thurau, 2004). As the employees of the uMgungundlovu district municipality are not showing empathy to the community, the water service quality is not up to the requirements of the community.

Thus, the district municipality should emphasise the empathy dimension to enhance familiarity and affinity between them and the community.

5.3.6 Mechanisms in place

This study reveals that from the uMgungundlovu district managers' perspectives the district has a well-functioning meter reader system to ensure a good water billing system and efficient water supply to the community. Moreover, managers claim that there is a good monitoring system of water statements in place to ensure water service quality. However, the uMgungundlovu district municipality IDP 2020/2021 report found that communities are still complaining about incorrect meter readings and billings.

According to Naki *et al*. (2018), municipalities must have effective water meter reading processes to prevent water misuse and wastage and to ensure correct water billing to residents and businesses.

Customers who do not pay their water bills are often allegedly given a warning before having their water supply shut off. This finding contradicts the uMgungundlovu district municipality IDP 2020/2021 study which states that the community is dissatisfied with the uMgungundlovu district municipality's lack of contact in terms of informing the community before water supplies are cut.

Furthermore, when a new customer requests water services, the district needs them to fill out a form and plumbers are then dispatched to connect them if they live in a formal location.

The district municipality invites those who cannot afford to pay for water to come forward and sign the indigent register, after which they will receive 6kl per month. The findings reveal that scientists from the technical department oversee water quality, and their responsibilities include ensuring that department water standards are followed and that they test water quality.

5.4 Findings in Relation to Empirical Research

5.4.1 To Determine Communities' Expectations of Water Service Quality in the uMgungundlovu District Municipality

This study reveals that the community has high expectations of the water service quality provided by the uMgungundlovu district municipality in terms of the reliability, responsiveness, empathy, assurance, and tangibles of the water service.

This study indicate that there is broad agreement across expectation dimensions such as tangibles, reliability, responsiveness, assurance, and empathy. This demonstrates that residents demand tangible, dependable water services from the municipality, as well as responsive water services, and that employees of the UMDM water service show empathy and assurance.
The residents expect that the water facilities will be up to date, the physical facilities must be pleasing to the eye and well-maintained, the office's equipment should be cutting-edge, employees must be well-dressed in uniform, and materials (pamphlets or statements) associated with water service should be visually enticing.

Furthermore, the community expects that when a municipality agrees to do something by a certain date, it will be done; when a customer has a water problem, the municipality should demonstrate a genuine interest in resolving it; services should be delivered correctly the first time; and the community will be told when services will be performed. Employees should never be too busy to respond to customer inquiries, employees' actions should instil trust in the community, employees must be knowledgeable enough to answer community water-related inquiries; and the municipality should customise the water supply to suit the community's particular needs.

5.4.2 To Ascertain Communities' Experiences of Water Service Quality in the uMgungundlovu District Municipality

This study indicates that there is substantial disagreement in perception dimensions such as tangibles, reliability, responsiveness, assurance, and empathy. This suggests that the community does not consider the water services to be tangible, reliable, or responsive. Furthermore, the community believes that the municipality's water service lacks empathy and assurance.

The community says the water equipment is outdated. As well as this, the physical facilities, technology used in the office, and the materials associated with the water services (pamphlets or statements) are either not well maintained, or not modern/visually appealing. Moreover, the community claims that the municipality does not fulfil their promises, does not show an interest in solving the community's water-related issues, the service is not always performed right the first time, the community is not told as to when services will be performed, employees' behaviour does not inspire trust in the community, employees are not always equipped to respond to community water-related questions, and the municipality does not always customise water supply to suit the community's unique needs. To put it another way, the respondents (community) have a critical perception of the water services offered.

5.4.3 To Identify the Mechanisms in Place that Ensure Quality Water Service Supply to the Community.

The study reveals that customers use phone calls and emails to lodge their water queries, but phone calls were used the most by customers. Moreover, the uMgungundlovu district municipality displays their emergency numbers on pamphlets, water vehicles, billboards, and on radio shows.

The uMgungundlovu municipality ensures the efficiency of the customer call centre through the strictness of the supervisors. Furthermore, queries are logged after being received and plumbers are dispatched to fix the problem. The status of the query in the system will not change until the problem has been resolved.

If the problem persists, the issue is referred to the supervisor for further consideration and investigation. The findings indicate that the uMgungundlovu district municipality manages and ensures water quality in compliance with the department of water affairs' guidelines. Furthermore, scientists from the technical department are in charge of water quality and their responsibilities include, ensuring that the department's water standards are followed and that they monitor water quality.

5.4.4 To Identify and Understand the Gap Between Communities' Expectations and Experiences of the Water Service Quality in the uMgungundlovu District Municipality.

This study reveals that all dimensions show gaps between what the community expects of water services and what they experience. The gap was found in the tangible, reliability, responsiveness, assurance, and empathy dimensions.

Most of the attributes of the five dimensions showed significant disagreement. This study also reveals that the community's negative perceptions (experience) outweigh the positive ones in regard to water service quality in terms of the reliability of water services provided, tangibles of the water services provided, empathy of the water services provided, assurance of the water services provided, and responsiveness of the water services provided by the uMgungundlovu district municipality.

5.5 Recommendations to the uMgungundlovu District Municipality

This study recommends the following:

- The municipality should consider restructuring its customer care service to meet current community queries. The proposed approach alludes to the issue of restructuring.
- Employees at the municipality must attend various training courses that focus on customer care and policy directives relating to the operation of water service quality.
- The uMgungundlovu district municipality should consider hiring knowledgeable employees in their customer care department so they can effectively address community water queries.
- The uMgungundlovu district municipality should consider hiring skilled plumbers so they can efficiently attend to community water issues.
- The uMgungundlovu district municipality should consider hiring more customer care employees to offset the workload.
- The uMgungundlovu district municipality should consider updating and upgrading water equipment.

- The uMgungundlovu district municipality should consider modernising the water meter reading system and water statement system.
- The uMgungundlovu district municipality should consider ameliorating its water productivity to address high demand.
- The uMgungundlovu district municipality should consider upgrading the water technology used by the district.
- The uMgungundlovu district municipality should consider improving communication between the uMgungundlovu district municipality and community leaders.
- The uMgungundlovu district municipality should consider enhancing the mechanisms in place that ensure quality water service supply to the community.

- The uMgungundlovu district municipality should consider training employees to seek knowledge, be educated and courteous, be polite, be ready to serve, and communicate effectively.
- The uMgungundlovu district municipality should consider increasing staff awareness to make employees more active, enthusiastic, and understanding of community requirements.
- The uMgungundlovu district municipality should consider encouraging employees to be appropriately attired.
- The uMgungundlovu district municipality should consider training employees to be reliable, punctual, and careful at work.
- The uMgungundlovu district municipality should consider encouraging employees to be willing to help other people and be ready to always respond to the community's needs.
- The uMgungundlovu district municipality should consider applying the five key dimensions that the community use to consider service quality to determine work standards for plumbers and customer care employees.
- The uMgungundlovu district municipality should consider focusing on human capital management and improvement as well as organisational development at the same time.

5.6 Conceptual Framework

This study proposes a conceptual framework to enhance the water service quality in the context of the rural community. The proposed model is based on the ServQual model. The five dimensions, namely tangibles, reliability, assurance, empathy, and responsiveness, were the five independent constructs.

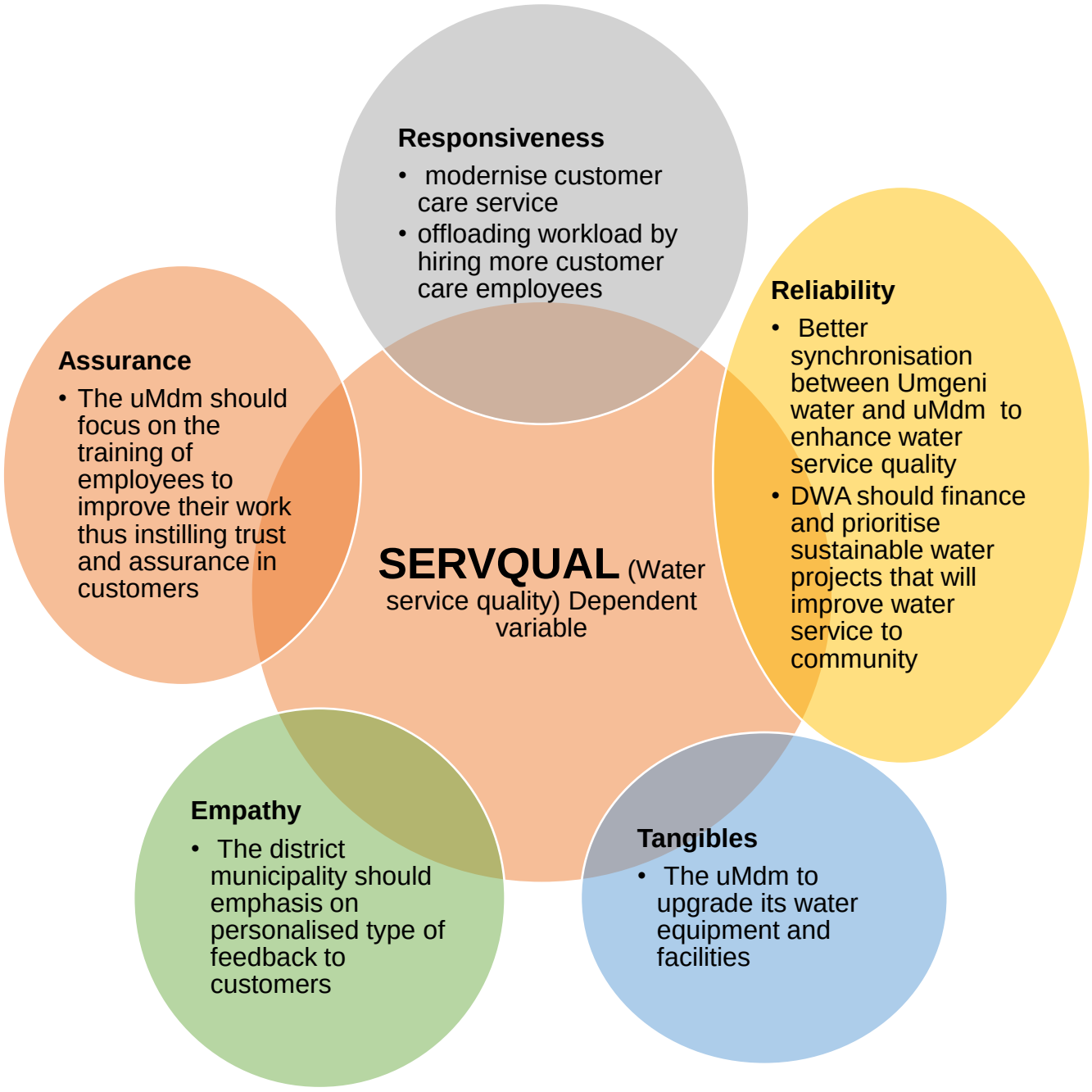

Figure 5.1 Water service quality conceptual framework

In the above-proposed framework for Improved Service Quality at uMgungundlovu, the researcher proposes the following dimensions for improvement:

1. **Responsiveness**: This study proposes a modernised model of a customer care centre that will connect all queries for uMgungundlovu water provisions. The operation of this service centre station will not be far-fetched from the values of Batho Pele and the customer service charter that was adopted by the provincial government. This will also offload some of the workload of permanent staff by hiring more customer care employees. This centre will be monitored and evaluated systematically with the municipality.
2. **Reliability:** This involves better synchronisation between Umgeni water and the uMgungundlovu district municipality to enhance water service quality. DWA should finance and prioritise sustainable water projects that will improve water service to the community.
3. **Tangibles:** this study proposes an overall upgrade of the uMgungundlovu district municipality's water equipment. Upgraded equipment will improve water service quality and improve the community perception of the water service.
4. **Assurance:** this study proposes that the uMgungundlovu district municipality focuses on training the employees to improve their work. Thus, instilling trust and assurance in customers. Employees who instil trust and confidence in the community are an asset to the district municipality.
5. **Empathy:** this study proposes that the district municipality should put emphasis on personalised types of feedback to customers**.** The one size fits all type of feedback is not helping in the relation to UMDM and the community. Thus, a better type of feedback, as complaints are different, will improve the water service quality and the perception of the service by the community**.**

5.7 Proposed Areas for Further Research

Researchers may need to look and measure the influence of moderating factors such as age, gender, and level of education in relation to the perception of water service quality. Moreover, researchers should look into the level of involvement of different water stakeholders. Researchers may need to critically investigate the relationship between the department of water affairs, the uMgungundlovu district

municipality, and Umngeni water. Researchers should also do a comparative water service quality study between rural communities and suburbs.

A comparative study between different communities in South Africa is also needed. Further studies may also need to investigate the water billing system as the community seems to complain about water bills and the uMgungundlovu district municipality seems to complain about water revenue collection.

5.8 Theoretical Contribution

As the findings of this study have shown, the lack of compliance and bad practices have prompted the researcher to develop a strong, comprehensive, and holistic framework for improving water service quality while also ensuring community satisfaction. The conceptual framework has included service quality principles to improve uMgungundlovu district municipality's water services.

As customer preferences and behaviors are always changing, it is critical for employees to adapt to changing customer needs when providing service. Customer satisfaction is a critical behavioural goal that any service provider aspires to accomplish. Customer satisfaction has traditionally been examined as a unidimensional construct that evaluates overall satisfaction with a service provider as a result of the sum of all interactions and contact points with the service provider (Yang and Peterson, 2004; Leppäniemi, Karjaluoto, & Saarijärvi, 2017 Chen and Tsai, 2008). In this study, we conceptualise customer satisfaction as a one-dimensional construct that reflects a community's overall perception of the water service's performance over time.

The five dimensions of service quality are the independent constructs in the framework and provide some guidelines to be considered in the enhancement of water service quality. Service quality is the tool to guide how any service is to be rendered to customers.

Tangibles are the outward image of the service's physical facilities, instruments, and equipment. Tangibles tend to influence community water service perception and satisfaction. Thus, enhancing and implementing all the tangible attributes will

facilitate the water service to improve its quality. The uMgungundlovu municipality's physical facilities should be upgraded.

Reliability is the ability to provide the promised services with consistency and accuracy; the service is completed correctly the first time, records are current, and schedules are maintained. For the uMgungundlovu district municipality water service to be reliable, all the attributes of the reliability construct should be implemented and/ or enhanced.
The community expects the water service to be reliable, therefore, an effort should be made to satisfy the community's requirements. Furthermore, DWA should finance and prioritise sustainable water projects that will improve water supply to the community. Better synchronisation of efforts between Umgeni water and UMDM will enhance water service quality.

Responsiveness is the willingness to assist customers and provide a prompt response. Responsiveness has shown to be an important determinant in the perception of service quality. To prevent negative perceptions of water service quality, the uMgungundlovu district municipality must adhere to the responsiveness attributes. The municipality must modernise customer care services, offload workloads by hiring more customer care employees, and train plumbers to improve the responsiveness of the service.

Empathy is the provision of support and the individualised consideration to customers, which involves contacting customers quickly and attempting to understand the customer's specific needs. Empathy is also regarded as a fundamental skill for employees, especially those in customer service roles.

Employees who have a high degree of cognitive empathy are more likely to consider the needs of customers. When communicating with customers, workers with high levels of social empathy are more likely and eager to show interpersonal interest, cooperation, and welfare. Thus, it is paramount for the uMgungundlovu district municipality to emphasise a personalised type of service and to motivate and train their employees in showing a high level of empathy when dealing with the

community. When engaging with the community, staff should be encouraged to adopt an empathetic approach and try to exude positive emotions.

Assurance is the employees' knowledge and courtesy as well as their ways to convey confidence and trust, the community's promise, politeness and reverence, efficient communication, and the service provider's neat appearance. Conveying trust is an important factor when dealing with the community, as the community will appreciate interacting with the employees and expose their water related issues and requirements. Thus, the uMgungundlovu municipality will know the community water requirements and provide adequate solutions.

This is the theoretical contribution of the researcher. The research adds to the body of knowledge on water service quality, especially in rural communities.

5.9 Contribution of the Study to the Discipline

The research study contributes to the water service sector in the uMgungundlovu district municipality, the KwaZulu-Natal province, and South Africa in general. The study provides empirical evidence to sustain water service theories. Furthermore, this study provides a conceptual framework, thus, enriching the discipline’s literature and theories.

5.10. Conclusion

This chapter outlined the summary of the findings. The chapter also provides recommendations to improve the water service quality provided to the community. Furthermore, a conceptual framework was suggested based on the findings of this study. The framework will assist in better managing water services. Areas of improvement noted were the need to efficiently implement the five dimensions of service quality.

The services provided should adhere to the five dimensions of service quality to reduce customers’ dissatisfaction and improve customers’ satisfaction. Customers’ dissatisfaction was due to the gap found in this study. The uMgungundlovu water

service department should prioritise efficiency in terms of responsiveness, reliability of water services, tangibility, empathy, and assurance. This will make the community benefit from an efficient water service and it will improve the trust in the service, therefore, facilitating them to regularly pay for the water service which will benefit the uMgungundlovu district municipality as well.

References

Abbaspour, S., 2011. Water quality in developing countries, south Asia, South Africa, water quality management and activities that cause water pollution. *IPCBEE*, *15*, pp.94-102.

Abubakar, I. R. 2016. Quality dimensions of public water services in Abuja, Nigeria. *Utilities Policy*, **38**: 43-51.

Abukila, A. F., El-Kholy, R. M., and Kandil, M. I. 2012. Assessment of water resources management and quality of el Salam canal, Egypt. *International Journal of Environmental Engineering*, **4**(1–2): 34–54.

Acheampong, E. N., Swilling, M., and Urama, K. 2016. Sustainable urban water system transitions through management reforms in Ghana. *Water Resources Management*, **30**(5): 1835–1849.

Afrobarometer, Afrobarometer data (34 countries). Round 7, 2016–2018 (2020)

Alexander, P., Runciman, C., Ngwane, T., Moloto, B., Mokgele, K., and Van Staden, N. 2018. Frequency and turmoil: South Africa's community protests 2005–2017. *South African Crime Quarterly*, *63*: 27-42.

Alharahsheh, H., and Pius, A. 2020. A review of key paradigms: Positivism VS interpretivism. *Global Academic Journal of Humanities and Social Sciences*, **2**(3): 39-43.

Ali, H. Y., Ali, H. F., and Ahmad, M. B. 2019. Difference between Expectations and Perceptions of Students Regarding Service Quality of Public Sector HEIs. *Bulletin of Education and Research*, **41**(1), 131-146.

Ali, H. Y., Ali, H. F., and Ahmad, M. B. 2019. Difference between Expectations and Perceptions of Students Regarding Service Quality of Public Sector HEIs. *Bulletin of Education and Research*, **41**(1): 131-146.

Aliyu, A. A., Bello, M. U., Kasim, R., and Martin, D. 2014. Positivist and non-positivist paradigm in social science research: Conflicting paradigms or perfect partners. *J. Mgmt. & Sustainability*, **4**: 79.

Amrhein, V., Trafimow, D., and Greenland, S. 2019. Inferential statistics as descriptive statistics: There is no replication crisis if we don't expect replication. *The American Statistician*, **73**(sup1): 262-270.

Archer, E. R. M., Landman, W. A., Tadross, M. A., Malherbe, J., Weepener, H., Maluleke, P., and Marumbwa, F. M. 2017. Understanding the evolution of the 2014–2016 summer rainfall seasons in southern Africa: Key lessons. *Climate Risk Management*, **16**: 22-28.

Aritonang, D. M. 2017. The Impact of E-Government System on Public Service Quality in Indonesia. *European Scientific Journal, ESJ*, **13**: 35-99.

Assembly, G. (2010). Resolution adopted by the General Assembly: 64/292-The human right to water and sanitation. In *108th Plenary Meeting: United Nations*.

Atampugre, G., Botchway, D. N. Y. M., Esia-Donkoh, K., and Kendie, S. 2016. Ecological modernization and water resource management: A critique of institutional transitions in Ghana. Geojournal, **81**(3): 367–378.

Awortwe, M. 2018. *Service quality delivery and its effect on customer satisfaction in Ghana Water Company Limited in the Takoradi township.* Doctoral dissertation, University of Cape Coast.

Awortwe, M. 2018. *Service quality delivery and its effect on customer satisfaction in Ghana Water Company Limited in the Takoradi township.* Doctoral dissertation, University of Cape Coast.

Azadi, H., Barati, A. A., Rafiaani, P., Taheri, F., Gebrehiwot, K., Witlox, F., and Lebailly, P. 2017. Evolution of land use-change modeling: routes of different schools of knowledge. *Landscape and Ecological Engineering*, **13**(2): 319-332.

B. Maphela and F. Cloete 2019. *Johannesburg's implementation of the National Water Act, 1998 in Soweto, South Africa*. Development Southern Africa. DOI: 10.1080/0376835X.2019.1647834

Babin, B. J., & Zikmund, W. G. 2015. *Essentials of marketing research*. Nelson Education.

Babin, B. J., & Zikmund, W. G. 2015. *Exploring marketing research*. Cengage Learning.

Bakker, K. 2012. Water security: research challenges and opportunities. *Science*, **337**(6097): 914-915.

Barbour, R. 2018. *Doing focus groups.* Vol. 4. Sage.

Bel, G., González-Gómez, F., and Picazo-Tadeo, A. J. 2015. Does market concentration affect prices in the urban water industry? *Environment and Planning C: Government and Policy*, **33**(6): 1546-1565.

Bhattacharya, S., Saha, S., and Banerjee, S. 2016. Income inequality and the quality of public services: A developing country perspective. *Journal of Development Economics*, **123**: 1-17.

Blackstone, A. 2018. *Principles of sociological inquiry: Qualitative and quantitative methods*.

Bowers-Brown, T., & Stevens, A. (2010). Literature reviews. *Practical Research and Evaluation: A Start-to-Finish Guide for Practitioners*, 76-94.

Bowman, A. O. M., and Kearney, R. C. 2017. *State and local government*. Nelson Education.

Bowring, S., Bauer, A., Vasquez, A., Josephs, H., Longmate, J., Stevens, P. ...and Yunis, R. (2017), "Water Security in Developing Countries", available at: http://12.000.scripts.mit.edu/mission2017/water-security-in-developing-countries/ (accessed 12 January 2021).

Boyle, T., Giurco, D., Mukheibir, P., Liu, A., Moy, C., White, S., and Stewart, R. 2013. Intelligent metering for urban water: A review. *Water*, **5**(3): 1052-1081.

Boyle, T., Giurco, D., Mukheibir, P., Liu, A., Moy, C., White, S., and Stewart, R. 2013. Intelligent metering for urban water: A review. *Water*, **5**(3): 1052-1081.

Brisbois, M. C., and de Loë, R. C. 2016. Power in collaborative approaches to governance for water: a systematic review. *Society & Natural Resources*, **29**(7): 775-790.

Brooks, D. B. (2006). An operational definition of water demand management. *International Journal of Water Resources Development*, *22*(4), 521-528.

Carpintero, S., and Helby Petersen, O. 2016. Public–private partnerships (PPPs) in local services: Risk-sharing and private delivery of water services in Spain. *Local Government Studies*, **42**(6): 958-979.

Chappi, N. 2018. *uMgungundlovu Environmental Health report, 2017-2018*. Report. Community Services.

Chappi, N. 2018. *uMgungundlovu Environmental Health report, 2017-2018*. Report. Community Services.

Chen, C. F., & Tsai, M. H. (2008). Perceived value, satisfaction, and loyalty of TV travel product shopping: Involvement as a moderator. *Tourism management*, *29*(6), 1166-1171.

Choi, H., Ann, S., Lee, K. W., and Park, D. B. 2018. Measuring service quality of rural accommodations. *Sustainability*, **10**(2): 443.

Choi, H., Ann, S., Lee, K. W., and Park, D. B. 2018. Measuring service quality of rural accommodations. *Sustainability*, **10**(2): 443.

Cisneros, P. 2019. What makes collaborative water governance partnerships resilient to policy change? A comparative study of two cases in Ecuador. *Ecology and Society*, **24**(1).

Clarke, V., & Braun, V. (2013). Teaching thematic analysis: Overcoming challenges and developing strategies for effective learning. *The psychologist*, *26*(2).

Clifford-Holmes, J. K. 2015. *Fire and water: a transdisciplinary investigation of water governance*. PhD thesis, Rhodes University.

Clifford-Holmes, J. K., Palmer, C. G., de Wet, C. J., and Slinger, J. H. 2016. Operational manifestations of institutional dysfunction in post-apartheid South Africa. *Water Policy*, **18**(4): 998-1014.

Clifford-Holmes, J. K., Slinger, J. H., De Wet, C., and Palmer, C. G. 2018. Modelling in the 'muddled middle': a case study of water service delivery in post-Apartheid South Africa. *Social systems engineering: the design of complexity.* John Wiley & Sons, Hoboken, New Jersey. DOI: https://doi. org/10.1002/9781118974414. ch11: 215-234.

Cobbinah, P. B., Okyere, D. K., and Gaisie, E. 2020. Population growth and water supply: The future of Ghanaian cities. In: *Megacities and Rapid Urbanization: Breakthroughs in Research and Practice*. IGI Global: 96-117

Collis, J. and Husey, R. 2014. *Business Research. A practical guide for undergraduate and postgraduate students.* 4th ed. New York: Palgrave Macmillan

Colman, A. M., & Pulford, B. D. (2006). *A crash course in SPSS for Windows: updated for versions 10, 11, 12 and 13*. Wiley-Blackwell.

Cosgrove, W. J., and Rijsberman, F. R. 2014. *World water vision: making water everybody's business*. Routledge.

Cosgrove, W. J., and Rijsberman, F. R. 2014. *World water vision: making water everybody's business*. Routledge.

Creswell, J. W., & Creswell, J. D. 2017. *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

Creswell, J. W., and Clark, V. L. P. 2017. *Designing and conducting mixed methods research*. Sage publications.

Crookes, C., Hedden, S. and Donnenfeld, Z., 2018. A delicate balance: Water scarcity in South Africa. *ISS Southern Africa Report*, *2018*(13), pp.1-24.

Das, M.B. 2017. The Rising Tide: A New Look at Water and Gender. World Bank: Washington.

Davis, J., Iyer, P., & Yavuz, E. (2006) Rural water supply, sanitation, and hygiene: a review of 25 years of lending 1978-2003.

De Visser, J., Cottle, E., and Mettler, J. 2003. Realising the right of access to water: Pipe dream or watershed? *Law, Democracy & Development*, **7**(1): 27-53.

Democracy Governance Service Delivery. 2016. *Democracy, Governance and Service Delivery*. Retrieved from: htpp://www.hsrc.ac.za/uploads/pagesContent/4653/DGSD%20electronic%20brochure.pdf

Department of Water Forestry. (DWAF). *Water Quality management in South Africa*. Retrieved from: http://www.dwaf.gov.za/DirWQM/wqmFrame.html

Department of Water Forestry. (DWAF). *Water Quality management in South Africa*. Retrieved from: http://www.dwaf.gov.za/DirWQM/wqmFrame.html

DGSD. 2016. *Democracy, Governance and Service Delivery*. Retrieved from: htpp://www.hsrc.ac.za/uploads/pagesContent/4653/DGSD%20electronic%20brochure.pdf

Donnenfeld, Z., Crookes, C., and Hedden, S. 2018. A delicate balance: Water scarcity in South Africa. *ISS Southern Africa Report*, **2018**(13): 1-24.

Donnenfeld, Z., Crookes, C., and Hedden, S. 2018. A delicate balance: water scarcity in South Africa. **2018**(13): 1-24.

Dos Santos, S., Adams, E., Neville, G., Wada, Y., De Sherbinin, A., Bernhardt, E. M., and Adamo, S. 2017. Urban growth and water access in sub-Saharan Africa: Progress, challenges, and emerging research directions. ***607***: 497-508.

Dos Santos, S., Adams, E., Neville, G., Wada, Y., De Sherbinin, A., Bernhardt, E. M., and Adamo, S. 2017. Urban growth and water access in sub-Saharan Africa: Progress, challenges, and emerging research directions. **607**: 497-508

Fisher-Jeffes, L. N., Armitage, N. P., Carden, K., Winter, K., and Okedi, J. 2017. Addressing Water Scarcity in South Africa through the Use of LID. In: *International Low Impact Development Conference 2016: Mainstreaming Green Infrastructure*. Reston, VA: American Society of Civil Engineers: 20-28.

Förster, J. J., Downsborough, L., and Chomba, M. J. 2017. When policy hits practice: Structure, agency, and power in South African water governance. *Society & Natural Resources*, **30**(4): 521-536.

Foster, T. (2013). Predictors of sustainability for community-managed handpumps in sub-Saharan Africa: evidence from Liberia, Sierra Leone, and Uganda. *Environmental science & technology*, *47*(21), 12037-12046.

Fuente, D., Allaire, M., Jeuland, M., & Whittington, D. (2020). Forecasts of mortality and economic losses from poor water and sanitation in sub-Saharan Africa. *PloS one*, *15*(3), e0227611.

Fugard, A. J., & Potts, H. W. (2015). Supporting thinking on sample sizes for thematic analyses: a quantitative tool. *International Journal of Social Research Methodology*, *18*(6), 669-684.

Gain, A. K., Giupponi, C., and Wada, Y. 2016. Measuring global water security towards sustainable development goals. *Environmental Research Letters*, **11**(12): 124015.

García-Rubio, M. A., Ruiz-Villaverde, A., and González-Gómez, F. 2015. Urban water tariffs in Spain: What needs to be done? *Water*, **7**(4): 1456-1479.

Gober, P. A., Strickert, G. E., Clark, D. A., Chun, K. P., Payton, D., and Bruce, K. 2015. Divergent perspectives on water security: bridging the policy debate. *The Professional Geographer*, **67**(1): 62-71.

Gosling, S. N., and Arnell, N. W. 2016. A global assessment of the impact of climate change on water scarcity. *Climatic Change*, **134**(3): 371-385.
Gray, D. 2020. An international housing market in the British Isles: Evidence from business and medium-term cycles using a Friedman test. *Urban Studies*, **57**(2): 307-322.
Grigg, N. S. 2019. Global water infrastructure: state of the art review. *International Journal of Water Resources Development*, **35**(2): 181-205.

Grigg, N. S. 2019. Global water infrastructure: state of the art review. *International Journal of Water Resources Development*, **35**(2): 181-205.
Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field methods*, *18*(1), 59-82.
GWP. 2000. *Towards water security: A framework for action Global Water Partnership*. Stockholm: Global Water Partnership.
GWP. 2012. *Increasing water security: A development imperative Global Water Partnership*. Stockholm: Global Water Partnership.
GWSP. 2013. *The Bonn declaration on global water security Global Water System Project.* Bonn: Global Water System Project.
Hamer, N.G., Lipile, N., Lipile, N., Molony, L., Nzwana, X., O'Keeffe, J., Shackleton, S.E, Weaver, M., and Palmer, CG. 2018. Coping with water supply interruptions: can citizen voice in transdisciplinary research make a difference? *Water International*, **43**(5): 603-619. DOI: 10.1080/02508060.2018.1497863
Han, S., Koo, D. D., Kim, Y., Kim, S., and Park, J. 2017. Gap analysis-based decision support methodology to improve level of service of water services. *Sustainability*, **9**(9): 1578.

Han, S., Koo, D. D., Kim, Y., Kim, S., and Park, J. 2017. Gap analysis-based decision support methodology to improve level of service of water services. *Sustainability*, **9**(9): 1578.
Hanrahan, M., & Mercer, N. 2019. Gender and water insecurity in a subarctic indigenous community. *The Canadian Geographer/Le Géographe canadien*, **63**(2): 211-224.
Hanrahan, M., and Mercer, N. 2019. Gender and water insecurity in a subarctic indigenous community. *The Canadian Geographer/Le Géographe canadien*, **63**(2): 211-224.

Harrington, C. 2017. The political ontology of collaborative water governance. *Water International*, **42**(3): 254-270.

Harvey, P., & Reed, B. (2004). *Rural water supply in Africa: Building blocks for handpump sustainability*. WEDC, Loughborough University.

Hasan, M. N. 2016. Positivism: to what extent does it aid our understanding of the contemporary social world? *Quality & Quantity*, **50**(1): 317-325.

Heap, V., & Waters, J. 2019. Data collection methods. In: *Mixed Methods in Criminology*. Routledge: 141-176.

Hepworth, N. D. 2009. *A progressive critique of IWRM in sub-Saharan Africa: beyond capacity towards self-determined regulatory personality.* Doctoral dissertation, University of East Anglia.

Hoekstra, A. Y., Buurman, J., and van Ginkel, K. C. 2018. Urban water security: A review. *Environmental Research Letters*, **13**(5): 053002.

Hofstetter, M., Bolding, A., and van Koppen, B. 2020. Addressing failed water infrastructure delivery through increased accountability and end-user agency: The case of the sekhukhune district, South Africa. *Water Alternatives*, **13**(3): 843-863.

Hofstetter, M., Bolding, A., and van Koppen, B. 2020. Addressing failed water infrastructure delivery through increased accountability and end-user agency: The case of the sekhukhune district, South Africa. *Water Alternatives*, **13**(3): 843-863.

Hope, R., & Ballon, P. (2021). Individual choices and universal rights for drinking water in rural Africa. *Proceedings of the National Academy of Sciences*, *118*(40).

Hutton, G., & Varughese, M. (2016). The costs of meeting the 2030 sustainable development goal targets on drinking water, sanitation, and hygiene.

IOL. 2019. *Tapping into South Africa's access to water*. Retrieved from: https://www.iol.co.za/capetimes/opinion/tapping-into-south-africas-access-to-water-19305163

IOL. 2019. *Tapping into South Africa's access to water*. Retrieved from: https://www.iol.co.za/capetimes/opinion/tapping-into-south-africas-access-to-water-19305163

Iyer, D., and Tewari, D. D. 2017. An Analysis of the State's Obligation to Provide Access to Sufficient Water: A South African Perspective. *African Journal of Legal Studies*, **10**(2-3): 127-140.

Jensen, O. 2017. Public–private partnerships for water in Asia: a review of two decades of experience. *International journal of water resources development*, **33**(1): 4-30.

Joshi, A., Kale, S., Chandel, S., and Pal, D. K. 2015. Likert scale: Explored and explained. *British Journal of Applied Science & Technology*, **7**(4): 396.

Joustra, C. M., and Yeh, D. H. 2015. Framework for net-zero and net-positive building water cycle management. *Building Research & Information*, **43**(1): 121-132.

Joustra, C. M., and Yeh, D. H. 2015. Framework for net-zero and net-positive building water cycle management. *Building Research & Information*, **43**(1): 121-132.

Kankam, P. K. 2019. The use of paradigms in information research. *Library & Information Science Research*.

Katuva, Hope, Foster, Koehler, & Thomson, 2020

Katuva, J., Hope, R., Foster, T., Koehler, J., & Thomson, P. (2020). Groundwater and welfare: A conceptual framework applied to coastal Kenya. *Groundwater for Sustainable Development*, *10*, 100314.

Kayaga, S., Sansom, K., Godfrey, A., Takahashi, I., and Van Rooijen, D. 2018. Towards sustainable urban water services in developing countries: tariffs based on willingness-to-pay studies. *Urban Water Journal*, **15**(10): 974-984.

Kayaga, S., Sansom, K., Godfrey, A., Takahashi, I., and Van Rooijen, D. 2018. Towards sustainable urban water services in developing countries: tariffs based on willingness-to-pay studies. *Urban Water Journal*, **15**(10): 974-984.

Kelly, M., Dowling, M., and Millar, M. 2018. The search for understanding: the role of paradigms. *Nurse researcher*, **25**(4): 9-13.

Kemerink, J. S., Ahlers, R., and Van der Zaag, P. 2011. Contested water rights in post-apartheid South Africa: the struggle for water at catchment level. *Water SA*, **37**(4): 585-594.

Khan, S., Guan, Y., Khan, F., and Khan, Z. 2020. A Comprehensive Index for Measuring Water Security in an Urbanizing World: The Case of Pakistan's Capital. *Water*, **12**(1): 166.

Kheswa, S. S. 2019. *Investigating the social impact of water shortage on the livelihoods of rural settlements: the case study of KwaNonzila in Mkhambathini Municipality.* Doctoral dissertation.

Kheswa, S. S. 2019. *Investigating the social impact of water shortage on the livelihoods of rural settlements: the case study of KwaNonzila in Mkhambathini Municipality.* Doctoral dissertation.

Kisakye, V., and Van der Bruggen, B. 2018. Effects of climate change on water savings and water security from rainwater harvesting systems. *Resources, Conservation and Recycling*, **138**: 49-63.

KNBS, "2019 Kenya population and housing census. Volume IV: Distribution of population by socio-economic characteristics" (Kenya National Bureau of Statistics, 2019)

Kumar, R. 2019. *Research methodology: A step-by-step guide for beginners*. Sage Publications Limited.

Kusena, W., and Beckedahl, H. 2016. An overview of the city of gweru, Zimbabwe's water supply chain capacity: Towards a demand-oriented approach in domestic water service delivery. *Geo journal*, **81**(2): 231–242.

Lahnsteiner, J., and Lempert, G. 2007. Water management in Windhoek, Namibia. *Water Science and Technology*, **55**(1–2): 441–448.

Lalika, M. C. S., Meire, P., and Ngaga, Y. M. 2015. Exploring watershed conservation and water governance along pangani river basin, Tanzania. *Land Use Policy*, **48**: 351–361.

Larsen, T. A., Hoffmann, S., Lüthi, C., Truffer, B., and Maurer, M. 2016. Emerging solutions to the water challenges of an urbanizing world. *Science*, **352**(6288): 928-933.

Larsen, T. A., Hoffmann, S., Lüthi, C., Truffer, B., and Maurer, M. 2016. Emerging solutions to the water challenges of an urbanizing world. *Science*, **352**(6288): 928-933.

LDM. 2014. *Development of Universal Access Plan for Water & Sanitation in KwaZulu-Natal*. Retrieved from: http://www.dwa.gov.za/downloads/WS/DWS%20KZN/Universal%20Access%20Plans/KZN%20UAP%202%20Info/UMgungundlovu%20DM%20-%20Final%20UAP%20Report%20Phase%201.pdf

LDM. 2014. *Development of Universal Access Plan for Water & Sanitation in KwaZulu-Natal*. Retrieved from: http://www.dwa.gov.za/downloads/WS/DWS%20KZN/Universal%20Access%20Plan

s/KZN%20UAP%202%20Info/UMgungundlovu%20DM%20-%20Final%20UAP%20Report%20Phase%201.pdf

Leauthaud, C., Duvail, S., Hamerlynck, O., Paul, J., Cochet, H., Nyunja, J., and Grünberger, O. 2013. Floods and livelihoods: The impact of changing water resources on wetland agroecological production systems in the Tana River Delta, Kenya. *Global Environmental Change*, **23**(1): 252–263

Leppäniemi, M., Karjaluoto, H., & Saarijärvi, H. (2017). Customer perceived value, satisfaction, and loyalty: the role of willingness to share information. *The International Review of Retail, Distribution and Consumer Research*, *27*(2), 164-188.

Machi, L. A., and McEvoy, B. T. 2016. *The literature review: Six steps to success*. Corwin Press.

Madigele, P. K. 2018. South Africa's water regulatory and policy framework: a new institutional economic review. *Sustainable Water Resources Management*, **4**(1): 129-141.

Makhari, C. L. (2016). Assessment of water service delivery in the municipalities of City of Tshwane, City of Cape Town and EThekwini.

Malatjie, P. G. 2016. *Community perception of water service delivery in Greater Giyani Municipality.* Doctoral dissertation, University of Limpopo.

Maphela, B. 2015. *Critical assessment of South Africa's water policy.* Doctoral dissertation, University of Johannesburg.

Margerum, R. D. 2011. *Beyond consensus: Improving collaborative planning and management*. MIT Press.

Martinović, M., Pavlić, I., and Šuman Tolić, M. 2017. MEASUREMENT OF LOCAL PUBLIC SERVICES'QUALITY USING SERVQUAL: THE CASE OF DUBROVNIK. *Ekonomska misao i praksa*, **1**(2): 593-610.

Martinović, M., Pavlić, I., and Šuman Tolić, M. 2017. MEASUREMENT OF LOCAL PUBLIC SERVICES'QUALITY USING SERVQUAL: THE CASE OF DUBROVNIK. *Ekonomska misao i praksa*, **1**(2): 593-610.

Meesala, A., and Paul, J. 2018. Service quality, consumer satisfaction and loyalty in hospitals: Thinking for the future. *Journal of Retailing and Consumer Services*, **40**: 261-269.

Mehta, L., and Derman, B. 2017. *Flows and Practices: The Politics of Integrated Water Resources Management in Eastern and Southern Africa*. Weaver Press.

Mehta, L., Movik, S., Bolding, A., Derman, B., and Manzungu, E. 2016. *Introduction to the special issue–flows and practices: The politics of Integrated Water Resources Management (IWRM) in southern Africa*.

Meissner, R., and Jacobs, I. 2016. Theorising complex water governance in Africa: The case of the proposed epupa dam on the kunene river. *International Environmental Agreements: Politics, Law and Economics*. **16**(1): 21–48.

Meissner, R., Funke, N., Nortje, K., Jacobs-Mata, I., Moyo, E., Steyn, M., and Nohayi, N. 2018. Water security at local government level in South Africa: a qualitative interview-based analysis. *The Lancet Planetary Health*, **2**: S17.

Mekonnen, M. M., and Hoekstra, A. Y. 2016. Four billion people facing severe water scarcity. *Science advances*, **2**(2): e1500323.

Melnychuk, N., and de Loë, R. 2020. Legitimacy assessment throughout the life of collaborative water governance. *Environmental Policy and Governance*.

Mogakane, M. M. 2018. *The effectiveness of municipal water service delivery in Hluvukani Community in Bushbuckridge, Mpumalanga.* Doctoral dissertation.

Mohajan, H. K. 2018. Qualitative research methodology in social sciences and related subjects. *Journal of Economic Development, Environment and People*, **7**(1): 23-48.

Mokgobu, M. L. 2017. *Challenges of the repairs and maintenance of water infrastructure in Aganang Municipality in the province of Limpopo.* Doctoral dissertation.

Mokgobu, M. L. 2017. *Challenges of the repairs and maintenance of water infrastructure in Aganang Municipality in the province of Limpopo.* Doctoral dissertation.

Murray, J., Elms, J., and Curran, M. 2019. Examining empathy and responsiveness in a high-service context. *International Journal of Retail & Distribution Management*.

Mwelase, L. T. and Dzwairo. 2016. *Non-revenue water: most suitable business model for water services authorities in South Africa: Ugu District Municipality.* Doctoral dissertation.

Mwelase, L. T. and Dzwairo. 2016. *Non-revenue water: most suitable business model for water services authorities in South Africa: Ugu District Municipality.* Doctoral dissertation.

Naki, A., Boucher, D., and Nzewi, O. 2018. A Framework to Mitigate Water Billing Information Systems Integration Challenges at Municipalities. In: *2018 IST-Africa Week Conference (IST-Africa)*. IEEE: 1.

Naki, A., Boucher, D., and Nzewi, O. 2018. A Framework to Mitigate Water Billing Information Systems Integration Challenges at Municipalities. In: *2018 IST-Africa Week Conference (IST-Africa)*. IEEE: 1.

Narteh, B. 2018. Service quality and customer satisfaction in Ghanaian retail banks: the moderating role of price. *International Journal of Bank Marketing*.

Ndevu, Z., and Muller, K. 2017. A conceptual framework for improving service delivery at local government in South Africa. *African Journal of Public Affairs*, **9**(7): 13-24.

Nel, E., & Rogerson, C. M. (2016). The contested trajectory of applied local economic development in South Africa. *Local Economy*, *31*(1-2), 109-123.

Nganyanyuka, K., Martinez, J., Wesselink, A., Lungo, J. H., and Georgiadou, Y. 2014. Accessing water services in Dar es Salaam: Are we counting what counts? *Habitat International*, **44**: 358-366.

Nganyanyuka, K., Martinez, J., Wesselink, A., Lungo, J. H., and Georgiadou, Y. 2014. Accessing water services in Dar es Salaam: Are we counting what counts? *Habitat International*, **44**: 358-366.

Ngubane, N. (2019). Four years later, still no sign of water in these Pietermaritzburg taps, from https://www.timeslive.co.za/news/south-africa/2019-10-16-four-years-later-still-no-sign-of-water-in-these-pietermaritzburg-taps/ [24/09/2020]

Ntuli. N. 2018. *Council cuts off water dodgers*. Retrieved from: https://www.news24.com/SouthAfrica/News/council-cuts-off-water-dodgers-20181003. Accessed: 17/04/2020.

Ntuli. N. 2018. *Council cuts off water dodgers*. Retrieved from: https://www.news24.com/SouthAfrica/News/council-cuts-off-water-dodgers-20181003. Accessed: 17/04/2020.

Null, S. E. and Prudencio, L. 2016. Climate change effects on water allocations with season dependent water rights. *Science of the Total Environment*, **571**: 943-954.

Ocampo, L., Alinsub, J., Casul, R. A., Enquig, G., Luar, M., Panuncillon, N., and Ocampo, C. O. 2019. Public service quality evaluation with SERVQUAL and AHP-TOPSIS: A case of Philippine government agencies. *Socio-Economic Planning Sciences*, **68**: 100604.

OECD. 2015a. *OECD water governance initiative*. Accessed at https://www.oecd.org/gov/regional-policy/OECD-Principles-on-Water-Governance-brochure.pdf

OECD. 2019. *Pricing Water.* Retrieved from: https://oecdobserver.org/news/fullstory.php/aid/939/Pricing_water.html. Accessed: 29/03/2020.

Organization for Socio-Economic Development and Cooperation. (2015). OECD water governance principles. https://www.oecd.org/cfe/regionaldevelopment/OECD-Principles-Water-spanish.pdf [09/11/2021]

Organization for Socio-Economic Development and Cooperation. (2018). OECD water governance indicator framework. https://www.oecd.org/regional/OECD-Water-Governance-Indicator-Framework.pdf [09/11/2021]

Ogada, J. O., Krhoda, G. O., Van Der Veen, A., Marani, M., and van Oel, P. R. 2017. Managing resources through stakeholder networks: collaborative water governance for Lake Naivasha basin, Kenya. *Water international*, **42**(3): 271-290.

Osei-Kojo, A. 2017. E-government and public service quality in Ghana. *Journal of Public Affairs*, **17**(3): e1620.

Ott, R. L., and Longnecker, M. T. 2015. *An introduction to statistical methods and data analysis*. Nelson Education.

Pakurár, M., Haddad, H., Nagy, J., Popp, J., and Oláh, J. 2019. The service quality dimensions that affect customer satisfaction in the Jordanian banking sector. *Sustainability*, **11**(4): 1113.

Pakurár, M., Haddad, H., Nagy, J., Popp, J., and Oláh, J. 2019. The service quality dimensions that affect customer satisfaction in the Jordanian banking sector. *Sustainability*, **11**(4): 1113.

Palmer, C. G., Munnik, V., du Toit, D., Rogers, K. H., Pollard, S., Hamer, N., and O'Keeffe, J. H. 2018. *Practising Adaptive IWRM (Integrated Water Resources Management) in South Africa* (No. 2248(1)). WRC Report: 18.

Pan, M. L. 2016. *Preparing literature reviews: Qualitative and quantitative approaches*. Taylor & Francis.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. Journal of Marketing, 49, 41-50

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988).SERVQUAL: A multiple-item scale for measuring con- sumer perceptions of service quality. Journal of Retailing, 64, 12-40.

Pietilä, P. E. 2019. Diversity of the water supply and sanitation sector: roles of municipalities in Europe. *Water Services Management and Governance*: 99.

Ponelis, S. R. 2015. *Using interpretive qualitative case studies for exploratory research in doctoral studies: A case of Information Systems research in small and medium enterprises*. *International Journal of Doctoral Studies*, **10**(1): 535-550.

Pozzebon, M. 2017. Beyond positivistic qualitative research. *Revista de Administração de Empresas*, **57**(4): 415.

Purbo, R. K., Smith, C., and Bianchi, R. 2018. ICSSM-71 actor's perception towards motives for adoption of Indonesian PPP programs in the water sector: An email-based survey. In: *Asia Conference on Engineering and Information*: 40.

Rabe. M., Maree. M., Ramano. R, and Price. G. 2015. *Good practice in Municipal water conservation and Water demand management report*. Water Information Network-SA: Water Research Commission.

Raich, M., Müller, J., and Abfalter, D. 2014. Hybrid analysis of textual data: Grounding managerial decisions on intertwined qualitative and quantitative analysis. *Management Decision*, **52**(4): 737-754.

Rananga, H. T., and Gumbo, J. R. 2015. Willingness to pay for water services in two communities of Mutale Local Municipality, South Africa: A case study. *Journal of Human Ecology*, **49**(3): 231-243.

Republic of South Africa. 1996. *Constitution of the Republic of South Act 108 of 1996*. Government Press: Pretoria

Republic of South Africa. 1997. *Water Services Act (Act No. 108 of 1997)*. Government Press: Pretoria

Republic of South Africa. 1998. *National Water Act*. Government Printer: Pretoria.

Richards, R. J., and Daston, L. 2016. *Kuhn's' Structure of Scientific Revolutions' at Fifty: Reflections on a Science Classic*. University of Chicago Press.

Ringold, D., Holla, A., Koziol, M., and Srinivasan, S. 2011. *Citizens and service delivery: assessing the use of social accountability approaches in human development sectors*. The World Bank.
Ruiters, C. 2013. Funding models for financing water infrastructure in South Africa: Framework and critical analysis of alternatives. *Water SA*, **39**(2): 313-326.

Ruiters, C., and Matji, M. P. 2016. Public–private partnership conceptual framework and models for the funding and financing of water services infrastructure in municipalities from selected provinces in South Africa. *Water Sa*, **42**(2): 291-305.
Ryan, G. 2018. Introduction to positivism, interpretivism and critical theory. *Nurse researcher*, **25**(4): 41-49.
Salleh, A. 2016. Sustainable service quality of water and sewerage companies. *Journal of Business and Social Review in Emerging Economies*, **2**(1): 1-12.

Salleh, A. 2016. Sustainable service quality of water and sewerage companies. *Journal of Business and Social Review in Emerging Economies*, **2**(1): 1-12.

Schober, P., Boer, C., and Schwarte, L. A. 2018. Correlation coefficients: appropriate use and interpretation. *Anesthesia & Analgesia*, **126**(5): 1763-1768.
Sherry, J., Juran, L., Kolivras, K. N., Krometis, L. A. H., and Ling, E. J. 2019. Perceptions of water services and innovations to improve water services in Tanzania. *Public Works Management & Policy*, **24**(3): 260-283.

Sherry, J., Juran, L., Kolivras, K. N., Krometis, L. A. H., and Ling, E. J. 2019. Perceptions of water services and innovations to improve water services in Tanzania. *Public Works Management & Policy*, **24**(3): 260-283.

Shikwambane, P. 2017. *Realisation of the right of water of rural communities through affirmative action on water service delivery in South Africa.* Doctoral dissertation.
Sinclair-Smith, K., and Winter, K. 2015. *Water demand management in Cape Town: Managing water security in a changing climate–draft 2015*.
Sinclair-Smith, K., and Winter, K. 2019. Water demand management in Cape Town: Managing water security in a changing climate. *Mainstreaming climate change in urban development: lessons from Cape Town*: 100.

Sricharoenpramong, S. 2018. Service quality improvement of ground staff at Don Mueang International Airport. *Kasetsart Journal of Social Sciences*, **39**(1): 15-21.

Sutton, J., and Austin, Z. 2015. Qualitative research: Data collection, analysis, and management. *The Canadian journal of hospital pharmacy*, **68**(3): 226.

Taherdoost, H. 2016. Validity and reliability of the research instrument; how to test the validation of a questionnaire/survey. In: *How to Test the Validation of a Questionnaire/Survey in a Research (August 10, 2016)*.

Toxopeus, M. 2019. Understanding Water Issues and Challenges III: Water Boards and Bulk Water Services. Retrieved from: https://hsf.org.za/publications/hsf-briefs/understanding-water-issues-and-challenges-iii-water-boards-and-bulk-water-services. Accessed: 22/02/2020.

Umdm. 2021. *Integrated Development Plan 2020/2021 review*. Retrieved from: https://umshwathi.gov.za/wp-content/uploads/2020/05/UMDM-IDP-2020.21-REVIEW.pdf. Accessed: 12/02/2021.

Umdm. 2021. *Integrated Development Plan 2020/2021 review.* Retrieved from: https://umshwathi.gov.za/wp-content/uploads/2020/05/UMDM-IDP-2020.21-REVIEW.pdf. Accessed: 12/02/2021.

Umgeni. 2016. *Universal Access Plan (for Water services) Phase 2*. Retrieved from: https://www.umgeni.co.za/wp-content/uploads/2020/02/uMgungundlovu-UAP-Phase-2-Final-Report.pdf. Accessed 31/03/2020.

uMgeni. 2019. *Corporate Profile*. Retrieved from: https://www.umgeni.co.za/about/. Accessed: 27/03/2020.

Umgeni. *Status of water resources*. Retrieved from: https://www.umgeni.co.za/status-of-water-resources/. Accessed 12/02/2021.

Umgeni. *Status of water resources*. Retrieved from: https://www.umgeni.co.za/status-of-water-resources/. Accessed 12/02/2021.

UN Women. 2018. *Turning Promises into Action: Gender Equality in the 2030 Agenda for Sustainable Development: Fact Sheet—Sub-Saharan Africa*. UN Women: Geneva, Switzerland.

Unesco. *Rural water development*. Retrieved from: https://en.unesco.org/themes/water-security/hydrology/water-human-settlements/rural-development. Accessed: 11/02/2021.

Unesco. *Rural water development*. Retrieved from: https://en.unesco.org/themes/water-security/hydrology/water-human-settlements/rural-development. Accessed: 11/02/2021.

UNICEF/WHO, “Progress on household drinking water, sanitation and hygiene 2000–2017: Special focus on inequalities” (United Nations Children’s Fund and World Health Organization, 2019).

United Nations. *Human Rights Committee*. 2012. *Guiding Principles on Business and Human Rights: Implementing the United Nations "Protect, Respect and Remedy" Framework*. Human Rights Committee.

Urbach, P. 2017. Paradigms. *The New Palgrave Dictionary of Economics*: 1-4.

van Beek, E. and Lincklaen Arriens, W. 2014. *Water security: Putting the concept into practice, Global Water Partnership, TEC Background Papers No. 20.* Stockholm: Global Water Partnership.

Van Engelenburg, J., Van Slobbe, E., and Hellegers, P. 2019. Towards sustainable drinking water abstraction: An integrated sustainability assessment framework to support local adaptation planning. *J. Integr. Environ. Sci*. **16**: 89–122.

van Manen, M. 2017. But Is It Phenomenology? *Qualitative Health Research*, **27**(6): 775–779. DOI: https://doi.org/10.1177/1049732317699570.

Vasileiou, K., Barnett, J., Thorpe, S., & Young, T. (2018). Characterising and justifying sample size sufficiency in interview-based studies: systematic analysis of qualitative health research over a 15-year period. *BMC medical research methodology*, *18*(1), 1-18.

Wahid, S., Dangi, M., Jabar, F., Muhamed, M. F. A. A., and Paino, H. 2017. Effect of Tangibility and Reliability Service Quality towards Homestay Customer Satisfaction. *Journal of Tourism, Hospitality and Environment Management*, **2**(5): 44-53.

Wang, X. J., Zhang, J. Y., Shahid, S., Guan, E. H., Wu, Y. X., Gao, J., and He, R. M. 2016. Adaptation to climate change impacts on water demand. *Mitigation and Adaptation Strategies for Global Change*, **21**(1): 81-99.

WASHWatch. 2019. *Total Number of People Lacking Access to “at least Basic Water” in South Africa*. Retrieved from: https://washwatch.org/en/countries/south-africa/summary/statistics/. Accessed: 28/03/2020.

Woodhouse, M. and Haasan Muse, A. 2009. *Water policy in Puntland state, Somalia*. Waterlines, **28**(1): 79–88.

Woodhouse, P., and Muller, M. 2017. Water governance—An historical perspective on current debates. *World Development*, ***92***: 225-241.

World Health Organization. 2017. *2.1 billion people lack safe drinking water at home, more than twice as many lack safe sanitation*. Retrieved from: https://www.who.int/news-room/detail/12-07-2017-2-1-billion-people-lack-safe-drinking-water-at-home-more-than-twice-as-many-lack-safe-sanitation

Xu, A., Liu, Z., Guo, Y., Sinha, V., and Akkiraju, R. 2017. A new chatbot for customer service on social media. In: *Proceedings of the 2017 CHI conference on human factors in computing systems*: 3506-3510.

Xu, A., Liu, Z., Guo, Y., Sinha, V., and Akkiraju, R. 2017. A new chatbot for customer service on social media. In: *Proceedings of the 2017 CHI conference on human factors in computing systems*: 3506-3510.

Yang, Z., & Peterson, R. T. (2004). Customer perceived value, satisfaction, and loyalty: The role of switching costs. *Psychology & marketing*, *21*(10), 799-822.

Zahid, J. 2018. *Impact of clean drinking water and sanitation on water borne diseases in Pakistan.*

Zahid, J. 2018. *Impact of clean drinking water and sanitation on water borne diseases in Pakistan.*

Zeitoun, M., Lankford, B., Krueger, T., Forsyth, T., Carter, R., Hoekstra, A. Y., and Swatuk, L. 2016. Reductionist and integrative research approaches to complex water security policy challenges. *Global Environmental Change*, **39**: 143-154.

Zeng, Z., Liu, J., and Savenije, H. H. 2013. A simple approach to assess water scarcity integrating water quantity and quality. *Ecological indicators*, **34**: 441-449.

Zikmund, B., Carr and Griffin. 2013. *Business research methods*: *9*.

Zondi, S. I. 2015. *Public participation and service delivery with particular reference to iLembe District Munic*

Appendices

A. Interview guide

INTERVIEW GUIDE
UMGUNGUNDLOVU DISTRICT MUNICIPALITY (UMDM) SENIOR MANAGERS FROM TECHNICAL SERVICE DEPARTMENT AND OFFICE OF THE MUNICIPAL MANAGER : 17 QUESTIONS

The purpose of the study is to explore how satisfied the community at the uMgungundlovu District Municipality (UMDM) is with the water service provision. Furthermore, the intention of this study is to design a framework that can enhance water quality services at uMgungundlovu District Municipality

Demographics

1.1 Your age

Up to 30 yrs	31 – 40 yrs	41 – 50 yrs	51 – 60 yrs	>60 yrs

1.2 Your Race

Black African	Coloured	Indian	White	Other

1.3 Your Gender

Male	Female

1.4 Your highest qualification

_____

1.5 Your position

_____

1.6 Who do you report to and who is the Head of this department.

_____

SECTION B

1. What measures/ mechanisms are in place to manage water quality? …… …… ……
2. Where does the water that you distribute to your communities come from? ....
3. Who is responsible for water quality management at UMDM? ....
4. What are the duties of the person responsible for water quality at UMDM? ....
5. Who are the critical stakeholders /role players of water management at UMDM? …… …… ……
6. How do you ensure that the water supplied to the community using water tankers meets the required standards? …… …… ……
7. How often do you sample your water in the upstream and downstream? …… …… ……
8. Do you ever check the accuracy of the sampling equipment? If so, how do you ensure its accuracy? How does UMDM ensure the accuracy of the sampling equipment? …… …… ……
9. How is water distributed within your area of jurisdiction? ……

……
……

10. Are the water quality management instruments such as the regulatory, market-based, self-regulatory and civil management implemented at UMDM?

.....
.....

11. Are your customers aware of the water quality standards they are entitled to? If yes, how do you communicate to them the standard and the result of water in terms of quality?

……
……
.....

12. Which department is responsible for water infrastructure, maintenance, testing and cleaning?

.....
.....

13. How do you ensure that the infrastructure is well maintained and that the underground water piping is not contaminated and that there is no internal corrosion?

……
……
……

14. What are the critical areas that affect the quality of water being delivered to the community?

……
……
……

15. What are the causes of water shortage within the UMDM area of jurisdiction?

……
……
……

16. What challenges does the UMDM encounter in terms of water <u>supply</u> to the communities?

……
……
……

17. What challenges does the UMDM experiencing with regard to water quality management?

……
……
……

B .QUESTIONS TO WARD COMMITTEE CHAIRPERSONS

UMGUNGUNDLOVU DISTRICT MUNICIPALITY (UMDM)

QUESTIONS TO WARD COMMITTEE CHAIRPERSONS

Demographics

1.1 Your age

Up to 30 yrs	31 – 40 yrs	41 – 50 yrs	51 – 60 yrs	>60 yrs

1.2 Your Race

Black African	Coloured	Indian	White	Other

1.3 Your Gender

Male	Female

1.4 Your highest qualification

_____

1.5 Your position within the Community

_____

1.6 Who do you report to

_____

SECTION B

2.1 Do you think that the UMDM understands the kind of water services that we need in this community? Please elaborate .....
2.2 Do you think that the UMDM adequately informs the community regarding the decisions they make on water service supply? Please elaborate ……...
2.3 Do you think the UMDM pays attention to the water service demands of their local community? Please elaborate ……
2.4 Do you think that the UMDM is doing enough to address concerns raised by residents during water service supply protests? Please elaborate ……
2.5 Do you think the UMDM Water equipment in the local communities is well maintained? .....
2.6 Do you think that the UMDM has personnel with the required skills for the purpose of ensuring that the water service is supplied /delivered accordingly? .....
2.7 How good do you think the water service supply is in the local community? .....

2.10 What kind of water services (i,e water available at all time, clean water etc.)do you think your local community expects to receive from the UMDM? .....
2.11 What do you think are the main challenges hindering effective water service supply in your local community? .....
2.12 What do you think should be done in order to improve the level of water service provision in your local community? .....

C. UMDM REVENUE COLLECTION DEPARTMENT AND BILLING STAFF MEMBERS

UMGUNGUNDLOVU DISTRICT MUNICIPALITY (UMDM)

UMDM REVENUE COLLECTION DEPARTMENT AND BILLING STAFF MEMBERS

1. Section A:

. Demographics

1.1 Your age

Up to 30 yrs	31 – 40 yrs	41 – 50 yrs	51 – 60 yrs	>60 yrs

1.2 Your Race

Black African	Coloured	Indian	White	Other

1.3 Your Gender

Male	Female

1.4 Your highest qualification

_____

1.5 Your position

_____

1.6 Who do you report to and who is the Head of this department.

_____

Section B

2.1 What does the UMDM do to ensure that the water billing system is effective and efficient (hundred percent correct and does not have errors) ? ....
2.2 How does the UMDM ensure that water statements received by customers monthly are correct and a true reflection of water consumed during the month? …… …… ……
2.3 What process is followed by the UMDM if a water statement is incorrect? …… …… ……
2.4 How does the UMDM ensure the accuracy of water meters? …… …… ……...
2.5 Are there any system/mechanisms in place to ensure meter readers are performing their duties correctly? If yes, what are they? …… …… ……
2.6 As the UMDM, how do you deal with customers who fail to pay for their water accounts? ....
2.7 What processes does the UMDM follow in the case of a new application for water connection; and how long does the UMDM take to complete the process of the new application and connect the customer to the UMDM water supply? …… …… ……
2.8 In the case of disconnections due to non-payment, how long does the UMDM take to reconnect the customer after receiving payments? …… …… ……
2.9 Does the UMDM communicate with the customers in the case of a water cut or burst water pipe within its area? If so, how does it communicate with customers? ....
2.10 Water is regarded as a basic service. How do you ensure that even those community members who cannot afford payments for water get provided with a certain number of litres of water on daily basis?

.....
.....

2.11 During water shortage, is any group or community given priority in terms of water supply? If yes, which group gets priority and why?

……
……
……

D. UMGUNGUNDLOVU DISTRICT MUNICIPALITY (UMDM)

UMDM WATER CUSTOMER CALL CENTRE STAFF MEMBERS

1. Demographics

1.1 Your age

Up to 30 yrs	31 – 40 yrs	41 – 50 yrs	51 – 60 yrs	>60 yrs

1.2 Your Race

Black African	Coloured	Indian	White	Other

1.3 Your Gender

Male	Female

1.4 Your highest qualification

_____

1.5 Your position

_____

1.6 Who do you report to

_____

2. Section B

2.1 What methods are used by customers if there is a water complaint or query? Which method is used most often? …… …… ……
2.2 What methods are used to ensure that the customers are aware of how to communicate with the UMDM? …… …… ……
2.3 Which department is responsible for water complaints? …… …… ……
2.4 How many staff members are at the Water call or customer Centre and how many water customers are in your database? …… …… ……
2.5 Is the number of current staff members sufficient to deal with all water complaints received on a daily basis? Please justify your answer. …… …… ……
2.6 What processes do you follow after receiving the water complaint or query? ....
2.7 What systems or mechanisms are in place to check if the customer has been assisted with the query/complaint? …… …… ……
2.8 How long does the UMDM take to address queries/complaints from the customers? …… …… ……
2.9 What happens if the queries/complaints received are not resolved? …… …… ……
2.10 Do you have a water consumer education programme at the UMDM? If so, what is its main purpose? …… ……
2.11 How does the UMDM ensure that the staff members available at water customer care centre are performing their duties as expected?

……
……
……

2.12 How often do you conduct a dry run of your system or telephones at the call centre?

……
……
……

E. ETHICAL CLEARANCE

5th March 2020

Student number: 20619718

Dear Mr X Muthwa

DOCTOR OF PHILOSOPHY IN MANAGEMENT SCIENCES: PUBLIC ADMINISTRATION

This serves to confirm the approval of your research proposal by the Faculty Research Committee, at its meeting on **3rd March 2020**, as follows:

1. Research proposal and provisional dissertation title:

   An evaluation of customer satisfaction with water service quality in the uMgungundlovu District Municipality

   Supervisor: **Prof N.S. Matsiliza**

   Co-supervisor: **N/A**

   Please note that any proposed changes in the thesis/dissertation title require the approval of your supervisor/s, the Faculty Research Committee, as well as ratification thereof by the Higher Degrees Committee.

2. Research budget to the amount of **R15 000.00**

   Please note that this funding is not a scholarship or bursary and is therefore not paid directly to you, but is controlled by the Faculty. Any proposed changes to the use of this funding allocation requires the approval of your supervisor and the Dean. Please note that funding will be reimbursed to you after the provision of receipts.

The Institutional Research Committee has stipulated that:

(a) This University retains the ownership of any Intellectual Property (patent, design, etc.) registered in respect of the results of your Masters/Doctors Degree in Technology studies as a result of the award and the provisions of the above Act;
(b) Should you find any of the terms above not acceptable then you are given the option to decline the Research budget award to your project in writing.

May we remind you that in terms of Rule G25(2)(b), if you fail to obtain the Masters/Doctors degree within the maximum time period allowed after first registering for the qualification, Senate may refuse to renew your registration or may impose any conditions it deems fit. You may apply to the Faculty Research Committee for an extension.

Please note that you are required to convert your registration from the informal to the formal course and re-register each year.

Please note that the following must be adhered to:

Registration:

1. Ensure formal registration has taken place ***(the onus is on the student and the supervisor to ensure registration takes places at the beginning of each year whilst the student is currently engaged with his/her Masters or PhD qualification)***
2. Ensure that application for Conferment of Status has been made in the event of your undergraduate qualification being different to this application. ***Your attention is drawn to the fact that Conferment of Status is required for registration.***
3. Ensure that your supervisor has submitted your proposal to the Faculty Research Officer (FRO) for IREC clearance (institutional research ethics committee). This is in the case of Ethics level 2 IREC and level 3 IREC (in the case of a study dealing with vulnerable populations). See guideline attached. ***It is the researcher's responsibility to check the Ethics requirements and submit to the relevant bodies irrespective of the reviewer's recommendation.***

Dissertation submission for examination:

1. Ensure that you submit the intention to submit form **(PG 5)**, signed by the HOD and Supervisor
2. Ensure that the signed checklist is submitted with the **PG 5**
3. Once your dissertation is submitted to the supervisor for examination purposes, communication from here on will only be with you supervisor and not with the faculty.
4. Your supervisor MUST nominate the examiners three months prior to submission of the dissertation/thesis for examination.
5. On submission for examination, please note that three ring bound signed copies must be submitted to your supervisor along with the completed and signed **PG 7** form, **FMS Checklist** and **Turn it in report**.
6. Feedback will be provided to your supervisor regarding the examination result after the result is ratified by the Higher Degrees Committee (HDC).
7. In the event of a resubmission the reports will be submitted to the supervisor who will communicate with you for revision. Once revision has taken place your supervisor will submit to the FRO for resubmission to the examiners.
8. In the case where there is a discrepancy in examiners results, an Arbiter will be nominated via the HOD and supervisor and tabled at FRC and ratified at HDC. On completion of this process, the Arbiters report will be tabled at FRC and ratified at HDC.
9. Results of the Arbitration process will be communicated to your supervisor

Graduation requirements:

1. Ensure that you submit a completed signed PG10 form
2. one hard bound dissertation/thesis with a pdf version on CD
3. response to post graduate examination form
4. completion of study form (IREC form)

Should you experience any problems relating to your research, your supervisor must be informed of the matter as soon as possible. If the difficulties persist, you should then approach your Head of Department and thereafter the Faculty Research Coordinator.

Please refer to the 2020 General Rule Book and the Postgraduate Students' Guide 2020 concerning the rules relating to postgraduate studies, which include *inter alia* acceptable minimum and maximum timeframes, submission of thesis/dissertations, etc. Please do not hesitate to contact this office for any assistance. We wish you success in your studies.

Kind regards,

.....

Prof FG Netswera

Faculty of Management Sciences

F. CONSENT LETTER

Durban University of Technology
Department of Public management
Law and Economics
Durban 4000

The Municipal Manager
UMgungundlovu District Municipality
242 Long market Street
Pietermaritzburg
3201

REQUEST FOR PERMISSION TO CONDUCT RESEARCH ON THE : An evaluation of service quality in the provision of water at uMgungundlovu District Municipality in KwaZulu-Natal

My name is Emmanuel Xolani Muthwa, a registered student at Durban University Technology (Durban Campus) studying towards a PHD Degree in Public Management. I am hereby seeking your consent to conduct a research on **evaluation of service quality in the provision of water at uMgungundlovu District Municipality in KwaZulu-Natal.**

The overall purpose of the study is to ascertain the gap between the expectations of the community and the provision of water services at uMgungundlovu District Municipality .The intention of this study is to design a framework that can enhance water quality services at uMgungundlovu District Municipality.

Your assistance in permitting access to your organization for purposes of this research is most appreciated. Please be assured that all information gained from the research will be treated with the utmost confidentiality. Furthermore, should you wish any result/s or findings from the research "to be restricted" for an agreed period of time, this can be arranged. The confidentiality of information and anonymity of personnel will be strictly adhered to by the student.

If you require further information, please do not hesitate to contact me on emmanuelm2@dut.ac.za /Xolani.muthwa@gmail.com or 082 903 1301 or my Supervisor-Associate Professor N.Matshiliza on 033 845 8852. NoluthandoM1@dut ac.za.

Yours sincerely,

Mr Emmanuel Xolani Muthwa **Associate Professor N. Matshiliza**

Durban University of Technology **Durban University of Technology**

Promoter /Supervisor

G. QUESTIONNAIRE

CONSENT FORM

I agree to participate in the study titled: An evaluation of customer satisfaction on service quality: the case of water service provision at uMgungundlovu District Municipality in KwaZulu-Natal**.**

Signature.....

Date.....

Please answer ALL the questions by selecting the ONE response option that most applies to you

SECTION 1: DEMOGRAPHICS

1. How long have you lived in this area?

Less than 5 years	5 -<10 years	10 - <20 years	20 - <30 years	30 - <40 years	40+ years

2. Gender

Male	Female

3. Age

18-29	30 - 39	40 - 49	50 - 59	60+

4. What population group do you belong to?

Black	Coloured	Indian	White

5. What is your highest level of education completed?

No formal education	Some/all primary school	Some high school	Matric	Tertiary education

6. What is your current employment status?

Unemployed/ Student/ Pensioner/	Employed full time	Employed part time	Self-employed

Housewife			

7. Marital status

Married	Living together in a non-married intimate relationship	Divorced/ Separated	Widowed	Single

SECTION 2: Expectations and Perceptions

This section is split into two parts. The first part asks you to rank the uMgungundlovu District Municipality water service according to your **EXPECTATIONS**, i.e. what you expect the uMgungundlovu District Municipality to provide. The second part asks you to rank the uMgungundlovu District Municipality according to your **EXPERIENCES** and **PERCEPTIONS**.

Expectations

Please indicate your level of agreement that the uMgungundlovu District Municipality **should possess (should have)** the following features.

	At the uMgungundlovu District Municipality I EXPECT that...	Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
TANGIBLES							
1	The water equipment and machinery will be modern/up to date						
2	The physical facilities will be visually appealing / well maintained						
3	The technology used in the office will be modern						
4	The employees will be neatly dressed in uniform						

5	Materials associated with the water services (pamphlets or statements) will be visually appealing						
	RELIABILITY						
6	When they promise to do something by a certain time, it will be done						
7	When a customer has a water problem, they will show sincere interest in solving it						
8	A service will be performed right the first time						
9	A service will be provided at the time they promise to do so						
10	The records will be error-free						
	At the uMgungundlovu District Municipality I EXPECT that...	Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
	RESPONSIVENESS						
11	Customers will be informed as to exactly when services will be carried out						
12	The service to customers will be prompt						
13	The employees will always be willing to help customers						
14	The employees will never be too busy to respond to customers' requests						
	ASSURANCE						
15	The behaviour of the employees will instil confidence in customers (community)						
16	The community (customers) will feel safe/secure in their transaction with the employees						
17	Employees will be polite to customers						
18	Employees will have the knowledge to answer customer/community water-related queries						

EMPATHY							
19	Customers will receive individual attention						
20	Operating hours will be convenient to all customers in the community						
21	They will have the community's best interest at heart						
22	They will tailor the water service to meet the specific needs of the community						
23	There will be specific employees to give customers personal attention						

Experiences / Perceptions

Please indicate your level of agreement that the uMgungundlovu District Municipality **possesses (has)** the following features.

	My PERCEPTIONS of the uMgungundlovu District Municipality are that...	Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
TANGIBLES							
1	The water equipment and machinery is modern/up to date						
2	The physical facilities are visually appealing / well maintained						
3	The technology used in the office is modern						
4	The employees are neatly dressed in uniform						
5	Materials associated with the water services (pamphlets or statements) are visually appealing						

RELIABILITY							
6	When they promise to do something by a certain time, it is done						
7	When a customer has a water problem, they show sincere interest in solving it						
8	A service is performed right the first time						
9	A service is provided at the time they promise to do so						
10	The records are error-free						
RESPONSIVENESS							
11	Customers are informed as to exactly when services will be carried out						
12	The service to customers is prompt						
13	The employees are always willing to help customers						
14	The employees are never too busy to respond to customers' requests						
	My PERCEPTIONS of the uMgungundlovu District Municipality are that...	Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
ASSURANCE							
15	The behaviour of the employees instils confidence in customers (community)						
16	The community (customers) feel safe/secure in their transaction with the employees						
17	Employees are polite to customers						
18	Employees have the knowledge to answer customer/community water-related queries						
EMPATHY							
19	Customers receive individual attention						
20	Operating hours are convenient to all customers in the community						
21	They have the community's best interest at heart						

22	They tailor the water service to meet the specific needs of the community						
23	There are specific employees to give customers personal attention						

Thank you for your time

H. GATE KEEPER CONSENT

Gatekeeper's Consent

I Dr Raymond Ngcobo in my capacity as Municipal Manager hereby give permission to **Student name: Emmanuel Xolani Muthwa (Student No. 211 559 490)** to conduct research in my organization , uMgungundlovu District Municipality .

The student may use the name of the organisation in the Thesis.

Approved

DR MRB Ngcobo
Municipal Manager

an evaluation of water customer satisfaction with water service at Umgungundlovu District

ORIGINALITY REPORT

17%	17%	%	0%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	hdl.handle.net Internet Source	2%
2	curve.coventry.ac.uk Internet Source	1%
3	repository.nwu.ac.za Internet Source	1%
4	journals.sagepub.com Internet Source	1%
5	napier-surface.worktribe.com Internet Source	1%
6	issuu.com Internet Source	1%
7	eprints.glos.ac.uk Internet Source	1%
8	repository.out.ac.tz Internet Source	<1%
9	run.unl.pt Internet Source	<1%

10	citeseerx.ist.psu.edu Internet Source	<1 %
11	www.scribd.com Internet Source	<1 %
12	docplayer.net Internet Source	<1 %
13	etheses.dur.ac.uk Internet Source	<1 %
14	www.acwr.co.za Internet Source	<1 %
15	www.tandfonline.com Internet Source	<1 %
16	www.umgeni.co.za Internet Source	<1 %
17	researchspace.ukzn.ac.za Internet Source	<1 %
18	ujcontent.uj.ac.za Internet Source	<1 %
19	www.dwaf.gov.za Internet Source	<1 %
20	erepository.uonbi.ac.ke Internet Source	<1 %
21	nsuworks.nova.edu Internet Source	<1 %

34	www.slideshare.net Internet Source	<1 %
35	benjamins.com Internet Source	<1 %
36	pdfs.semanticscholar.org Internet Source	<1 %
37	repository.unam.edu.na Internet Source	<1 %
38	www.iese.edu Internet Source	<1 %
39	pearl.plymouth.ac.uk Internet Source	<1 %
40	www.mcser.org Internet Source	<1 %
41	docslide.pl Internet Source	<1 %
42	repositorii.urindo.ac.id Internet Source	<1 %
43	pezzottaitejournals.net Internet Source	<1 %
44	core.ac.uk Internet Source	<1 %
45	www.nepjol.info Internet Source	<1 %

46	eprints.mdx.ac.uk Internet Source	<1 %
47	epubs.surrey.ac.uk Internet Source	<1 %
48	jces.ua.edu Internet Source	<1 %
49	www.dpsa.gov.za Internet Source	<1 %
50	www.emerald.com Internet Source	<1 %
51	www.absoluteastronomy.com Internet Source	<1 %
52	www.freebase.com Internet Source	<1 %
53	alternation.ukzn.ac.za Internet Source	<1 %
54	en.wikipedia.org Internet Source	<1 %
55	etd.aau.edu.et Internet Source	<1 %
56	asocsa.org Internet Source	<1 %
57	www.msunduzi.gov.za Internet Source	<1 %

58	hsf.org.za Internet Source	<1 %
59	mypaperwriting.net Internet Source	<1 %
60	link.springer.com Internet Source	<1 %
61	pt.scribd.com Internet Source	<1 %
62	www.inderscienceonline.com Internet Source	<1 %
63	www.unidu.hr Internet Source	<1 %
64	aisel.aisnet.org Internet Source	<1 %
65	documents.mx Internet Source	<1 %
66	etd.uwc.ac.za Internet Source	<1 %
67	new.sedibengwater.co.za Internet Source	<1 %
68	bethlehemmoravian.wordpress.com Internet Source	<1 %
69	bura.brunel.ac.uk Internet Source	<1 %

141	hekyll.services.adelaide.edu.au Internet Source	<1 %
142	ithesis-ir.su.ac.th Internet Source	<1 %
143	repo.uum.edu.my Internet Source	<1 %
144	ro.uow.edu.au Internet Source	<1 %
145	www.dpru.uct.ac.za Internet Source	<1 %
146	www.erb.org.zm Internet Source	<1 %
147	www.gtac.gov.za Internet Source	<1 %
148	www.justice.gov.za Internet Source	<1 %
149	www.politicsweb.co.za Internet Source	<1 %
150	www.shanlaxjournals.in Internet Source	<1 %
151	www.theseus.fi Internet Source	<1 %
152	iwa-network.org Internet Source	<1 %

153	phd.lib.uni-corvinus.hu Internet Source	<1%
154	www.marketingstudyguide.com Internet Source	<1%
155	research.brighton.ac.uk Internet Source	<1%

Exclude quotes	Off	Exclude matches	Off
Exclude bibliography	Off		