Customer satisfaction analysis of Conlog Electricity prepayment meters in KwaZulu-Natal: A customer perspective

By

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Declaration

I, **Mondli Gina** declare that, to the best of my knowledge and belief, this is my work and all the sources used in this dissertation have been properly acknowledged and accurately reported.

I further, testify that this dissertation has neither been submitted for a degree at any other University, nor for publication as journal articles / conference papers.

Signature: ……..

Date: ……..

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I would like to thank the Almighty God for giving me the strength and guidance to complete my degree of Master of Management Sciences research study.

I would like to thank my family for their love, support, patience and encouragement throughout my study. In particular, I wish to acknowledge my parents, friends and work colleagues.

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To all respondents that contributed in this study, for their time in assisting me in my study.

Dedication

I would like to dedicate this work to my late sister Smangele Gladness Sithole for encouraging me to further my studies; may her soul rest in peace (R.I.P.).

To my beautiful daughter Noncebo Konke Gina and to the following family members and friends: my mother, Sakhile Gina, Zenzele Gina, Njabulo Mkhize, Itami Manganyi, Ian Mbambe and Dumisani Khwela for their constant support in my study journey and always encouraging me to complete this research dissertation.

Abstract

In the electricity prepayment metering industry the continuous increase in customers' expectations and technological innovation demand that leading firms in the industry differentiate themselves from the competition by going beyond customers' present expectations. Thus, organizations which have set their goals on mere customer satisfaction are, from a customers' perspective, deemed to be of limited value and may subsequently lack the anticipation and preparation essential to meet the demands of the future. Electricity prepayment metering market competition today is forcing organisations to seek the means to gain customer satisfaction, and thus aim to sustain their future in times of economic instability.

The study revealed that the most effective way to retain customer satisfaction is consistent service quality that decreases the cost of attracting new customers and raises sales and market share. The quality of service is one of the most effective factors in creating competitive advantages and advance business. Factors that influence customer satisfaction in the electricity prepayment industry were investigated and tested. The study also attempted to identify the critical factors, as identified in the literature, among those investigated: service quality, customer expectations, customer perception and customer retention.

Against this background, the study sought to determine the interrelationship between customer satisfaction and the critical factors of customer satisfaction with Conlog Electricity Prepayment Meters in KwaZulu-Natal. The research developed to ascertain subjects' perceptions of the critical factors of customer satisfaction; determine the interrelationship among the critical factors of customer satisfaction; and explore the relationship between customer satisfaction and the critical factors of customer satisfaction.

The research population comprising of Conlog electricity prepayment metering customers in KwaZulu-Natal was selected and interviewed. Questionnaires were distributed through electronic mail and self-administered for data collection and a sample of twelve respondents was selected for interview. Interviews were analysed using conversational analysis and the data collected from the interviews were merged with the questionnaire data, seeking depth as well as breadth. Data collected from respondents was analysed using descriptive and inferential statistical techniques. The tool utilised to analyze data was the Statistical Package for the Social Sciences (SPSS) version 22 (SPSS Inc., Chicago, Illinois, USA). A p value < 0.05 was considered as statistically significant. Conclusions and recommendations were drawn from the literature and the findings of the study.

The results of the study revealed that service quality is the most significant critical factor of customer satisfaction. The study recommends that the management of Conlog can use the specific data obtained from the measurement of service quality in their strategies and plans. The study further recommends that Conlog allocates resources to this effect to provide better service to their customers. The results and findings of the study will provide further information concerning customer satisfaction and customer perception in the prepayment metering industry in KwaZulu-Natal. It will also contribute to future industry research, setting the ground for further research in measuring levels of customer satisfaction in the electricity prepayment industry in South Africa.

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OVERVIEW OF THE STUDY

1.1. Introduction

Electricity prepayment has been in existence for many decades; however, it was only in the late 1980s, with the development of the numeric and electronic transfer of credit, that the industry was revolutionised. Prior to this, many prepayment solutions were based on coin-operated machines, whereby the user inserted a coin into the machine and received electricity. Naturally this created a number of problems for the utility, not least tampering, as well as having to visit the various premises to empty the coins.

Chisanga (2006:7) cites the work of Simpson (1996:14), who defined metering as the process and methods of utilizing devices to measure the amount and direction of electrical energy flow; particularly for end-use. He further defined metering as the installation of equipment that makes it possible for utility to determine the amount of electric power a particular customer has consumed. Electricity is provided to customers by wires, often called service drops, emerging from distribution transformer. These wires go into electric meters that measure the quantity of electricity used (measured in kilowatt-hours).

Prepaid systems allow users to consume energy only when they have credit in an 'electricity account', as supply is discontinued when such credit is exhausted (Casarini and Nicollier, 2009). From the consumer's perspective, prepayment systems may result in a better understanding of how much energy is being consumed, inducing more control of energy use and budget management (Tewari & Shah, 2003). From a utilities service point of view, prepayment reduces the risk of consumption without payment and improves cash flow (Maphaka, 2009). Furthermore, there are no account posting costs, no meter readers required, and no disconnection and reconnection fees and other administrative hurdles (Ruiters, 2004).

According to Austin (2002:74), the meter is both a means of measuring energy supply and also a critical sales and marketing tool, which has a correlation with company's profitability. Meters measures electricity to ensure customers pay for their consumption while enabling utilities to charge based on what has been supplied. According to Leitner (1998:231), customers need value for the money spent in installing the meters; therefore, the meters which give value for the money must be functioning properly at all times. The meter is typically located where the utility hands off the delivery of electricity to the customer. Generally the customer is responsible for purchasing and maintaining equipment past this point. Thus, there is need for proper management and maintenance of the meters for effectiveness and efficiency in the Prepayment Metering System.

1.2. Problem statement

There was a time according to Guzzo (2010) when customers were less critical and vocal if not totally satisfied when dealing with a business and there was a time when the choices available on where and who to deal with was limited. The power belonged to the business owner, customers had nowhere else to go and therefore customer satisfaction was not so important. This is not the case today. In the electricity prepayment industry according to Baptista (2013), customers are becoming increasingly more demanding, less tolerant and very critical when not having their expectations met. They have lots of choice on where and who to deal with. As a result the power has now shifted to the customer. If they feel you can not satisfy their expectations they will simply vote with their feet and deal with someone who will.

Customer satisfaction plays a key role in a successful business operation and influences the business strategy of any business (Adat, 2013:58). Molina, Consuegra and Esteban (2009:262) argued that customer satisfaction is the mediator in the relationship between relational benefits, customer loyalty and word-of-mouth publicity. Kim, Park, Joeng (2004:150) further argued that customer satisfaction and customer loyalty are very closely related. Customer satisfaction functions as an antecedent of customer loyalty. In an emerging business, competition customer loyalty plays a very

crucial role for achieving competitive advantage (Lin & Wang, 2006). It is important to analyze competitive advantage in the context of customer retention and customer satisfaction (Khan, 2012). Organisations can maximize their level of profitability by providing safe and sound products and services to their loyal customers (Rauyruen & Miller, 2007).

Auh and Johnson (2005) argued that there is a strong relationship between satisfaction and loyalty. Similarly, Bodet (2008) confirmed the relationship between customer satisfaction and customer loyalty. Shankar, Smith and Rangaswamy (2003) also provided evidence that there is a positive relationship between satisfaction and loyalty. Vesel and Zabkar (2009) confirmed that customer satisfaction is one of the significant determinants of customer loyalty. In order to achieve customer satisfaction, it is important to recognise and to anticipate customers' needs and to be able to satisfy them (Guzzo, 2010:86).

In light of the above, the following questions are formulated:

- What is the level of customer satisfaction with critical factors of Conlog Electricity Prepayment meters?
- Is there a relationship between customer satisfaction and critical factors, and if so, what form(s) does this relationship take?
- What are the critical factors that influence customer satisfaction?

1.3. Aim and objectives of the study

The overall aim of the study is to determine the interrelationship between customer satisfaction and the critical factors of customer satisfaction with Conlog Electricity Prepayment Meters in KwaZulu-Natal.

The objectives of the study are as follows:

- To ascertain subjects' perceptions of the critical factors of customer satisfaction.

- To determine the interrelationship among the critical factors of customer satisfaction.
- To establish if there is a relationship between customer satisfaction and the critical factors of customer satisfaction.

1.4. Definition of key concepts

A term must be defined operatively; that is; the definition must interpret the term as it is employed in relation to the researcher's project (Bukula, 2008:6). An **Electricity Prepayment Meter** is a device that is used as a payment method where the consumer credits a special meter installed at the house, before the electricity is consumed (O`Sullivan, Chapman & Fougere, 2010:734).

Customer Satisfaction is the customer's evaluation of a good or service in terms of whether that good or service has met the customer's needs and expectations (Forjoe, 2011:19). Makhuba (2014:33) further confirmed that customer satisfaction is a marketing phrase that measures how products or services furnished by a company meet or exceed a customer's expectation.

Customer Loyalty is often examined from a behavioural point of view by measuring items such as number of repeats purchases, 'share of wallet' and purchase frequency (Santouridis & Trivellas, 2010:332).

Critical Success Factors (CSF) is defined by Farokhian and Sadeghi (2011:4) as the one that is essential for producing deliverable items considered by the customer or they are the properties, conditions or variables which can have a considerable influence on the success of the company which competes in a special industry if being supported properly. Critical success factors (CSF) was further defined by Greg (2013:26) as the term for an element that is essential for an organization or project to accomplish its mission. It is a critical factor or activity required for ensuring the success of a company or an organization.

Revenue Management System is a management information system for electrical utilities and service providers that offers prepaid electricity vending management functions for tariff and charges, accounts and sub-accounts as well as customer information (Conlog, 2014:3). It is further defined by Sookram (2013:14) as the solution that is responsible for managing both the financial and meter related information, thereby addressing the commercial and technical needs of the utility.

1.5. Rationale of the study

A limited number of researches have been conducted in respect of customer satisfaction / customer loyalty in the Electricity Prepayment meters industry (see Chapter 2 where this research is described and reviewed) which creates opportunity for further research in this area.

Customer satisfaction and loyalty has been one of the main growth areas in market research over the past 20 years, and interest in it continues to increase. Organisations today invest heavily in programmes designed to retain customers, as they recognise the importance of loyalty and commitment, if they are to sustain and increase company profits (Szwarc, 2005:29). Customer satisfaction is one of the important outcomes of marketing activity (Mick and Fournier, 1999). In the competitive electricity prepayment metering industry, customer satisfaction is considered as the essence of success. Customer satisfaction serves to link processes culminating in purchase and consumption with post purchase phenomena such as attitude change, repeat purchase, and brand loyalty (Surprenant and Churchill, 1982; Jamal and Naser, 2003; Mishra, 2009). In this case, word of mouth (WOM) advertisements are important for electricity prepayment metering manufactures. File and Prince (1992) argued that the customers who are satisfied tell others about their experiences and this increases WOM advertising. In this way, electricity prepayment metering Manufacturers can increase customers.

1.6. Scope of the study

The scope of the study is specific only to Conlog electricity prepayment metering customers in KwaZulu-Natal. Conlog is a world leader in the electricity prepayment industry. Conlog solutions are sold worldwide and more than 70 utilities are reaping the financial benefits of Conlog revenue management solutions. Furthermore, each day, almost 3,000 households have a Conlog prepaid electricity meter installed in their homes; which makes Conlog the world's largest installed base with over eight million standard transfer specification (STS) prepaid meters.

In KwaZulu-Natal, Conlog is providing electricity prepayment meters and revenue management system to utilities, municipalities and sub-contractors. Conlog offers these utilities, municipalities and sub-contractors the world's broadest product offers, comprising of: meters, vending, revenue management, maintenance, consulting, training and support.

1.7. Research design

Quantitative and qualitative research methods and data analysis are utilised in this research. A detailed questionnaire survey was distributed to a research population of 53 Conlog Electricity prepayment metering customers in KwaZulu-Natal, followed by interviews with a stratified sample of staff from 12 utilities, municipalities and sub-contractors. Interview data was coded and merged with the questionnaire data collected. The sampling technique used was probability sampling using the census method of enumeration. Anonymity was granted to those participated in the research.

1.8. A holistic perspective of Conlog (Pty) Ltd.

Since the inception of the prepayment industry in the late 1980s, Conlog has been at the forefront of developing innovative products and solutions for customers around the world. In the late 1980s Conlog revolutionised the prepayment industry with its pioneering products and solutions. This pioneering spirit, coupled with an unrivalled depth of experience, has ensured Conlog remains a world leader in the field. The company has an installed base of over five million prepayment meters, which is approximately half of the world's estimated installed base of ten million STS prepayment meters. Further, Conlog has supplied thousands of vending points, together with associated revenue management systems, into these markets (Conlog, 2014:2).

Worldwide, Conlog is the preferred supplier to more than 70 utilities, spanning four continents and 20 countries. In year 2000, Conlog became a part of the global Schneider Electric Group which boasts over 100,000 employees and offices in more than 190 countries. Through this network of offices, Conlog is able to offer customers further benefits of local support, knowledge and experience. In addition, a strong competitive advantage for Conlog has always been the development of innovative, world-first products. To this end, Conlog's operation comprises a full complement of highly skilled hardware and software engineers and technicians, who are responsible for the research and development of new products. These have included the development of the Standard Transfer Specification (STS); single phase meter wallbase; single phase Deutsches Institut für Normung (DIN) rail mounted meter; 250A three phase meter; scratch-card electricity redemption; among others (Sankarpasad, 2014:5).

Conlog's manufacturing and production facility is housed within the headquarters in Durban, South Africa. This enables the company to constantly monitor individual customer orders; to provide highly competitive delivery terms; as well as provide assurance on the quality of all products leaving our company. The company facilities are certified in terms of the SANS ISO9001:2008 Quality Management System (registration number LS0445 allocated to Conlog), as well as the SANS ISO14001:2004

Environment Management System (registration number EM140341) and SANS OHS18001:2007 Health & Safety Management System (registration number OHS180113).

1.8.1. Business conduct, ethics and principles of responsibility

Conlog (Pty) Ltd subscribes to a strict code of Business Conduct, Ethics and Principles of Responsibility. South Africa is a Party to the Organisation for Economic Co-operation and Development (OECD) Convention and Conlog fully support its mission in combating corruption. Conlog strongly commits to its Principles of Responsibility in not tolerating the violation of any legislation and promoting ethical conduct at all times and strongly commits to the United Nations (UN) Global Compact pertaining to human rights, labour standards, environment and anti-corruption. Conlog expects all its trading partners to comply with the above principles and reserves the right to expose any unethical act.

1.8.2. Proudly South African

As a South African company, Conlog is proud to provide valuable employment to some 300 people. Further, the company has positive direct and indirect impacts both regionally but also nationally through export markets and the inflow of foreign exchange. Conlog is proud to achieve Level 3 Broad-Based Black Economic Empowerment (B-BBEE) status, which reaffirms the company commitment to the imperatives of the country and the empowerment of formerly disadvantaged individuals. Further, the Black-owned Community Investment Holdings group holds significant shareholding in Conlog and continues to be a strong partner in the growth of the company. The shareholding structure comprises 40% ownership by Parmtro Investments, which is a Black Empowered Company, and 60% owned by the global Schneider Electric group.

Through the Schneider Electric shareholding, Conlog is able to access a network of offices in over 100 countries, as well as all the benefits of a global conglomerate. Further, as a proudly South African company, Conlog embraces the ideals of economic

empowerment and the equity held by Parmtro Investments reflects this priority. Schneider Electric maintains the day-to-day management of the company. This is achieved through an Executive Management Committee, comprising representation from Schneider Electric and Parmtro Investments, as well as the Divisional Directors of Conlog (Sankarpasad, 2014:6).

1.9. Structure of the dissertation

CHAPTER 1 – INTRODUCTION

Chapter One, provides an introduction to the study. The aims and objectives of the study are also outlined. The rationale for the study is presented together with the scope of the study and research design. The structure of the dissertation is also clarified in this Chapter.

CHAPTER 2 – LITERATURE REVIEW

In Chapter Two, theories and critical reviews of research studies related to the topic can be found. A critical discussion of related literature on the evolution of Electricity Prepayment meters, customer satisfaction and customer loyalty is offered. Conlog's background and history is also presented in this chapter.

CHAPTER 3 – RESEARCH DESIGN

In Chapter Three, the research design used in this research study is discussed and the various aspects that impact on the study are explained. A series of rational decision-making, different paradigms and data collection mechanisms is also discussed in this chapter.

CHAPTER 4 – RESULTS AND ANALYSIS OF THE DATA

Chapter Four presents the data which was gathered through the questionnaire survey and interviews conducted on the study. The data collected is presented in form of tables, graphs and conversational analysis.

CHAPTER 5 – CONCLUSION AND RECOMMENDATIONS

Chapter Five presents the overall conclusions that were developed from the study as well as recommendations for future research based on the interpretation of data collected.

1.10. Conclusion

Customer satisfaction is to be one of the main objectives of any modern company. In the case of Conlog, it is even more evident because they find themselves operating in a very competitive environment. It is therefore, imperative for Conlog to measure its customer level of satisfaction and loyalty.

CHAPTER 2

LITERATURE REVIEW

2.1. Introduction

In Chapter Two, a literature review is presented and reviewed in which the broad background for electricity prepayment meters is discussed in detail. The context of electricity metering system in Africa and globally is also reviewed. Customer satisfaction is discussed in detail. The important of customer satisfaction and the benefit of customer satisfaction in the organisation are also unpacked. This Chapter also reviews the critical factors that influence customer satisfaction. The interrelationship between customer satisfaction and customer loyalty is outlined and the chapter concludes by evaluating customer satisfaction and customer loyalty in the electricity prepayment metering.

Customer satisfaction, which refers to "the summary psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with the consumer's prior feelings about the consumption experience" (Deng, Lu, Wei, & Zhang, 2009), is often considered as an important determinant of repurchase intention (Liao, Palvia, & Chen, 2009) and customer loyalty (Eggert & Ulaga, 2002). It is a most important research topic in the electricity prepayment metering industry. If the customer has good experiences of using a prepayment meter, then a customer will have cumulative customer satisfaction.

2.2. Electricity prepayment meters (Descriptive overview)

As deregulation takes hold, customer competition and care is gathering pace as the new wave in the utility industry. And central to this, linking utility and customer, is the meter, whose role is becoming increasingly important, with impact on all areas of the metering business from metering practice and metering technology to billing (Chisanga, 2006:7).

Prepayment is not a new concept; however, the popularity of electricity prepayment has significantly increased as people become more aware of their electricity usage and the associated costs. Further, the global demand for prepaid cellular services has enabled prepayment to become an easily understood concept. In simple terms, prepaid electricity is not different to prepaid cellular airtime, whereby a consumer purchases their electricity requirements up-front, prior to consumption. When they have consumed the electricity, they simply top-up with another purchase. If no new electricity purchase is made, the supply is suspended (Sankarpasad, 2014:2).

An electricity prepayment metering system according to Kettless (2004:105) basically comprises a system master station (which is a computer that operates and administers the whole system), a vending machine (where customers buy their electricity) and prepayment energy meter (or dispenser, which dispenses the electricity to the customer). This meter has an interface to the customer for managing the transfer of credit and to display the meter and credit status.

Chisanga (2006:11) confirmed that electricity prepayment metering systems are categorised as one-way or two-way, referring to the flow of information between the vending machine and the meter. In the one-way system the information flows only in one direction, from the vending machine to the meter. This system can either be addressable or non-addressable. The addressable system uses tokens that are personalised to one meter and therefore cannot be used to credit any other meter. In the two-way system, information flows in both directions. In this system the meter also returns to the vending machine, information such as peak demand, average daily consumption etc. The system inherently requires expensive microprocessor smart cards, a sophisticated system of networked computers and vending stations.

2.2.1. Electricity prepayment metering in Africa

The payments of utility bills in Africa have been dominantly on the postpaid model over the years. In recent years however, most municipalities and utility cooperation are changing to prepaid models, in order to cash on the benefits of the latter and to avoid the limitations of the former post paid model (Harvey, 2005). Electricity prepayment meters in Africa have dominantly been electromechanical in nature. However, many countries such as Tanzania, South Africa, and Ghana among others, have introduced sophisticated and accurate digital and electronic meters.

A prepaid energy meter enables power utilities to collect power bills from the consumers before usage of power thereby lowering the percentage of electricity revenue lost to power theft, incorrect meter reading and billing, and reluctance and inability of consumers to pay electricity bills on time (Jain, 2011). The application of electricity prepayment meter, results into a considerable savings, increased revenue, reduction of losses, efficiency, and overall profitability (Khan, 2010). Baptista (2013) noted that pre-paid electricity gives consumers autonomy of electricity use and divisibility of energy purchases. The pre-paid model facilitates forms of sociability and social ordering that are not only exclusively economic, but also political, familiar and technological.

In Mozambique, the peri-urban dwellers welcomed prepaid electricity model since they felt empowered (Baptista, 2013). Tewari, (2003) and Baptista, (2013) concurred that energy specialists, economists and development scholars are generally positive about the benefits of the prepaid model to both consumers and utility producers. In 2011, the Botswana Power Corporation (BPC), a Parastatal utility that was formed in 1970 by an Act of Parliament which is responsible for the generation, transmission and distribution of electricity within Botswana areas, took a decision to convert urban areas electricity from post-paid to prepaid form. The decision was taken by the Corporation as a way of mitigating the complaints from the customers, about receiving over-estimated bills or at times not even receiving the bills at all. The Botswana Corporation introduced several platforms of purchase of pre-paid electricity as a way of easing the accessibility of

electricity procurement. These included purchase of electricity through point of sales, Cell phone banking, Automatic Teller Machines (ATM), Internet, Electronic Wallet (E-Wallet), and Scratch cards sold through supermarkets and other retail vendors. This conversion was envisaged not only to benefit consumers, but to the Corporation as well in helping cut the costs which were related to post-pay. These costs included the cost of bill processing, printing, and posting as well other costs related to accounts management. The company's profit should improve as the post-paid system allowed the company to be owed or lose millions of Pula through consumers' bad debt practices (Mburu, 2014:179).

2.2.2. Electricity prepayment metering in the United Kingdom

Kettless (2004:104) stated that prepayment metering has been in use in the United Kingdom (UK) for well over 70 years, and with over 3.9 million electricity consumers are on prepayment metering alone. The UK is seen as the world focus for prepayment development. This is further borne out by the types of token-based prepayment systems that have been introduced and developed over the last few years for the UK, which are now being marketed worldwide. The system ranges from the use of magnetic cards, key-based facilities, smart cards and so on. The UK has a long history of the use of coin operated meters, which allow a customer to pay for electricity as it consumes. By the late 1970s there were growing problems with coin operated meters.

They were unreliable; the average life on circuit being typically 5 years before needing attention. Although the customer paid in advance, the cash stayed in the meter until collected; hence it was not a true prepayment from the utility view point. Cash was stolen from meters during burglaries, leaving the customer responsible for replacing it (and some customers stole from their own meter). A meter might typically contain in excess of £100 between collections. Staff collecting cash were targeted by criminals in robberies, to the extent that some collections had to be carried out using armoured vans (Kettless, 2004:106).

According to the research conducted by Kettless (2004), the electricity industry, therefore, encouraged research into alternative methods whereby prepayment facilities could be given without involving cash at the customer premises. Papers from that time record trials of, for instance, plastic coins which were crushed after insertion into the meter, and magnetic card tickets being developed by London Transport for the underground system. Developments accelerated in the mid-1980s when the Prime Minister Margaret Thatcher launched an anti-crime initiative, which included the problems of theft related to coin operated meters. By then, manufacturers were close to offering commercially viable new meters, but it was still early days and the industry was cautious about committing to replacing the over one million operated meters.

2.3. The development of electricity prepayment system in South Africa

Prior to 1988, according to Tewari & Shah (2003), electricity was supplied by Electricity Supply Commission (Eskom) mainly to large customers such as mines and municipalities. At that time, Eskom was one of the largest electricity generators in the world; it had 120,000 customers and all of them were on billed accounts. In 1988, Eskom had a change of strategy, that is, to supply electricity directly to the large masses of domestic customers who did not have access to electricity at that time. To address this change of strategy, Eskom initiated the development of the basic prepaid system, which is still in use and has been growing over the years.

Tewari & Shah (2003) noted that the first inquiry for electricity dispensers (EDs) or prepayment meters in Eskom was issued in 1989. This inquiry was based on a short specification produced by Eskom. Contracts were issued to two manufacturers, AEG (Then Schlumberger) and Conlog, based on this specification for 10,000 meters. An earth leakage protection device was included with the meter and dispensers were only required to perform Amp-hour measurement instead of KWh (KiloWatt hours).

In April 1990 Eskom released the NRS009 specification which provided the technology concept outline of the basic product features with which potential products would have to comply. On the basis of this specification Eskom issued a call for proposals to industry, in order to gauge the level of market interest and capabilities for the development of electricity prepayment meters technology. To expand the scope for innovation by producers, Eskom kept the NRS009 specification very short, consisting of 2-3 pages of general functional requirements (Lliev, 2005).

The specification document was upgraded and made more comprehensive in 1990 to include NRS009, Part 1, 2, and 3. This time the earth leakage protection device was removed from the ED. The specification based on NRS009 were contracted out to three manufacturers (AEG, Conlog, and EML (then Spescom); some 30,000 meters were ordered, 10,000 meters per manufacturer. The project was renamed as the 'Eskom Electrification Project'. Lightning related failures were also becoming apparent during this time. An exhaustive investigation established that the international requirements as specified in NRS009 document were not stringent enough for the South African conditions. A lightning arrestor was developed in conjunction with the Council of Scientific and Industrial Research (CSIR) and was installed in the EDs; this effectively addressed the lightning problems.

In 1990, The South African Bureau of Standards (SABS) provided a completely new specification of prepayment meters and replaced the old one. However, it took into account the NRS009 while creating the new specification. And, the total numbers of prepayment meters to be manufactured was increased to 200,000 per annum in 1993. This number was further increased to 300,000 meters per annum by the year 2000**.**

Having standardized the specification of electricity prepayment meters by SABS, Eskom identified the need for standardizing the vending system to be able to sell electricity from one meter to another, which was manufactured by different manufacturers. Eskom initiated a program to standardize the EDs and the vending process in 1993. An inquiry was issued for the vending system based on a draft specification and for EDs to

accompany it. Later, the development of the new common vending system (CVS) was started jointly by Eskom in conjunction with Conlog, a meter manufacturing company.

The development of CVS was followed by the development of Standard Transfer Specification (STS). Both Conlog and Eskom developed the STS. The STS was developed to enable the new vending system to transfer credit to all types of meters; this warranted developing a standard transfer medium and protocol to the meters. All EDs produced from the beginning of 1994 implemented the STS and allowed the CVS to produce tokens for any manufacturer's EDs.

While Eskom retained control over the STS development process, key parts were subcontracted to external organizations or experts. For instance, the encryption key system was developed in collaboration with a Cambridge University academic. Prism Payment Technologies was contracted to develop the security module for the STS compliant models. Prism's work was facilitated by their previous experience in developing secure transaction mechanisms for the banking industry. Conlog, already a major supplier of prepaid meters and support systems, was contracted by Eskom to develop the communication protocols for the transfer of credit from CDUs to the EDs (Lliev, 2005).

Tewari & Shah (2003) further noted that in 1996, a 2.5A Circuit Breaker Unit (CBU) was designed. A CBU is a device equipped with earth leakage and overload protection, designed to supply up to 2.5A and to be managed on a flat rate tariff in order achieve a further reduction in the cost of electrification. Operational cost studies were done in late 1997 and Eskom came to the conclusion that prepayment is still cost effective or cheaper than the CBU flat rate system. The decision was then made to implement a prepayment 2.5A prepayment system with ECUs instead CBU.

In 2003 the STS standard was adopted by the International Electrotechnical Commission (IEC) as a Publicly Available Specification, and is currently considered as the *de facto* industry standard for electricity prepayment metering. This followed the

formation of an IEC Working Group. The STS Association has also been busy with the development of STS2, with modifications aimed at increasing the type of functions possible on an STS-compatible meter (Lliev, 2005).

The CVS and STS meters formed the basis of the existing prepayment system of Eskom. The CVS and STS have been further improved and are adopted as standard by other electricity utilities, such as Durban Metro, in South Africa. South Africa is now seen as world leader in prepayment technology and many other countries have adopted the South African Standards.

2.3.1. Overview of a prepayment solution

Electricity prepayment meter has been widely adopted by utilities in different countries across the globe. The prepayment technology was initially developed in South Africa in the late 1980s with the objective of supplying energy to a large number of low-income and geographically dispersed users (Casarin & Nicollier, 2009).

According to Sankarpasad (2014:3), a prepayment system, or solution, comprises of three mandatory components:

- Prepaid meters: the measurement and metering device
- A vending system: a system that consumers visit to purchase electricity requirements
- A revenue management system: installed at the utility to manage the prepayment infrastructure.

The first step in the process is to install and commission the vending and management system. The vending unit(s) should be installed in close proximity to the customers, while the management and vending server is installed in the utility offices.

Figure 2.1: Electricity prepayment solution architecture

Source: Introduction to prepayment – Conlog (2014:4)

Once this process is completed, meter installation can begin. Consumers can only purchase electricity once the vending system has been installed. Consumers are registered on the management system, by assigning an account and a meter to the individual. The meter is then installed by a qualified electrician and a certificate of compliance or installation is issued. The consumer information is automatically downloaded into the vending unit, so that purchases can be made by giving the meter serial number, or account number.

2.3.2. How electricity prepayment works?

Sankarpasad (2014:4) defined the process of using prepayment as follows:
The consumer goes to a vending site and gives the vendor the amount of money they want to purchase for electricity, along with the meter serial number or meter swipe card. The vendor creates the transaction on the vending unit and returns a token (often a paper receipt), comprising 20 digits, to the consumer. The transaction is automatically

recorded in the management system at the utility's office. The consumer takes the token back to their premises, and enters the 20-digits into the meter via the keypad. The consumer now has electricity. As the user consumes electricity, the meter will deplete the credit. When it nears the end of the credit, the meter will alert the user. If no additional credit is purchased, the meter will suspend the supply. The consumer will have to purchase another token before power is automatically reconnected.

2.3.3. Advantages of electricity prepayment meter to the customer

The main advantage of prepayment metering is that it eliminates billing problems and queries. A customer bill is determined by what the customer can afford and the meter trips automatically whenever the units are exhausted meaning the customer consumes only what has been paid for. The customer benefits from the prepayment because there is no fixed charge. The customer does not pay when there is no consumption. The customer only pays for the units that are consumes unlike the credit system where the electricity is consumes before the customer pays for it and is charged even when there is no consumption for that particular period.

There are no reconnection fees since there are no disconnections. Since the meter automatically trips when the units are exhausted and only becomes energised when it is loaded with units, the customer does not pay any fee for fuel and labour for the personnel doing the reconnections. The customer is also able to control the amount of energy that is being used instantaneously through the basic man - machine interface display on the meter. For instance, the customer can use less power by switching off the geyser and the stove after bathing and cooking.

2.3.4. Advantages of electricity prepayment meter to the utility

A major advantage of the prepayment method is that there is no meter reading because the number of units a customer buys is determined by how much the customer pays. The system is also self-regulating meaning no disconnections as the meter trips when

the units are exhausted and there are no reconnections to be carried out as the meter is only energised when the voucher number is keyed into the meter.

There are no bill deliveries while on time payment of bills results in improved cash flows as the money is paid up front. There are no accrued debts as the customer pays before consumption and utility will manage to recover money owed to it by customers as arrears are recovered in terms of a small proportion being paid every time a customer purchases units. Further, there are no reconnection fees as the meter trips when the units have been exhausted and the energising of the meter does not need an officer of the utility to key the voucher number. Customer relations improves since there are no disconnections and the customer only consumes power that which has been paid for. The customer is able to control the power consumption by deciding the amount and time of purchase and deciding on when and how to consume the power. This enables customers to plan their consumption and results in having power whenever it is needed.

In addition to the above mentioned, the utility still enjoys upfront payment whilst being able to constantly interrogate the meter for valuable feedback information such as zero consumption, which alerts the utility to potential non-technical losses. This has the added benefit of improved resource utilization, as personnel traditionally deployed in meter reading and periodic site inspection can be more efficiently directed to the locations requiring intervention (Chisanga, 2012).

2.4. Challenges facing electricity prepayment industry

The scourge of electricity theft through Ghost CDU (Credit Dispensing Unit) vending is becoming a serious challenge for Eskom. This results in significant revenue and electricity losses to the utility, and cannot be left to continue unabated. When this problem started in the early to mid-1990, it was an individualised crime. It has, however, grown to a crime where syndicates dominate. This has become a specialised crime and more dangerous and hence specialised resources are needed to address it (Maphaka, 2012).

Prepaid systems allow users to consume energy only when they have credit in electricity account, as supply is discontinued when such credit is exhausted (Casarin & Nicollier, 2009). From the consumer's perspective, prepayment systems may result in a better understanding of how much energy is being consumed, inducing more control of energy use and budget management (Tewari & Shah, 2003). From a utilities service point of view, prepayment reduces the risk of consumption without payment and improves cash flow (Maphaka, 2009). Furthermore, there are no account posting costs, no meter readers required, no disconnection and reconnection fees and other administrative hurdles (Ruiters, 2004). However, the introduction of this mechanism has been met with significant resistance in some segments of the society, especially in the low-income urban households.

The installation of prepaid electricity meters resulted in financial difficulties for some consumers as they had to pay in advance for electricity from the date of installation. In some parts of South Africa, prepayment meters were forcefully introduced to most households with the aim of eradicating the culture of non-payment (Malzbender & Kamoto, 2005). Ruiters (2004) argued that use of prepaid meters has been made a condition for debt renegotiations and the receipt of free services.

Maphaka (2012) confirmed that the following main challenges that are faced by the Electricity Prepayment industry:

2.4.1. Meter tampering and bypass

It's often an 'invisible' crime. Someone illegally hooks into a power supply, hooks up a line that has been disconnected, or tampers with a meter to avoid recording electricity usage. Legitimate electricity consumers do not engage in these behaviours, so the impact of electricity theft, including the danger, is often unrecognised. The power line could become overloaded with electric energy, which could harm electronics appliances that are designed to receive a certain, steady amount of electricity. Electricity theft

makes power service less reliable leads to lower quality for paying customers, and is dangerous for the perpetrators of the theft and creates additional costs for all consumers of electricity.

Electricity thieves may also unknowingly feed energy back into the power line. This is dangerous for the lineman who may assume that the power line they are working on is de-energised. Most electrical theft crimes occur through meter tampering, bypassing meters, and tapping power lines. Other less frequent crimes include tapping into neighbouring premises, using illegal lines after being disconnected, self-reconnection without consent, and electrifying fences.

2.4.2. Illegal connections

Illegal electricity connections and false electric vending vouchers affect South Africa economy to the tune of billions of rand. People have been paying “quick-fix” electricians to organise their illegal power; these illegal connections can cause overloading, outages and blackouts in entire neighbourhoods. Illegally connected wires can cause fires; and exposed wires, usually ill-concealed under sand, can electrocute innocent people.

2.4.3. Illegal prepaid electricity vouchers

Generally, electricity theft can occur through fraud: meter tampering and bypassing, abstracting or branching off or diverting the electric current. Illegal connections, by selling illegal pre-paid electricity vouchers from stolen vending machines and in some instances through illegal electrification schemes, are also a major form of fraud. Criminal syndicates are involved in the theft of Credit Dispensing Units (CDUs). In many instances, the public is not aware they are buying vouchers from stolen machines. Ghost CDUs are found in many residential areas where criminal syndicates prey on the weak and vulnerable, e.g. the elderly and unemployed, taking advantage of their poverty and enticing them into a world of crime. In many instances, ‘runners’ are used to persuade people to buy illegal pre-paid electricity vouchers.

2.5. The future for electricity prepayment meters

According to Ellenki and Srikanth (2014:242), the development of Advanced Metering Infrastructure (AMI) systems has brought the greatest change in the technology of energy metering. The technology upgrades from mechanical rotating disc energy meter to electronic energy metering device and then to an intelligent energy meter, called Automatic Meter Reading (AMR). This technology helps send energy consumption data from buildings, factories and houses to the utilities for load curve, power quality analysis and consumers billing purposes. The Advanced Metering Infrastructure (AMI) is also introduced to integrate the meter with grid and households for better analysis of transmitted power and usage. Aclara (2008:3) defined AMI as the communications hardware and software associated system and data management software that creates a network between advanced meters and utility business systems which allows collection and distribution of information to customers and other parties such as competitive retail suppliers, in addition to the utility itself.

The AMI technology includes two-way communication between utility companies and the customer's smart meter. This device communicates with consumers and utilities through power line carrier and this is aimed to help households to consume energy wisely (Sivaneasan & Gunawan, 2008). The AMI can be defined as a 'smart meter' device due to its user-interface ability and provision of all parameters that are related with user’s energy consumption as well as utility companies (Luan, Teng & Chan, 2010). Aclara (2008:3) further defined the smart meter (also known as the Advanced Meter) as an electric meter, new or appropriately retro-fitted, which is capable of measuring and recording usage data in time differentiated registers, including hourly or such interval as is specified by regulatory authorities. Smart meter allow electric consumers, suppliers and service providers to participate in all types of price-based demand response programs and provides other data and functionality that address power quality and other electricity service issues.

The parameters that are employed in AMI system are energy consumption, real power, reactive power, power factor, voltage, current and maximum energy demand (Pasdar & Mehne, 2011). These parameters will ensure the energy usage quality at receiving end and provide information on current energy price to consumers. Moreover, most of the smart metering devices are able to record the activities of households through energy consumption profile (Huq & Islam, 2010).

Anderson & Fuloria (2012) argued that there has been considerable interest worldwide in the concept of smart metering. Smart metering is a more efficient and reliable infrastructure for the transmission and distribution of electricity. This system has the potential to intelligently match generation with demand and help shave demand peaks. Smart meters are often part of a smart grid and provide real-time electricity consumption measurements and outage notifications, as opposed to traditional meters that measure cumulative energy use and are typically read once a month. An obvious advantage of a smart meter is the openness and reliability that is available to consumers and suppliers. These systems have the potential to intelligently match generation with demand and help consumers to conserve energy and adapt usage to supply conditions.

Anderson & Fuloria (2012) further argued that the major highlight of smart meters to energy companies is the ability to switch non-paying customers to a pre-pay tariff. This can be done using remote switches to re-programme the meter, instead of replacing it. However, there can be a conflict of interest between energy companies (which want to sell more energy) and the Government (which wants to meet supply security and carbon emission reduction targets).

2.5.1. Benefits of smart metering in Africa

The introduction of smart meters could help to relieve Africa's stressed power supply and bridge the investment gap in the African region's electrical infrastructure. Installing a prepayment smart meter guarantees that cash can be collected from a customer. This could provide the necessary missing link to secure revenues, thereby attracting global

investors in new generation capacity and allowing investment in other critical energy infrastructure (Ndaba, 2013:3).

With smart metering, consumers and utilities can actively participate in managing and reducing consumption. Two-way remote-controlled communication technology in the meter will allow consumers and utilities to see how much energy is used and to control consumption in real time. Consumers in the more advanced African countries will also be able to make informed decisions about their use of energy, shifting consumption away from heavy demand periods when tariffs are higher. For energy companies, the benefits include improved demand management, accurate billing, financial savings and a way to secure revenue to afford new generation capabilities. The technology makes it easy to detect technical problems or faults in the supply of electricity, vital for Africa to eliminate its current frequent blackouts. The power company can also immediately detect tampering or theft of electricity, an endemic problem in the region and if necessary, instantly disconnect consumers who are not paying for power (Ndaba, 2013:4).

2.6. Customer satisfaction

Today, customers have lots of choices on where and who to deal with. As a result the power has now shifted to the customer. If they feel a service company cannot satisfy their expectations they will simply vote with their feet and deal with someone who will. Therefore, in order for the firm to remain competitive and sustainable, marketers need to make sure that they satisfy their customers. Research studies conducted by Lee, 2004; Huddleston, Whipple, Mattick & Lee, 2009, illustrated that customer satisfaction positively influences repurchase intention. It is an important predictor of customer loyalty (Cheng, Chiu, Hu & Chang, 2011) and it also positively impacts on customer trust (Dabholkar & Sheng, 2012).

Satisfaction can be obtained because of what was expected. If the supply of a firm met the expectations of customers, the latter would be satisfied. The degree of high and low

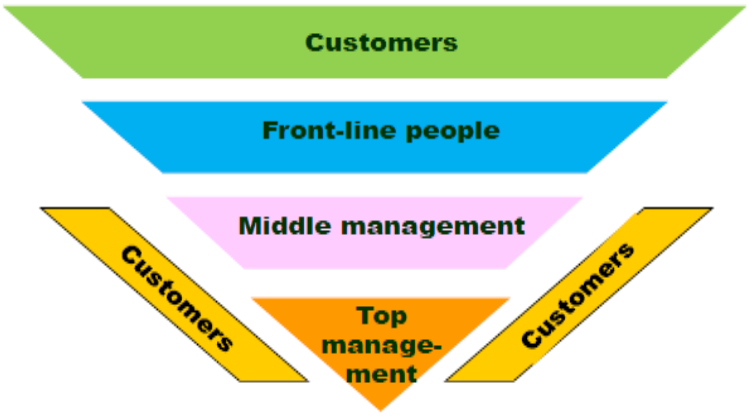
satisfaction depends upon the level of supply that meets the level of expectation and the degree of variation below or above the expected level. (Gerpott, Rams & Schindler, 2001). Customer satisfaction is the necessary foundation for the company to retain existing customers (Guo, Xiao & Tang, 2009).

Customer satisfaction is a complex construct and has been defined in various ways (Kanji and Moura, 2002; Fecikova, 2004). Chang (2006) viewed customer satisfaction as a post consumption evaluation of a product or a service and defined it as the ability of an organisation to provide a service performance that exceeds the customer expectations. Deng, Lu, Wei and Zhang (2010) stated that customer experiences cumulative satisfaction after having a good experience of using the product or service. Choi and Sheels' (2012) definition of customer satisfaction include the output and process aspects of customer satisfaction. The output definition views customer satisfaction as a cognitive or mental state in which consumers feel that they have been adequately or inadequately compensated. Regarding the process, customer satisfaction occurs when customer experience matches or exceeds the expectations. Consumer evaluation, therefore, is crucial for determining customer satisfaction (Choi & Sheel, 2012).

Dimitriades (2006:784) argued that there is a distinction between customer satisfaction as related to tangible products, and as related to service experiences. This distinction is due to the inherent intangibility and perishability of services, as well as the inability to separate production and consumption. Hence, customer satisfaction with services and with goods may derive from, and may be influenced by different factors and therefore should be treated as separate and distinct (Veloutsou, Gilbert, Moutinho & Good, 2005). Angelova and Zekiri (2011:237) argued that companies that desire to be successful invert the chart, as in Figure 2.2 below. At the top are customers, next according to the importance are front-line people who meet, serve, and satisfy customers, under them are middle managers, whose job is to support the front-line people so they can serve customers well, and at the base is top management, whose role is to appoint and support good quality middle managers. For customer-centered companies, customer

satisfaction is both a goal and a marketing tool. Therefore, companies need to be concerned about the customer satisfaction level, because of the internet technology which enables the quick spread of bad word of mouth marketing, as well as good word of mouth to the rest of the world (Angelova and Zekiri (2011:234).

Figure 2.2: Modern Customer-Oriented Organization Chart



Source: Kotler et al. (2000)

Hattingh (2007:22) noted that customers will have significantly different expectations of exactly the same product. The concept of customer satisfaction can be expressed as a function of customer expectations. A customer, whose experience falls below expectations, will be dissatisfied. The opposite reaction is experienced if a customer's expectations are exceeded (Schiffman & Kanuk, 2004:15).

Cheng, *et al.* (2011) argued that satisfying a customer is even more important than profit making. Sandada (2013:438) reasoned that satisfying a customer precedes profit making; hence as long as customers are satisfied, the business will make profit. Customer satisfaction has therefore become an important measure of the behaviour of consumers (Cheng *et al.,* 2011) and a key indicator of business performance (Sandada, 2013:439).

2.6.1. The importance of customer satisfaction

Effective marketing focuses on two activities: retaining existing customers and adding new customers. Customer satisfaction measures are critical to any product or service company because customer satisfaction is a strong predictor of customer retention; customer loyalty and product repurchase (Smith, 2007:9). The level of satisfaction a customer has with a company has profound effects. Ryan (2012) study has found that the level of customer satisfaction has a positive effect on profitability. Ryan (2012) is of the opinion that a totally satisfied customer contributes 2.6 times, as much revenue to a company as a somewhat satisfied customer, while totally satisfied customers contribute 17 times as much revenue as a somewhat dissatisfied customer. Furthermore, totally dissatisfied customers decreases revenue at a rate equal to 18 times what a totally satisfied customer contributes to a company.

Bae (2012:10) argued that customer satisfaction is one of the most important metrics in marketing, since firms regard customer satisfaction as one of the key business goals for evaluating the effectiveness of their business operations. In addition, customer satisfaction is a starting metric of the value chain between customer satisfaction, customer loyalty, firm product, market place performance, financial performance, and shareholder wealth, as demonstrated by recent studies done by Cheng *et al.,* 2011; Huddleston *et al.,* 2009 and Khan (2012). According to Hansemark and Albinson (2004) 'satisfaction is an overall customer attitude towards a service provider, or an emotional reaction to the difference between what customers anticipate and what they receive, regarding the fulfillment of some needs, goals or desire'.

The importance of customer satisfaction is as a bi-directional relationship between satisfaction and trust. Lin and Wang (2006) and Chang (2012) proposed that trust precedes satisfaction. Tricoire (2014:5) stated that customer satisfaction is the customer's judgment of how well their experience meets or exceeds their expectations. The study conducted by Sandada (2013:440) argued that customers firstly deal with the

business and evaluate the business based on the experiences. If the experiences meet their expectations then they become satisfied and will later on trust the business.

Therefore, in this study, we consider satisfaction to be a predictor of trust. This argument is supported by Dabholkar and Sheng (2012) who tested the effect of satisfaction on trust with the context of online business transactions. The implication is that due to satisfying experiences with the business, customers begin to have trusting beliefs about the service provider (Dabholkar & Sheng, 2012). The influence of customer satisfaction on customer trust has also been confirmed by a study by Ou and Sin (2003) who recommended that in order to strengthen customer trust of internet customers, e-retailers need to firstly satisfy internet shoppers on privacy and security issues. This demonstrates the effect of satisfaction on trust.

2.7. Critical Factors that Influence Customer Satisfaction

There are many factors that affect customer satisfaction. Angelova & Zekiri (2011:234) cited the work of Hokanson (1995), who stated that factors affecting customer satisfaction include friendly employees, courteous employees, knowledgeable employees, helpful employees, accuracy of billing, billing timeliness, competitive pricing, service quality, good value, billing clarity and quick service. The study carried out by Reichhold and Sasser (2012) confirmed that factors such as service qualities, and perceived value, are key constructs affecting the customer's satisfaction with service organisations. Reichhold and Sasser (2012) study also pointed out that customer satisfaction results ultimately in trust, price tolerance, and customer loyalty. Therefore, building customer relationship is a backbone for all organisations in general, and companies in service industries in particular. Customer satisfaction, service quality, customer perception, customer loyalty, are the main concerns of the nowadays service companies, factors which improve organisational performance and translate into added profits. According to Hokanson (1995), there are many factors that affect customer satisfaction. Such factors include friendly employees, courteous employees,

knowledgeable employees, helpful employees, accuracy of billing, billing timeliness, competitive pricing, service quality, good value, billing clarity and quick service.

2.7.1. Service quality

Service quality and customer satisfaction are very significant concepts that companies must comprehend if they want to remain competitive and grow. Angelova and Zekiri (2011:245) argued that service quality has become a key strategic factor for companies to differentiate their products and services from other competitors by using service quality as a process that customers evaluate. Vazifehdust and Farokhian (2011:2) stated that customers evaluate services quality by comparing what they expect/predict with what the services presenter practically offers. Therefore, services quality may be defined as the difference between customers' expectations from the services and their understanding of the real performance of the services. Customers evaluate services quality from five various dimensions: assurance, empathy, reliability, responsiveness and tangibility (Zeithaml and Parasuraman, 2008).

Vazifehdust and Farokhian (2011:2) further argued that there are various reasons which show why organizations should look for presenting higher-quality services to their customers, including: increasing customers' expectations; competitors' activities; environmental factors; easy access to the internet; the concept of services; and the difficulty of its understanding by the customers. Presenting better services to the customers, causes repeated shopping, extending word of mouth advertisements and the organisation's profitability (Javadeyn and Keymasi, 2005).

2.7.1.1. The importance of service quality

Adat (2013:76) mentioned the importance of service quality as seen in the effect that it has on the organisation as a whole. It is seen in the following ways. Service quality has an effect on customer satisfaction (Arasli, Mehtap-Smadi and Katircioglu, 2005:43). Using the disconfirmation model, satisfaction is experienced by the customer when the

perceptions (of the actual experience) exceed the expectations of customers. Service quality has an effect on customer loyalty. Loyalty is experienced by the organisation when the perceived service quality experienced by the customers exceeds that which is offered by the competitors. According to Ahmed, Ahmed, Nawaz, Usman and Shaukat, (2010:156) the delivery of service quality to customers is required in the long term if the organization seeks to experience the benefits of customer loyalty.

Arasli, Mehtap-Smadi and Katircioglu, (2005:43) further argued that service quality creates competitive advantage for organisations and is associated with successful organizations. Many organisations sell a similar product of similar quality and the differentiator between them is the service quality that is offered to the customer (Arasli, Mehtap, Smadi and Katircioglu, 2005:43). Zeithaml, Bitner and Gremler, 2006:109) stated that service quality affects relationships and relationship marketing, as customers are willing to build relationships with organisations that provide service quality and service quality has an effect on profitability and costs. As service quality impacts on customer satisfaction, this also impacts on customer retention, reduction of costs and increased profitability (Perez, Abad, Carillo and Fernandez, 2007:136).

2.7.2. Customer expectations

Expectations play an important role in the satisfaction formation. The extent to which a product or service fulfills a customer need and desire may play an important role in forming feelings of satisfaction because of the impact of confirmation or disconfirmation that have on satisfaction (Angelova & Zekiri, 2011:240). Consumers expect to be delivered quality products and services; therefore companies try to offer quality products and services. The term expectations really matters to companies because they want to know what customers' expectations are. The term 'expectations' has different uses, in the satisfaction literature; it is viewed as a prediction made by a consumer about what is likely to happen during an exchange or transaction. According to Oliver (2012), expectations are consumer-defined probabilities of the occurrence of positive and negative events if the consumer engages in some behavior.

In the contrast, in the service quality literature it is defined as desires and wants, what a service provider should offer rather than would choose to offer. Customers form their expectations from their past experience, friend's advice, and marketers and competitor's information and promises (Kotler, 2010). Therefore, perceived service quality is viewed as the difference between consumer perceptions and expectations for the service provided. Organisations in order to keep expectations from rising, have to provide services to the expected level from the first time. Thus, customer expectations for the service are likely to rise when the service is not performed as promised. Cronin & Taylor, (2009) stated that expectations serve as reference points in customer's assessment of performance Thus; retailers can increase customer satisfaction by decreasing customer expectations.

2.7.3. Customer perception

Perception is an opinion about something viewed and assessed and it varies from customers to customers, as every customer has different beliefs towards certain services and products that play an important role in determining customer satisfaction. Customer satisfaction is determined by the customer perceptions and expectations of the quality of the products and services. In many cases, customer perception is subjective, but it provides some useful insights for organisations to develop their marketing strategies.

Providing high level of quality service has become the selling point to attract customer's attention and is the most important driver that leads to satisfaction. Therefore, customer perception and customer satisfaction are very closely linked together, because if the perceived service is close to customer's expectations it leads to satisfaction. Satisfied customers provide recommendations; maintain loyalty towards the company and customers in turn are more likely to pay price premiums (Reichheld, 2011).

2.7.4. Customer retention

Customer retention is defined by different studies in different ways like Gerpott *et al.,* (2001) as that, it is the continuity of the business relations between the customer and company. As Lin & Wu, (2011) stated that, the vital issue in relationship marketing research is the effects of relationships and quality on customer retention. Post sales services are the important drivers for customer retentions (Saeed, Grover & Hwang, 2005). It is important for product/service providers to emphasis the quality of product and service. As Lin & Wu, (2011) further stated, there is a statistically significant relationship between quality commitment, trust and satisfaction and customer retention and future use of product, since retention is influenced by future use of product. Lin and Wu (2011) also argued that there is solid relationship between customer retention and quality of service/or products. Verhoef (2012) examined that a loyalty program with monetary compensation is a step toward great customer retention. Verhoef (2012) further stated that emotional commitment and loyalty programs that gave financial incentives have positive impacts on customer retention.

Petterson, (2008) studied the relationship between customer retention and customer loyalty. Wong, Chan, Ngai and Oswaldw (2009) suggested that a good relation with customers has significant positive impacts on customer loyalty. Smith and Chang (2009) showed that customer retention has an impact on customer loyalty and according to Rust and Zahorik (2009), this relationship between retention and loyalty is really important. Customer retention can be reflecting customer loyalty (Hallowell, 1996). Similarly, Bolton, Kannan and Bramlett (2007) argued that customer loyalty has a significant effect on retention. Khan (2012:107) confirmed that there is a positive relationship between customer retention and customer loyalty.

2.8. Customer loyalty

Customer loyalty is much harder to obtain than satisfaction. Even though customers are satisfied with the company there are several factors that could cause the customer to

defect to the competition, such as finding a better value or the competitor appears more convenient. With that said, having high levels of customer satisfaction does not always lead to customer loyalty. However, a company cannot achieve customer loyalty without having customer satisfaction (Nelson, 2012).

Khan (2012:106) cited the work of Kim & Yoon (2004) in defining customer loyalty as the willingness of customers to maintain their relations with a particular firm or service/product. Loyalty is explained as the customer commitment to deal with a particular firm, buying their products and services and referring it to colleagues (McIlroy & Barnett, 2000). Bodet (2008) further defined customer loyalty as a needed focus in company research; loyalty turned into an important concern for management only due to concentrated competition, especially in service industries. Rauyruen and Miller (2007) also discussed customer loyalty as a merged concept of behavioral loyalty (willingness of customer to repurchase from and continue relationships with the company) and attitudinal loyalty (emotional attachments and advocacy of customers to and for the company).

Arnould, Price & Zinkham (2004:783) confirmed that customer loyalty is a deeply held commitment to re-buy or re-patronise a preferred product or service. As a result, loyalty includes both readiness to act (repeat purchase) and resistance to alternatives. Hattingh (2007:25) argued that, for organisations, loyalty leads to an increase in profits, more predictable sales and profits, and a positive word-of-mouth. High overall satisfaction protects firms from a reduction in loyalty after poor performance in a particular instance. Loyalty leads to a continued patronage, and companies should be interested in generating and maintaining customer loyalty. Although clusters of consumers claim that they find a good brand and stick with it, this does not translate into consistent re-purchase rates.

Customer loyalty according to Buttle (2004:21) has two major approaches in its definition. One is based on ‘behaviour’, while the other relates to ‘attitude’. Behavioural loyalty is measured by reference to customer purchasing behaviour where it is

expressed in terms of continued patronage and buying. What needs to be identified is if the customer is still active, and secondly, if the organisation has maintained their share of customer spending? Attitudinal loyalty is measured by reference to components of attitude, such as beliefs, feelings and purchasing intention. Those customers who have a stronger preference for involvement in or commitment to a supplier are the more loyal in attitudinal terms (Hattingh, 2007:21).

Szwarc (2005:11) is of the opinion that customer loyalty is about a customer's intention or predisposition to buy, but 'retention' is the actual act of buying again. Furthermore retention is a stronger measure than loyalty. It can also be measured using internal company data (such as sales reports), while loyalty usually has to be measured through market research surveys. According to Grant (2014:7), there is another subtle dissimilarity between 'satisfied' customers and 'loyal' customers, as they contribute to company profitability in different ways. Satisfied customers are more likely to promote the company. This is particularly due to the fact that satisfaction is something people will talk about. Loyal customers however are more profitable because they are more likely to buy additional products, often without shopping around for the best price (Tricoire, 2014:12). Dissatisfied customers are however a real cost to a company, because they criticise the company to others and more likely to tell more people about their dissatisfaction than about their positive experiences. A committed customer has a stronger emotional bond to the organisation, and so is less likely to buy elsewhere, and more likely to be tolerant if things go slightly wrong (Hattingh, 2007:27-28).

2.8.1. Customer perceived value

Delivering superior customer value is an essential strategy for firms to gain competitive advantage and long term success (Yee and Faziharudean, 2010). Woodruff (2011) defined perceived value as the customer's overall assessment of the benefits they receive relative to the sacrifice they make.

According to Parasuraman and Grewal (2009), there are four distinct types of perceived value in their proposed expanded model of customer loyalty: acquisition value, transaction value, in-use value, and redemption value. Perceived value is implied as a dynamic construct and may change its central component over time. For instance, acquisition and transaction value may be dominant during and immediately after a purchase, while in use and redemption value may emerge only during later stages of using the product/service.

According to Lin and Wang (2012), in their study on the determinants of customer loyalty in mobile commerce contexts, the benefit components of perceived value include intrinsic attributes (i.e. how a purchase makes one feel), extrinsic attributes (i.e. reputation of the product/service), perceived quality and other relevant high level abstractions. The 'sacrifice' components of perceived value include: monetary prices and nonmonetary costs (e.g. time, energy, effort).

2.8.2. Relationship between perceived value and customer loyalty

Yee and Faziharudean (2010) argued that perceived value contributed to customer loyalty. Chen and Dubinsky (2013) established a conceptual framework of perceived value in a B2C e-commerce setting for elaborating the relationship between perceived value and key determinants. The model supports the definite importance of perceived value in determining a consumer's online purchase intention (an aspect of customer loyalty).

Anderson and Srinivasan (2003) also suggested that if perceived value is low, customers would be more inclined to switch to competing products in order to increase perceived value, thus a decline in loyalty. However, an investigation of perceived value as a predictor of customer loyalty in the golf traveller market by Petrick and Backman (2002) found it not to be predictive. Furthermore, a finding from the study by Omar, Musa and Nazri (2007) showed that perceived value is not a predictor of customer store loyalty in a retail market context.

2.9. Interrelationship between customer satisfaction and customer loyalty

Kim, *et al.* (2004:150) argued that customer satisfaction and customer loyalty are very closely related. Customer satisfaction functions as an antecedent of customer loyalty. It prevents customer churn and consolidates retention, thereby constituting an important cause of customer loyalty (Fornell, 2002; Reichheld, 2007). According to Rust and Zahorik (2005) customer satisfaction has direct impact on loyalty. Auh and Johnson (2005) argued that there are strong relationships between satisfaction and loyalty. Similarly, Bodet (2008) confirmed the relationship between customer satisfaction and customer loyalty. Shankar, Smith and Rangaswamy (2003) provided evidence that there is positive relationship between satisfaction and loyalty. Vesel and Zabkar (2009) also provided evidence that customer satisfaction is one of the significant determinants of customer loyalty.

Bansal, Irving & Taylor (2004) suggested that satisfied customers are more likely to use the same service, to resist competing brands and spread positive word of mouth. The study of online banking in Morocco by Hamadi (2010) found a positive relationship between customer satisfaction and customer commitment and loyalty. Johnson and Gustafsson (2000:4) cited by Szwarc (2005:12) believe that customer satisfaction and loyalty do not work independently of each other. In addition, based on research studies by Lin & Wangs (2006) and Avramakis (2011), customer satisfaction positively influences customer loyalty. Therefore, the study conducted by Sandada (2013:440) proposed that higher levels of customer satisfaction are positively associated with higher levels of customer loyalty.

Szwarc (2005:12) argued that through creating an integrated customer measurement and management system focusing on quality, customer satisfaction and loyalty, organisations will ultimately be able to see an improvement in their bottom-line financial performance. Johnson and Gustafsson (2000:4) argued that quality, customer satisfaction and loyalty cannot be treated independently of each other. They are part of

a whole that needs to be measured and managed in a holistic way, with a clear understanding of the customer experience at the heart of the system.

2.10. Customer satisfaction and customer loyalty in electricity prepayment metering

Chisanga (2006:14) stated that technology such as electronic metering systems with more advanced features, new prepayment metering technologies, and sophisticated utility software packages provides utilities with reliable, cost-effective meter-to-operations centre infrastructure. The challenge from a utility management perspective is how to capitalise on the opportunities to increase revenue, decrease costs and improve customer satisfaction. Lliev (2005) described the widening of the customer base in the electricity prepayment metering market, since by the mid-1990s; manufacturers started seeking expansion into foreign markets. The exposure to different markets competitive pressures increased manufacturer's awareness of different product operational requirements, the need for flexibility in product and service design, as well as the need for continuous improvements and innovation to the product offered.

In this competitive market the continuous increase in customer expectations and technological innovation demand that leading firms distinguish themselves from the competition by going beyond customers' present expectations. Market competition in electricity prepayment metering is forcing organisations to seek the means to gain customer loyalty, and thus aim to maintain their stability in times of economic turbulence. However, at the same time, the customer seeks organizations which display service loyalty in return for their patronage.

With the fierce competition that virtually every product or service faces today, companies must continually scramble to stay ahead and retain the loyalty of their customers. To be competitive in the electricity prepayment metering market, one need only ask customers what they want and then give it to them plus just a little more (Whiteley and Hessan, 1996:73). In the electricity prepayment metering industry, market

competition demands that organizations continuously seek means to gain customer loyalty (Strauss, 2014:26). While customer expectations are continuously increasing, organizations are required to go beyond their primary need of satisfying the customer, to that of exceeding expectations to delight the customer. This delight factor is in reality the organization's ability to create a responsive relationship with the customer, and to demonstrate their ability to serve with loyalty. In the electricity prepayment metering market, Organizations are forced to differentiate themselves from their competitors through their quality of service, as opposed to competing on the basis of price.

2.11. Conclusion

Customer satisfaction has a positive effect on an organisation's profitability. The more customers are satisfied with products or services offered the higher probability that for any successful business, customer satisfaction leads to repeat purchase, brand loyalty, and positive word of mouth marketing. Customer satisfaction leads to repeat purchases, loyalty and to customer retention (Zairi, 2000). Satisfied customers are more likely to repeat buying products or services. They will also have a tendency to say good things and to recommend the product or service to others. On the other hand dissatisfied customers respond differently.

Dissatisfied customers may try to reduce the dissonance by abandoning or returning the product, or they may try to reduce the dissonance by seeking information that might confirm its high value (Kotler, 2000). Companies need to develop strategies of how to handle dissatisfied customers. Businesses cannot afford under any condition to lose customers, because the cost of replacing the lost customer with a new customer is bigger. Therefore, companies must find ways of winning back the unsatisfied customers by designing special programs for service recovery. Companies should handle customer complaints with care and not seeing them as a time consuming.

In the next Chapter, the research design, methodology and methods will be presented and defended.

CHAPTER 3

RESEARCH METHODOLOGY AND DESIGN

3.1. Introduction

In any research study, the research design, methodology and method(s) define the approach (Majola, 2013:24). Blumberg, Cooper and Schindler (2008:195) stated that the research design represents the blueprint for the collection, measurement and analysis of data. It can, therefore, be inferred that the choice of the most appropriate research design is not only an important step of the study but is also key to its success (Moodaliyar, 2010:46).

In Chapter 3, the research design for the study is examined. The research approach used in the study is clarified. The study area and targeted population are considered. The Chapter also discusses measuring instrument, data collection instrument and data analysis. The reliability and validity of the study are also examined. Ethical considerations and limitations of the study are reviewed.

3.2. The research design

Moodaliyar (2010:46) sited the work of Jancowicz (2005:196), who stated that research design is described as the deliberately planned arrangement of conditions for analysis and collection of data in a manner that aims to combine relevance to the research purpose with economy of procedure. Mostaghel (2006:44) cited the work of Cooper & Schindler (2003) who argued that a number of different design approaches exist but, unfortunately, no simple classification system defines all the various that must be considered. Mostaghel stated that research can be classified in terms of their purpose. According Saunders, Lewis and Thornhil (2008) mentioned that they are most often classified as exploratory, descriptive or explanatory while Cooper and Schindler (2003) categorised in terms of ‘descriptive’ and ‘causal’.

According to Bukula (2008:75), exploratory research is conducted into a research problem or issue when there are very few or no earlier studies to which we can refer for information about the issue or problem. The aim of this type of study is to look for patterns, ideas or hypotheses, rather than testing or confirming a hypothesis. Exploratory research is useful when the research questions are vague or when there is little theory available to guide predictions. Barnard (2013) confirmed that exploratory research is useful if researcher wish to clarify the understanding of a problem. Saunders *et al*., (2008) mentioned three principles of conducting exploratory research: a search of the literature, talking to experts in the subject and conducting focus group interviews.

Descriptive research is research that describes phenomena, as they exist. It is used to identify and obtain information on the characteristics of a particular problem or issue (Bukula, 2008:75). Modaliyar (2010:48) confirmed that descriptive research involves either identifying the characteristics of an observed phenomenon or exploring possible correlations among two or more phenomena. This is supported by Synman (2012) who stated that descriptive research design are structured and specifically designed to measure the characteristics described in a research question. This type of research involves examining a situation as it is and does not make any changes or modifications to the situation under investigation, nor does it attempt to determine cause and effect relationships (Graham, 2014). The objective of the descriptive research according to Govender (2013) is to portray an accurate profile of persons and events of situations.

Bukula (2008:75) defined analytical or explanatory research as a continuation of descriptive research. The researcher goes beyond merely describing the characteristics, to analysing and explaining why or how it is happening. Thus, analytic research aims to understand phenomena by discovering and measuring causal relations among them. Hair, Babin, Money & Samouel (2007) argued that explanatory research is designed to test whether one event causes another.

For the purpose of this research, the exploratory is appropriate since no significant earlier research studies on the themes of this inquiry were found. The data collected through the questionnaire is aimed to understand the level of customer satisfaction and customer loyalty with Conlog electricity prepayment meters in KwaZulu-Natal. This is then explored in more depth than the questionnaires allow through interviews with a sample of the research population who completed the questionnaire.

3.3. Research approach

Mostaghel (2008:46) cited the work of Creswell (2003) who suggested that the knowledge claims, the strategies and the method all contribute to a research approach that allows itself to be categorized as quantitative, qualitative or mixed.

3.3.1. Qualitative research approach

Creswell (2003) defined qualitative research approach as one in which the inquirer often makes knowledge claims based primarily on constructivists perspective (i.e. the multiple meaning of individual experiences, meaning socially and historically constructed, with an intent of developing a theory or pattern) or an advocacy/participatory perspective (i.e., political, issue-oriented, collaborative or change oriented) or both. It uses strategies of inquiry such as narratives, phenomenology, ethnography, grounded theory studies or case studies.

This is supported by Kanny (2013:45) who confirmed that qualitative research seeks out the ‘why’, not the ‘how’ of its topic through the analysis of unstructured information – using methods such as interview transcripts, and open-ended survey responses. It doesn’t just rely on statistics or numbers, which are the domain of quantitative researchers. Kanny (2013:45) further argued that qualitative research is used to gain insight into people's attitudes, behaviours, value systems, concerns, motivations, aspirations, culture or lifestyles. It is used to inform business decisions, policy formation, communication and research.

Focus groups, in-depth interviews, content analysis, ethnography, evaluation and semiotics are among the many formal approaches that are used, but qualitative research also involves the analysis of any unstructured material, including customer feedback forms, reports or media clips. Collecting and analysing this unstructured information can be messy and can become time consuming using manual methods. Qualitative research generally examines people's worlds and actions in narrative or descriptive ways more closely representing the situation as experienced by the participants (Kanny, 2013:46).

Blaxter, Hughes and Tight (2006:64) stated that qualitative research entails collecting and analysing information in as many forms, mainly non-numeric, as possible. According to Locke, Silverman and Spirduso (2004:149) qualitative research designs include ethnography, phenomenological study, grounded theory study, and case study. Leedy and Ormrod (2005:94) argued that qualitative research is used to answer questions about the complex nature of phenomena, usually with the purpose of describing and understanding it from the participants' perspective (interpretative, constructivist, or post positivist approach).

3.3.2. Quantitative research approach

Creswell (2003) further defined quantitative research approach as one in which the investigator primarily uses positivist claims for developing knowledge (i.e., cause and effect thinking, reduction to specific variables and hypotheses and questions, use of instrument and observation, and the test of theories) employs strategies of inquiry such as experiments and surveys and collects data on predetermined instruments that yield statistical data.

Kanny (2013:44) confirmed that quantitative research focuses on gathering numerical data and generalising it across groups of people. Quantitative research typically has a clearly defined research questionnaire in which objective answers are sought and can

be used to generalise concepts more widely, predict future results or investigate causal relationships. Kruger and Mitchell (2005:8) argued that quantitative research does not involve the investigation of processes but rather emphasizes the measurement and analysis of the variables in the study.

Leedy and Ormrod (2005:94) suggested that quantitative research is used to answer questions about relationships among measured variables with the aim of explaining, predicting, and controlling phenomena (traditional, experimental, or positivist approach). This is supported by Blaxter, Hughes and Tight (2006:64) who suggested that this generally involves relatively large-scale and representative sets of data.

3.3.3. The mixed method research approach

The mixed method research approach has be defined by Tashakkori and Teddlie (2003:711) as “a type of research design in which qualitative and quantitative approaches are used in types of questions, research methods, data collection and analysis procedures, and/or inferences”. Tashakkori and Creswell (2007:4) further defined mixed method research approach as a research in which the investigator collects and analyses data, integrates the findings, and draws inferences using either qualitative and quantitative approaches or methods in a single study or program of inquiry.

Indarlal (2013:59) cited the work of Holland and Campbell (2005:21) who are of the opinion that the qualitative and quantitative research approaches are more powerful when combined. This was further supported by Trochim (2006:30) who believes that the collection of data becomes more efficient when using both qualitative and quantitative research approaches (the mixed-methods approach). Griffin and Museus (2011:32) added that a mixed method approach allows the researcher to obtain and analyse data in multiple ways to acquire a rich and complex understanding of how multiple tax amnesties will effect tax compliance.

This Conlog study was conducted in two phases: the first phase focused on quantitative research, and the second phase focused on a qualitative research approach. Therefore, the mix method research approach was conducted. The questionnaire was used during the quantitative phase of the research. The reason for employing quantitative data is that it allows a descriptive and analytical interpretation of the data from a logistically feasible research population, providing breadth to a study (Zikmund and Babin, 2007). During the qualitative phase, the researcher conducted interviews with customers' in *situ*, adding depth and detail to the quantitative data. Examples of responses from the interviews are shown in Annexure D.

3.4. The study area

The study was conducted in the Province of KwaZulu-Natal (also referred to as KZN or Natal). KwaZulu-Natal is located in the south-east of South Africa bordering the Indian Ocean. It covers an area of 94 361Km2, the third-smallest in the country, and has a population of 10 267 300, making it the second most populous province in South Africa. The capital is Pietermaritzburg. The largest city is Durban. Other major cities and towns include Richards Bay, Port Shepstone, Newcastle, Estcourt, Ladysmith and Richmond.

The Province's manufacturing sector is the largest in terms of contribution to the Gross Domestic Product (GDP). It has cultural, natural and historic icons including its famous beaches and surf, Big 5 game reserves and lofty Drakensberg Mountains, its mighty Zulu heritage, colourful Indian culture and great sporting events. KwaZulu-Natal is divided into one metropolitan municipality (eThekwini Metropolitan Municipality) and 10 district municipalities, which are further subdivided into 50 local municipalities.

3.5. Target population

A population is a group of potential respondents to the study to whom a researcher seeks to generalize the results of a study. Konyana (2012:68) cited the work of Cooper and Schindler (2006:46) who stated that the population means the overall number of

elements / unit of analysis from which the researcher wishes to draw conclusions. Groves, Fowler, Couper, Lepkowski, Singer and Tourangeau (2009: 69) explained that the target population is a group of elements for which the researcher wants to make inferences by using the sample statistics. Gqamane (2010:50) stated that the target population is the population to which the researcher ideally would like to generalize his or her results. Gqamane (2010:50) concluded by stating that, a population encompasses the total collection of all units of analysis about which the researcher wishes to make specific conclusion.

Wilson (2010:190) argued that choosing the target population is very important and depends on the research questions and the context of the study. Sekaran and Bougie (2009:267) argued that the target population must be defined in terms of elements, units, geographical boundaries, and time. This was supported by Scheming (2012:59) who listed some examples of population characteristics which can be used in research include demographic characteristics, lifestyle characteristics and product characteristics. Kenny (2013:47) was of the opinion that a research problem, therefore, relates to a specific population. Therefore, the target population selected for this study is based on Conlog customers in KwaZulu-Natal.

Since the total potential target respondents equated to fifty three (53), the entire group of the identified target respondents formed the elements for the empirical study. The population included all Conlog customers in KwaZulu-Natal, including sub-contractors. The survey method was used to administer the questionnaire and the researcher was present to address queries. Forty four (44) of the fifty three (53) Conlog customers and sub-contractors in KwaZulu-Natal responded to the questionnaire. This represents 83% response rate. An elite sample of twelve (12) customers from the questionnaire respondents was selected and interviewed at their site.

3.6. Sampling method

Schmit and Hollensen (2006:156) stated that sampling involves the identification of a group of individuals or households who can be contacted by mail, by telephone or in person and has the information that is relevant from the one needed to solve problem. Keegan (2009:34) argued that the research sample is the sub-sample of the population who has been chosen for the purpose of a particular study. According to Hein (2013:46), the sampling method is devised to select the population eligible for the research study. Harbhajan (2013:58) confirmed that a sampling method is the process of selecting the sample from a population to obtain information regarding a phenomenon that represents the population of interest.

Konyana (2012:69) stated that there are two ways of sampling: probability sampling and non-probability sampling. Probability sampling ensures that each member of the population has a definite chance of being selected, while in non-probability sampling, there is no guarantee that each member of the population has a chance of being included. White (2000:60) argued that, probability sampling works best with an accurate and up-to-date sampling frame and is preferred method if the researcher intends to carry out any form of statistical data analysis. Probability sampling is a random selection that minimises assumption. Maree (2007:176) confirmed that, non-probability sampling does not make use of a random selection of population elements and it would therefore be dangerous to draw important conclusion about the population.

For the purpose of this study, the sampling technique used ensured that all Conlog customers in a defined geographical area were included is simple random sampling. A detailed questionnaire survey was distributed to a research population of fifty three (53) Conlog Electricity prepayment metering customers in KwaZulu-Natal, followed by interviews with an elite sample of twelve (12) customers from the questionnaire respondents. Anonymity was granted to those that participate in the research.

3.7. Measuring instrument

A questionnaire was used during the quantitative phase of the research. The reason for employing quantitative data is that it is simpler to interpret the results in unambiguous conclusions (Zikmund and Babin, 2007). The interviews conducted at customer site were used during the qualitative phase of the research. Taking into consideration the nature of the research and the research problem being investigated, the research approach was exploratory, as said, because of the lack of previous research studies with utilities and prepaid metering and these customer perceptions of service in South Africa.

A detailed questionnaire was selected as the most appropriate data collection method for this research. The questionnaire was designed to be simple, relevant and concise to ensure respondents would feel it's beneficial to participate in the survey and complete the questionnaire accurately. Also, twelve (12) selected respondents from the questionnaire research population were selected for interview. The data from the questionnaires and interviews from this sub-research population were merged to create breadth and depth in the study.

3.7.1. Questionnaire design

A questionnaire is defined by Trochim (2006:32) as a tool for collecting information to describe, explain or compare knowledge, attitudes, behaviours and socio-demographic characteristics on a particular target group. Sukdeo (2009:49) sited the work of Kumar (2005:126) who stated that a questionnaire is a written list of questions, the answers to which are noted down by respondents. This was confirmed by Sookraj (2009:109) who emphasised that respondents can answer these questions either in their own words or by choosing from a set of responses that have been prepared in advance.

Sukdeo (2009:49) further elaborated that questionnaires are an inexpensive way to gather data from potentially large number of respondents. Mobey (2012:73) viewed

questionnaire design as a long process that requires a vigilant mind. A design begins with a considerate of the capabilities of the questionnaire and how it can assist the researcher in collecting data (Gonatas, 2012). According to Fox and Bayat (2007), a poorly designed questionnaire can nullify any investigation or study. Therefore, when designing a questionnaire the researcher needs to take cognisance of the following: the appearance of questionnaire, question sequence, wording of questions and response categories.

Pietersen (2013:67) explained that there are two common types of questionnaire design techniques used for developing and constructing questions: open-ended and close-ended questions. Open-ended questions are used when participants have to formulate their own opinion and responses in the questionnaire. Close-ended questions are generally used when participants do not have to express themselves verbally but rather make choice among a set of alternatives given answers by the researcher (Sekaran, 2006).

The questionnaire was divided into three (3) sections and consisted of close-ended questions and two open-ended question (refer to Annexure 1). Section One and Two questionnaires were in the form of closed-ended questions in which respondents were asked to make choices from a list of possible responses. Adat (2013:102) citing Kotler and Armstrong (2010:111) stated that closed-ended questionnaires include all the possible answers, and subjects make choices among them. Research questions were 35 in total and they were structured in the simplest terms, making them easy to understand by respondents. Section Two close-ended questionnaires designed for this study utilised a five-category Likert Scale.

Figure 3.1: Example of Likert rating scale

5	4	3	2	1
Very satisfied	**Rather satisfied**	**Not Sure**	**Rather dissatisfied**	**Very dissatisfied**

Section One acquired background of respondent which included gender, age, race group, educational background, work place location and job description. Section Two acquired the level of satisfaction of respondents regarding relationship with Conlog, technical support, logistic support, sales support, product support, product training and after-sales support. Section Three was an open-ended question which allowed respondents to comment or view their opinion on anything about Conlog. The questionnaire included self-developed items, as well as demographic items from questionnaires used in previous research.

3.7.2. Pre-test

Saunders *et al.* (2004:252) stated that a pre-test is a process that involves trying out the research instrument on a small group of individuals before using it in one's research project. This statement was supported by Hein (2013:53) who stated that, a pre-test process involves trying out a questionnaire on a small group of individuals before using it for substantive research. According to Maharajh (2011:39), the main aim of the pre-test study is to give the researcher an indication as to whether the research instrument will be effective in the study. Welman *et al.* (2005:148) argued that when a new measuring instrument is developed, it is useful to "test it out" before administering it to the actual sample.

Junpath (2013:61) mentioned that the aim of a pilot study, which is also known as pre-test, is to identify potential problems in the data collection and to show that the study design is both appropriate and feasible. Fitzpatrick and Wallace (2012:408) revealed that pre-test often provide important insights into the problem being investigated and may lead to reconceptualisation of the problem or refinement of the research questions.

For the purpose of this study, a pre-test study was conducted with randomly selected employees of Conlog in order to test whether the questionnaire required any amendment, improvement or modification before being administered to the

respondents. The research instrument, a questionnaire was pre-tested in a pilot study involving five employees of Conlog. The pre-test study revealed that: three (3) of the five (5) selected respondents selected more than one answer per question which indicate that there was no clear instruction given to select one answer per question. The questionnaire was sent via electronic mail (e-mailed) to respondents without being locked to avoid the risk of participants amending questionnaire. One of five respondent e-mailed back a blank questionnaire (unanswered questions), which alerted the researcher to add an instruction at the end of the questionnaire to request respondents to save and e-mail answered questionnaire to the researcher. The questionnaire was amended in the light of this pilot.

3.8. Data collection instrument

Mabaso (2010:42) cited the work of O'Leary (2004) who mentioned that data collection is an essential component of conducting research in order to be able to collect data; the researcher should be able to access the data to be collected for the study. This can be derived through a number of methods, which include: interviews; focus groups; surveys telephone interviews; field notes; taped social interactions and questionnaires. In data collection, the researcher collects various kinds of empirical information or data. It could be historical or statistical or documentary data (Mouton, 2002). Mabaso (2010:42) further reasoned that data may be observed, measured, or collected by means of questioning, as in survey or census response.

Kanny (2013:48) argued that data collection is an important aspect of any type of research study. Inaccurate data collection can impact the results of a study and ultimately lead to invalid results. There are two types of data collection instrument: primary data and secondary data. Sekaran (2003:219) argued that primary data refers to information o0.btained first hand by the researcher on the variables of interest for the specific purpose of the study. Sekaran and Bougie (2010:184) stated that secondary data refers to information gathered by someone else other than the researcher conducting the research. Such data can be internal or external to the organisation and

accessed through the internet or perusal of recorded or published information (Kheru, 2013:46). In this study, secondary data is reported in Chapter Two, the literature review.

The study used both quantitative and qualitative approaches (Neuman, 2007) to obtain a primary data, focusing on customers who buy Conlog electricity prepayment meters in KwaZulu-Natal. A structured questionnaire survey, telephonic interviews and personal interviews were used to collect data for this research study. The researcher used an exploratory type of research with a 5 point Likert scale questionnaire and personal in-depth interviews with selected sample of respondents. Inderlal (2013:61) stated that there are a variety of methods available to the researcher to collect the desired data for research purposes.

The use of multiple methods is critical in attempting to obtain an in-depth understanding of the phenomenon under study. This method adds rigor, breath, and depth to the study and provides corroborative evidence of the data obtained (Cresswell, 2007; Denzin & Lincoln, 2011). Therefore, this study employed a number of different data collection methods, including a mailed questionnaire survey, telephonic interviews and personal interviews.

3.8.1. Mail questionnaire survey

Mailing questionnaires to respondents, according to Farans and Guto (2012), is a common method of collecting data. They stated that the questionnaire must be designed to receive quick responses, preferably through check marks or a few words. Furthermore, although this method is the least expensive of the data collection methods, its main disadvantage is that the percentage of usable returns is usually lower than the other methods. However, it does cover a wider geographical location. Bloomberg and Volpe (2012:121) cited Fowler (1993) who stated that an advantage of survey methodology is that it is relatively unobtrusive and relatively easily administered and managed.

The self-administered questionnaire survey method was used to collect data. Questionnaire was e-mailed to respondents. A follow-up on returns was undertaken to clarify any no responses and/or omissions thereby ensuring a high percentage of usable returns. In keeping with the qualitative research tradition, the survey used in this study included an open-ended question that sought to tap into personal experiences and shed light on participants' perceptions.

For the purpose of this study, the survey had a distinct place in the study's methodological design and serves as a useful complement or adjunct to other data collection methods.

3.8.2. Telephonic Interviews

This method of data collection is similar to personal interviews except that the interviews are conducted over the telephone. Inderlal (2013:62) argued that this method of data collection is usually a less expensive method than the personal interviews. However, the results of the research may be biased since some participants do not have telephones or have unlisted numbers. In this case, given the business orientation of all the respondents, all research population members were potentially contactable by telephone.

The telephone interview method of data collection was used in this study to increase the number of participants and to those participants who did not have access to e-mail. Participants were contacted telephonically to ascertain their willingness to participate in this study. Further, a follow-up on returns was undertaken telephonically to clarify any non-responses and/or omissions.

These participants were telephoned and asked if they would participate in a telephone interview about 'customer satisfaction analysis of Conlog electricity prepayment meters in KwaZulu-Natal: A customer perspective'. During the telephone interviews, respondents were asked to give their perceptions of Conlog electricity prepayment

meters and their experience with the meters. The participant was encouraged to give examples of situations that fit their specific perceptions of the Conlog electricity prepayment meters, making the interview more of an informal conversation interview.

The strength of the informal conversational approach interviewing is that is allows the interviewer to be highly responsive to individual differences and changes. One of the benefits of this type of interview is that questions can be individualized to establish in-depth communication with the person being interviewed (Lunenburg and Irby, 2008:196). A phone with a speaker was used to interview participants. Interviews were taped and transcribed and lasted approximately five to ten minutes.

3.8.3. Personal Interviews

The interview is a fundamental tool in qualitative research (Kvale & Brinkman, 2009; Seidman, 2006). Personal interviews are a systematic way for talking and listening to people and another way to collect data from individuals through conversation. Mabaso (2010:44) cited Kvale (1996) who defined personal interviews as a way to collect data as well as to gain knowledge from individuals and as an interchange of views between two or more people on topics of mutual interest.

Personal interviews allow the sample population to get involve in conversation with the interviewer and express their views. Interviewers are able to discuss their perceptions and interpretation in relation to a given situation (Morison, 2000). Since they involve direct personal contact with the participant who is asked to respond to questions relating to the research problem, personal interviews permit the establishment of rapport between the respondent and the interviewer.

This instrument of data collection has the advantage according to Inderlal (2013:62) of allowing the interviewer to clarify any terminology that the interviewee may not understand. However, this is an expensive method of collecting data and may not cover a large geographical area. Creswell (2007), Denzin & Lincln (2008) and Marshall &

Rossman (2011) stated that a major benefit of collecting data through personal, in-depth interviews is that they offer the potential to capture a person's perspective of an event or experience.

Although interviews have certain strengths, there are various limitations associated with interviewing. First, not all people are equally cooperative, articulate, and perceptive. Second, interviews require researcher skills. Third, interviews are not neutral tools of data gathering; they are the result of the interaction between the interviewer and the interviewee and the context in which they take place (Fontana & Frey, 2003; Rubin & Rubin, 2011; Schwandt, 1997).

For the purpose of this study, twelve Conlog customers in KwaZulu-Natal were selected for an interview. The researcher could only secured nine interviews out of twelve (12) selected Conlog electricity prepayment metering customers in KwaZulu-Natal where the purpose and benefits of the study was explained. The other three (3) customers were not available for interviews. The interviews scheduled were based on the pre-sent questionnaire and its analysis. Interviews were taped and transcribed. The approval was obtained from each interviewee to record the interview.

3.9. Data analysis

Creswell and Clark (2010:203) referred to data analysis in mixed method research as the process of separately analysing the quantitative data using quantitative methods and the qualitative data using qualitative methods. They elaborate further that it also involves analysing both sets of data using techniques that 'mix' quantitative and qualitative data which results in a mixed method analysis. Ngobeni (2012:67) is of the opinion that the overall design of the research method is aimed at answering the research questions. Consideration of the scope of the study continues in the process of data gathering and data analysis.

Data analysis refers to the transformation of raw data into a form that makes it easy to understand and interpret. Describing responses or observations is typically the first form of analysis (Naidoo, 2013:81; Lombard, 2006:52; Cant, Gerber-Nel, Nel, Kotze, 2005:204; Zikmund, 2003:473). Bansi (2012:85) revealed that the design of the study also concerns the statistical analysis and interpretation of the appropriate data. Qualitative data analysis often involves analyzing content analysis. Quantitative data analysis involves a statistical analysis of the obtained data.

Junpath (2013:63) cited Khanzode (2004: 86) who stated that research work cannot be completed without using a statistical approach where various measures such as dispersion, variance, square root, standard deviation and range are used. Computers were used for analyzing the data collected from the study. The questionnaire data was analyzed using the Statistical Package for Social Scientists (SPSS) Version 16 and appropriate statistical tests were conducted on the data so that the data could be interpreted into meaningful information or findings that were explored further to propose recommendations to the research. McQueen and Kunssen (2002:119) highlighted that the benefit of SPSS is that the researcher's data is sorted, simplified and summarised, where the data is reduced to statistics that will entail meaning on the factor or behaviour they represent and they will be used to draw influences and test hypotheses. Interviews were analysed using conversational analysis and the data collected from the telephone interviews and personal interviews were merged with the questionnaire data, seeking depth as well as breadth.

The qualitative analysis of data was comprised of analysis for similarities and differences, coding and categorizing, and constant comparison. The personal interviews and telephone interviews which forms part of qualitative data analysis, were analysed for similarities and differences. These interviews were taped and transcribed word for word. Using the constant comparative method, interviews were compared to each other as they were collected to determine similarities and differences.

3.9.1. Descriptive statistics

Descriptive Statistics was applied in analysing and interpretation of data. Descriptive statistics, according to Inderlal (2013:70) who cited Mann (2001:3), describes data through tabular and graphical presentation, as well as descriptive measures such as the mean and standard deviation. Data display and data summaries are components of what is commonly referred to as descriptive statistics (Kent, 2007:296). According Kanny (2013:50) who cited McQueen and Kunssen (2002:139) argued that the descriptive techniques use a series of procedures whose aim is to describe data in a manner that effectively summarizes, simplifies, and illustrates.

Descriptive statistics according to Welman and Kruger (2005:242), involve the description and summary of data, while inferential statistics involve the inferences that are drawn from the results. Yin (2010:62) argued that descriptive statistics describes the organising and summarising of quantitative data. Moodley (2009:63) cited Curwin and Slater (2008) who confirmed that descriptive data analysis include summarised tables, measures of central tendency (mean), dispersion quantities, tables, charts and graphs to describe, organise, summarise and present raw data.

Descriptive statistics according to Adat (2013:105) are the most efficient means of summarising the characteristics of large sets of data. Furthermore, descriptive statistics describe characteristics of a sample. Thus, calculating a mean and a standard deviation to ‘describe’ or profile a sample is a commonly applied descriptive statistical approach (Zikmund and Babin, 2007: 457). Adat (2013:105) further stated that the mean or arithmetic mean is the average most often used. The standard deviation is a statistic that summarizes the average distance of the values from the mean. The bigger the standard deviation the greater the variation or spread in the sample or distribution. The standard deviation is a very useful statistic, particularly when used alongside the mean (McGivern, 2006:468). In this research, descriptive statistics, such as frequencies and percentages were used.

3.9.2. Frequencies and percentages

Frequencies were used to determine how often a respondent made a certain response to a particular question, and were also used to cross check the coding of data (Babbie, Mouton, Boshoff and Vorster, 2002:298). According to Kent (2007:566), a frequency distribution shows how frequently each response or classification occurs. McGivern (2006:463) stated that a frequency count is a count of the number of times a value occurs in the dataset, the number of respondents who give a particular answer. Frequencies can be shown on pie charts or bar diagrams.

According to Yin (2010:63), the percentage is the proportion of respondents who answer a question in a certain way, multiplied by 100. Percentages according to Adat (2013:106) are used to simplify data into a standard numerical range and allow easy comparability. A percentage tells us the relative proportion or incidence in every 100 cases (Mazzocchi, 2008:99). Graphs were utilised in this study to illustrate results obtained.

3.9.3. Inferential statistics

Inferential statistical analysis allows the researcher to depict conclusions about populations from the sample data. Inferential statistics according to Yin (2010:63) is concerned with drawing conclusions about a population from a sample, followed by inferences made about central tendency, or any of a number of other aspects of a distribution. Pan (2008:70) stated that inferential statistical analysis is used when ideas, hypotheses or predictions need to be tested. All measures of inferential statistics are divided into four groups in terms of estimating from samples, measuring association, measuring difference, and forecasting (Collis and Hussey, 2003:197).

Inferential analysis according to Moodley (2010:63) is concerned with the testing of hypothesis. The independent t-test is the most appropriate parametric test for a comparison of the means, and tests for any significant difference between the two

variables. Primary data was collated and analysed and comments and concluding discussions are thereafter based on the results obtained (Lind, Marchal and Mason, 2001:348). Inferential statistics were used in this study to test the chi-square and also calculate the expectation and perception mean.

3.9.4. Qualitative data analysis

The challenge throughout data collection and analysis was to make sense of large amounts of data, reduce the volume of information, identify significant patterns, and construct a framework. In this regard, Bloomberg and Volpe (2012:123) cited Merriam (2009) who cautioned researchers to make data analysis and data collection a simultaneous activity to avoid the risk of repetitious, unfocused, and overwhelming data.

According to (Lunenburg and Irby, 2008:202), the constant comparative method is a research design for multi-data sources similar to analytic induction in that the formal analysis begins early in the study and is nearly completed by the end of data collections. This method of data collection was implemented after each phase of the data collection, constantly analysing and comparing each new interview received to the synergistic customer satisfaction theory. Triangulation (Lunenburg and Irby, 2008), is a process used in qualitative studies to address questions of validity. Denzil (1978) identifies three basic types of triangulation: data triangulation, investigator triangulation, and theory triangulation.

Data triangulation is the use of a variety of data sources or subjects in a study (Lunenburg and Irby, 2008). This study employed data triangulation by interviewing male and female in different job categories in utilities, municipalities and contractors to obtain their perspective on Customer satisfaction of Conlog Electricity prepayment meters in KwaZulu-Natal. Categories were formed, coded and triangulated for both the personal interview and telephonic interview data by using a color code representing different themes that emerged from the data. Themes were determined for each research question and those themes were compared to each other for further analysis.

Additionally, themes from the data were compared to existing literature on customer satisfaction theory, service quality, customer expectations, customer perception and customer retention.

3.10. Ethical considerations

Junpath (2013:65) cited Rauane (2005:16) who argued that when conducting research, a researcher's ultimate research endeavours are to abide by standards of professionalism and honesty; a researcher effort must strive to earn the respect and trust of both research participants and the public at large. Naidoo (2012:52) revealed that ethics in research consist of moral rules and professional codes of conduct in the collection, analysis, reporting and publication of information about research topics. Coldwell and Herbst (2004:18) argued that ethics is made up of norms or standards of behaviour that guide moral choices about our behaviour and our relationships with others.

Heffernan (2005:109) stated that the right to anonymity and confidentiality are the two standards that are applied in order protect the privacy of research participants. Naidoo (2012:52) confirmed that the individual's right to privacy, confidentiality and informed consent are essential elements of ethics. Ngobese (2011:46) cited Newman (2000:87) who declared that there are three broad principles on which many ethical guidelines are based. The principle of autonomy refers to the research respecting the autonomy of the research participants. This covers issues such as voluntary and informed consent of the participants, the freedom to withdraw from the interview process at any time and the right of the participants to anonymity in any publication.

The three (3) principles of these ethical guidelines were considered in this research. Research that is likely to harm participants is regarded by most people as unacceptable (Scheming, 2012:74). There was no physical, physiological, emotional or any other harm to participants while conducting this research. The respondents who participated in the study (quantitative and qualitative research) were informed that their participation

would be voluntary and each participant had an option to withdraw from participating in the study. Anonymity was granted to all respondent participated in the study and individual responses were kept totally confidential so that violation of privacy could be avoided.

3.11. Conclusion

This Chapter has outlined with the research design, methodology and methods utilised in the study. It enlightened the necessary research steps, the instruments used to gather data and the procedures followed in the administration and co-ordination of the research instrument. It also described the study area, target population, sample method, data analysis, reliability and validity and ethical consideration.

Based on the data gathered from the interviews and questionnaires, the next Chapter (Chapter Four) will deal with data analysis. This Chapter offers an analysis and interpretation of the information collected from the questionnaires and interviews and discusses the outcomes, in part, in relation to the literature review offered in Chapter Two.

CHAPTER 4

RESULTS AND ANALYSIS OF THE DATA

4.1. Introduction

Majola (2013:31) cited the work of Heinning (2004:102) who defined data analysis as a process of converting raw data to final patterns of meaning. In Chapter 4, the research results collected from the subjects are presented, analysed and discussed by using data tables, charts, graphs other diagrammatic forms. This Chapter reveals the rationale behind the techniques used for data analysis that have been achieved through the utilisation of the survey questionnaire as a research instrument for Conlog electricity prepayment customers in KwaZulu-Natal.

The researcher also used qualitative content analysis to analyse data collected through telephone and personal interviews. The transcripts of all interviews conducted are read in a series, according to similar or related questions in order to get a global overview of informants' responses (Majola, 2013:31). The analysis of data and writing of the interpretations are done simultaneously.

The data collected from the questionnaire responses were analysed using the Statistical Package for the Social Sciences (SPSS) version 22 (SPSS Inc., Chicago, Illinois, USA). A p value <0.05 was considered as statistically significant.

4.2. Descriptive statistics

Descriptive statistics using frequencies and percentages are presented below for the biographical variables, and the responses to the statements relating to the dimensions. The overall responses to the dimensions are presented using means and standard deviations.

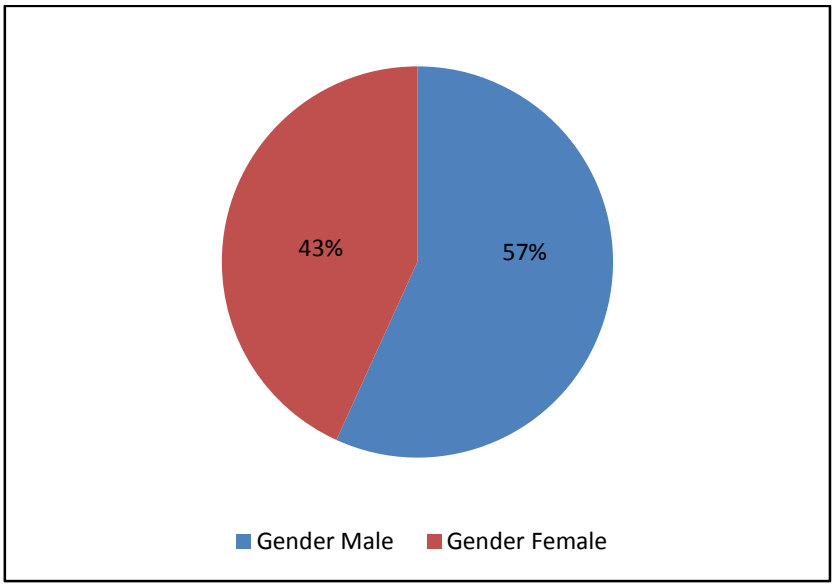
4.2.1. Biographical Variables

The biographical variables for gender, age, race, highest qualification obtained and work place location are shown in Table 4.1 and respective graphs below:

Table 4.1: Frequency distribution of biographical variables

		n	%
Gender	Male	25	57%
	Female	19	43%
	Total	44	100%
Age	0-19	0	0%
	20-29	16	36%
	30-39	18	41%
	40-49	6	14%
	Over 50	4	9%
	Total	44	100%
Race	African Black	30	68%
	White	3	7%
	Indian or Asian	7	16%
	Coloured	4	9%
	Total	44	100%
Highest Qualification obtained	Matric	4	9%
	Certificate	15	34%
	Higher Certificate	13	30%
	Diploma	8	18%
	Degree	4	9%
	Total	44	100%
Work place location	Inner city	11	25%
	Suburbs	10	23%
	Townships	10	23%
	Rural areas	10	23%
	Informal settlement	3	7%
	Total	44	100%

Figure 4.1: Gender frequency distribution



As indicated in Figure 4.1, the majority of respondents who participated in the study were male (57%) followed by females (43%).

Figure 4.2: Age frequency distribution

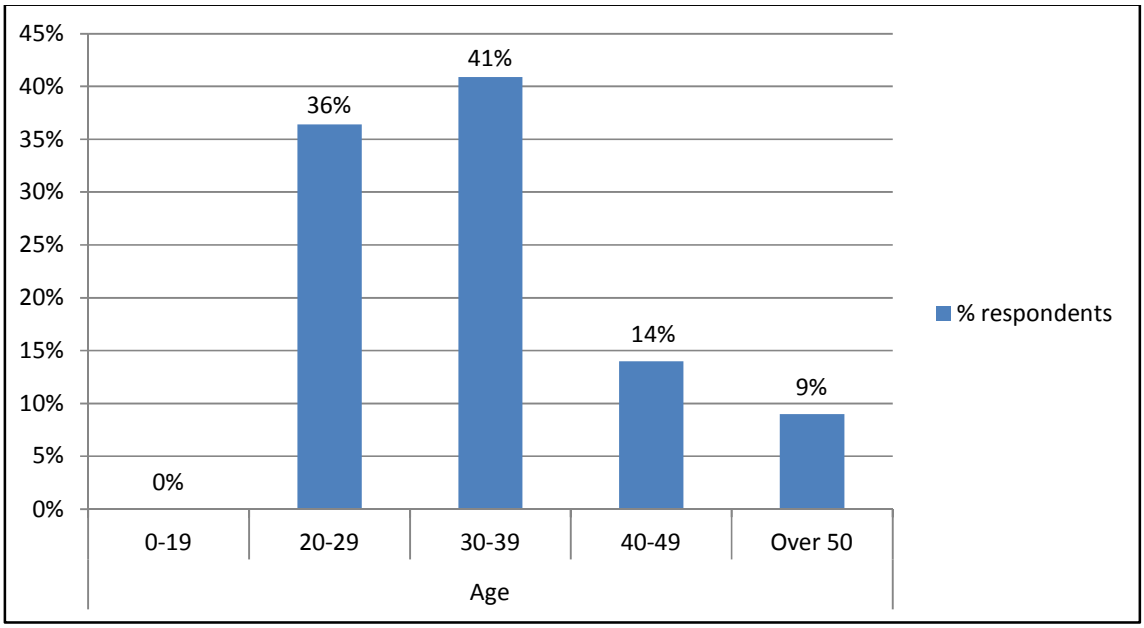
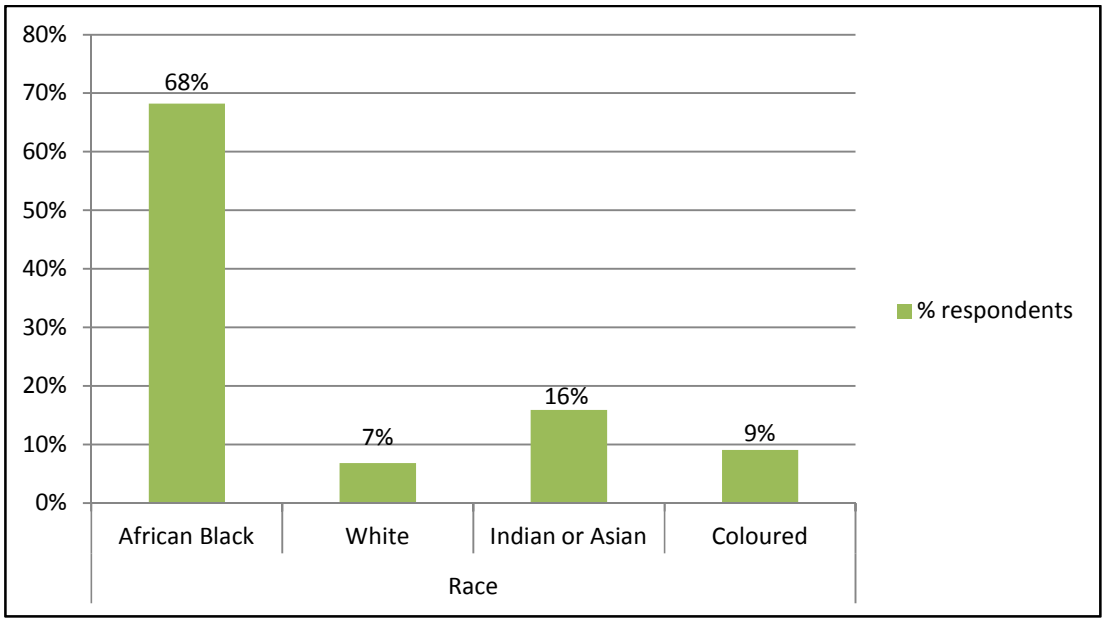


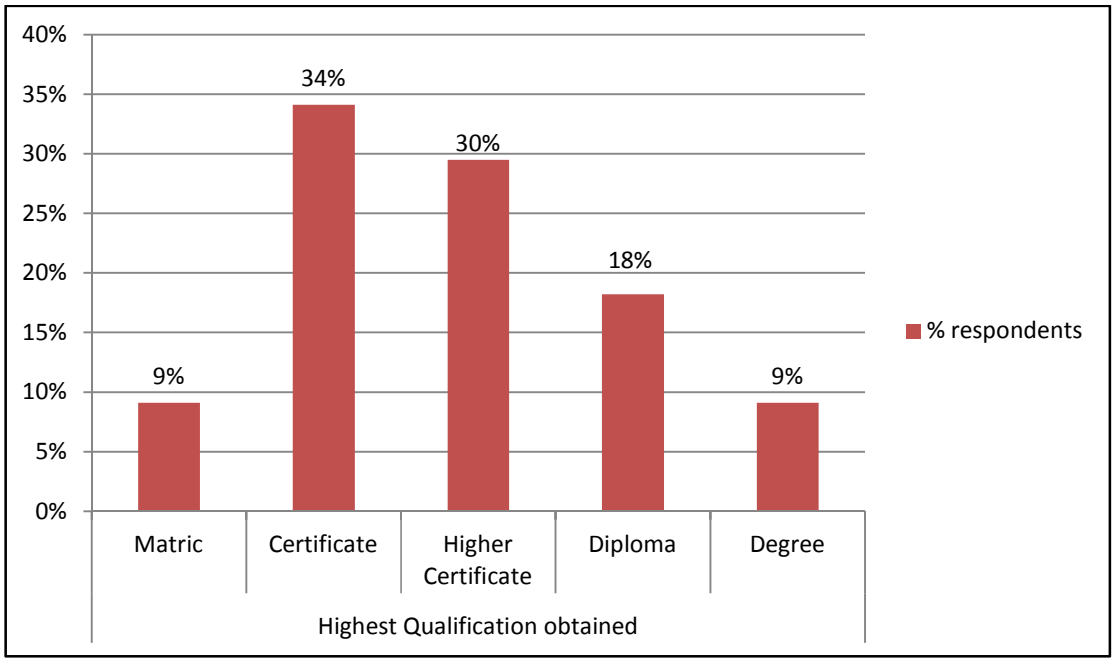
Figure 4.2, illustrate that the majority of respondents who participated in the study fall in the 30-39 age group (41%) followed by the 20-29 age group (36%), the 40-49 age group (14%) and the over 50 age group (9%).

Figure 4.3: Race frequency distribution



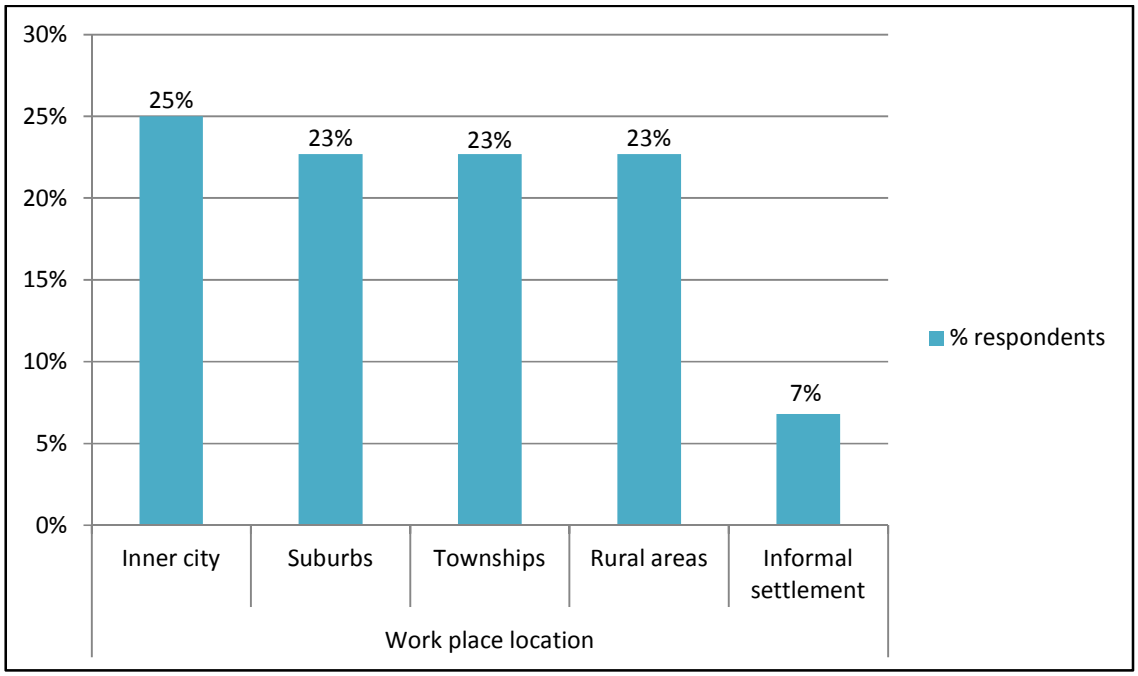
An examination of Figure 4.3 above, indicate that African black were the highest race group with 68% responded in the study, followed by 16% of Indian or Asian group. The White group and Coloured group were only 7% and 9% respectively.

Figure 4.4: Highest qualification frequency distribution



In terms of highest qualification obtained by participants in the study, Figure 4.4 indicates that most respondents were in a position certificates (34%) and higher certificates (30%). Respondents who were in a position of Diploma were made up of 18%. It is noted that the percentage of respondents with Matric and Degree were equal at 9%.

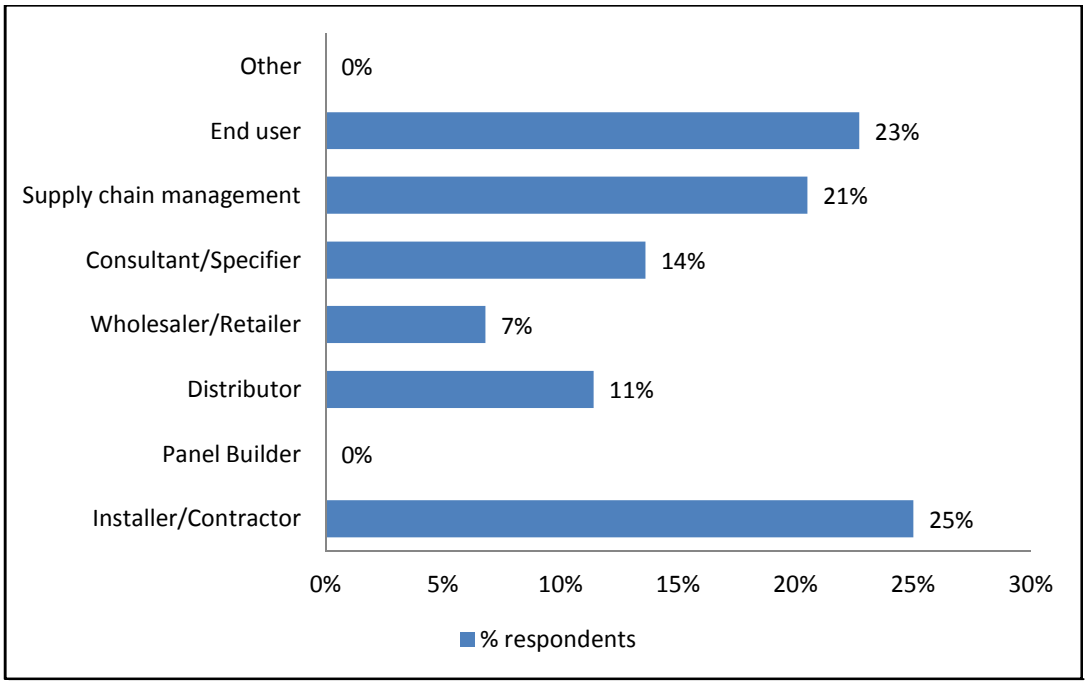
Figure 4.5: Work place location frequency distribution



In terms of work location of participants, Figure 4.5 above illustrate that 25% of respondents work in the inner city while respondents whose work location were from suburbs, townships and rural areas, their percentage were equal distributed to 23% amongst them. Respondents from the informal settlement work place location were only 7%.

Figure 4.6 below; demonstrate the frequency distribution of activity or work done by respondents:

Figure 4.6.: Activity/Work frequency distribution



It is noted from the above graph that installers/contractors emerge to be the majority (25%) of respondents who participated in the study, followed by participants in positions of end-user (23%), supply chain management (21%), consultant/Specifier (14%) and distributors (11%). Wholesaler/retailer indicates the small percentage (7%) of participants.

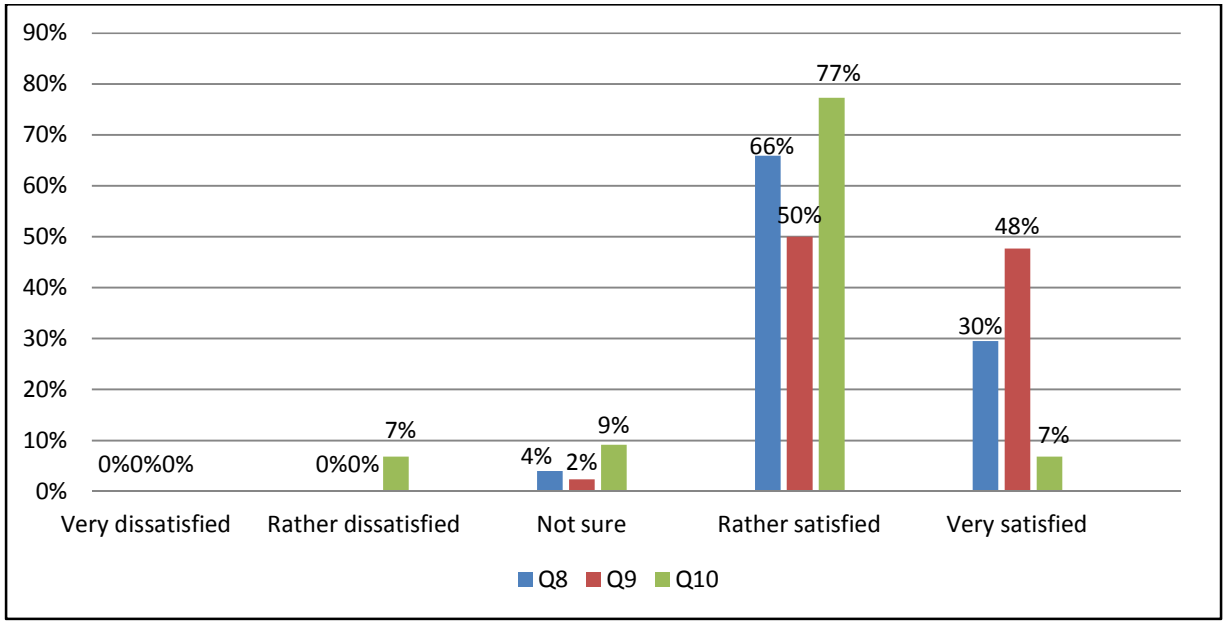
4.2.2. Responses to the dimensions

Section Two of questionnaires was closed-ended questions in which participants were requested to make choice from a list of possible responses.

4.2.2.1. Relationship level of satisfaction

The results for relationship level of satisfaction frequency distribution are shown in Figure 4.7 below:

Figure 4.7.: Relationship level of satisfaction frequency distribution



In terms of Conlog telephone reception overall, the majority of respondents (66%) stated that they were rather satisfied overall with Conlog telephone reception, followed by 30% of the respondents who were very satisfied, with 4% being not sure. None of the participants were rather dissatisfied or very dissatisfied. One of the participant interviewed commented as follows: 'Whenever I phone Conlog office, I always receive an excellent reception from Conlog staff'.

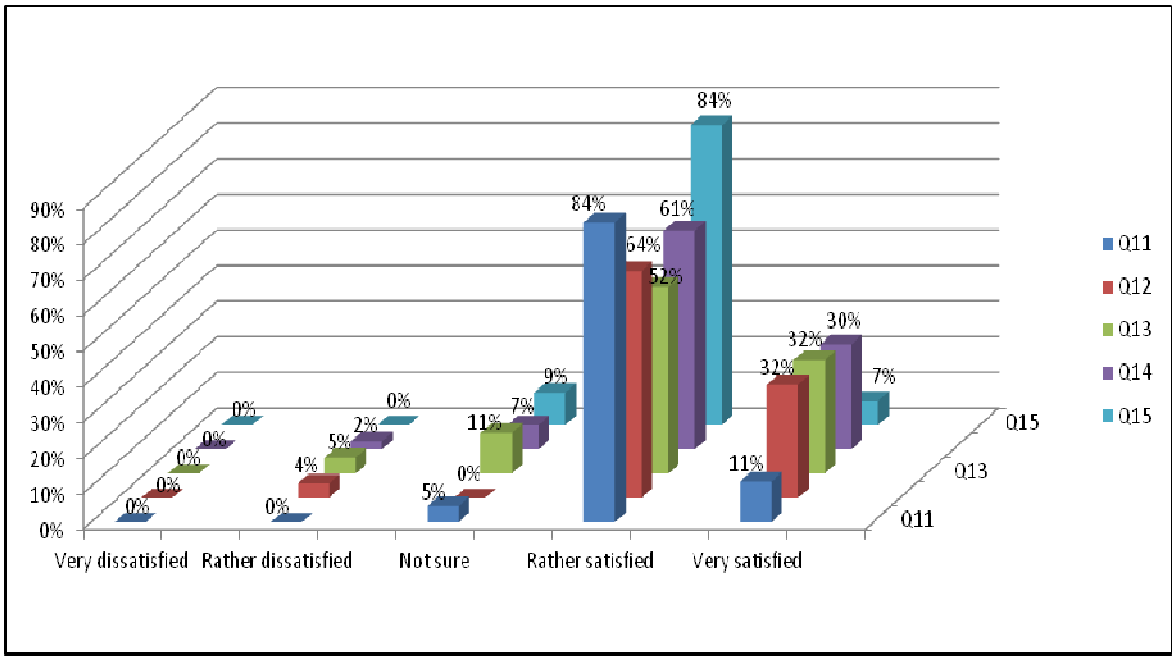
When it comes to the availability of Conlog contact to customers, the majority of participants (50%) responded that they were rather satisfied closely followed by those who were very satisfied (48%) with 2% of respondents being not sure. None of the participants were rather dissatisfied or very dissatisfied. This has been confirmed by the participant during the telephone interview who said: 'Very professional and well schooled. I have satisfactory contact with them. Conlog calls on us regularly'.

The number of visit from Conlog sales contact to customers illustrated that most of the participants (77%) responded that they were rather satisfied, followed by 9% who were not sure. Respondents who were rather dissatisfied and very satisfied accounted for 7% respectively. This has been affirmed by the participants during the personal interview as one participant said 'I am happy with number of visit I received from Conlog sales person. She visits me at least twice a month which gives me confident with their support'.

4.2.2.2. Technical, Logistic and Sales support

The results for Frequency distribution of Technical, Logistic and Sales Support are shown in Figure 4.8 below:

Figure 4.8: Technical, Logistic and Sales support frequency distribution



The ability of a customer contact at Conlog to understand the customer's need exemplify that the majority of respondents (84%) stated that they were rather satisfied overall with Conlog telephone reception, followed by 11% of respondents who were very satisfied with 5% being not sure. None of the subjects were rather dissatisfied or very dissatisfied. This was authenticated by participant during the personal interviews who mentioned that: 'we are extremely happy with Conlog. The technical advice that they give is superb. Also, our deliveries are on time. My only complaint is that I'd like to see a rep more often'.

The majority of the respondents (64%) strongly trusted in the ability of their Conlog contact to take their needs into account, followed by respondents who are very satisfied (32%). 4% are rather dissatisfied with the ability of their Conlog contact to take their needs into account while none of them felt very dissatisfied. A participant from the telephone interview provided support for this and said: 'they are on the ball! Deliveries are always spot on time. I would give them 20 out of 10 actually'.

A total of 52% of respondents were convinced in the flexibility of their contact at Conlog in addressing technical, logistics and sales negotiations. 32% of respondents were very satisfied, while 11% were unsure and 5% were rather dissatisfied. None of the respondents responded as very dissatisfied. This sentiment was expressed by many participants in the telephone interview and personal interview and this was best reflected by one, who said: ‘she is very good in negotiations but she need to improve in the technical knowledge. Whenever we are experiencing technical failures with Conlog meters and we notify her, she does not have answers and she will refer them to technical team at Conlog’.

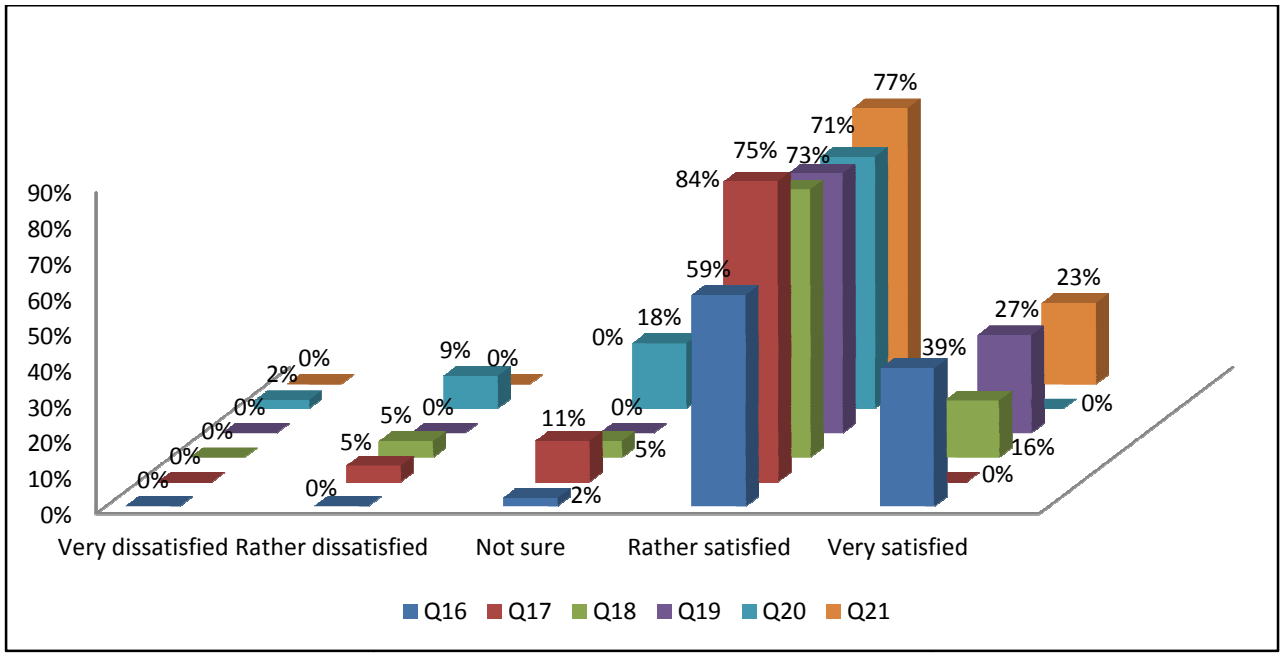
Conlog speedily responded to customer queries relating to technical, logistics and sales illustrate that 61% of respondents were rather satisfied followed by 30% of respondents who were very satisfied. Respondents who were unsure and rather dissatisfied with the speed of response of Conlog to address their queries related to technical, logistics and sales were 7% and 2% respectively. A participant from the personal interview conveyed this view and said: ‘we are extremely happy with Conlog. The technical advice that they give is superb. Also, our deliveries are on time. My only complaint is that I'd like to see a rep more often’.

Figure 4.8 above present a high percentage (84%) of respondents that were rather dissatisfied with the way Conlog managed their complaints, followed by a small number (7%) of respondents who were very satisfied and 9% of them were unsure. None of the respondents were rather dissatisfied or very dissatisfied with the way Conlog managed customer complaints. As another participant put it: ‘we are quite happy, they handle complain very professional’.

4.2.2.3. Information and product training

The results for Frequency distribution of Information and Product Training are shown in Figure 4.9 below:

Figure 4.9: Information and product training frequency distribution



The majority of respondents who participated in the study were rather satisfied (59%) and very satisfied (39%) with the information that they get from Conlog on new products and services. A reduced amount of responses (2%) were unsure, with no responses from rather dissatisfied and very dissatisfied participants. This view of was endorsed by the participant who was interviewed and said: ‘we are always invited when there are new product launch’.

The information provided by Conlog to assist customers to make up and administer their stocks is indicated by a high response of respondents (84%) as seen in the above graph. Responses from unsure and rather dissatisfied participants were 11% and 5%,

while there were no responses from respondent who were very dissatisfied and very satisfied.

The ease of using Conlog catalogues to select product is revealed above in Figure 4.9 by a high group of respondents (75%) who were rather satisfied, followed by 16% of respondents who were very satisfied. 5% of respondents were not sure, 4% of respondents were rather dissatisfied with no response from very dissatisfied participants. This was indicated by a participant in the personal interview and said: ‘Conlog catalogues are user friendly and provide various product ranges that Conlog offers’.

The population group utilised in the study was rather satisfied (73%) and very satisfied (27%) with the availability of Conlog catalogues. This was substantiated by having none of the participants who respondent as not sure, rather dissatisfied and very dissatisfied. A participant supported this view and said: ‘No problem with availability of catalogues’.

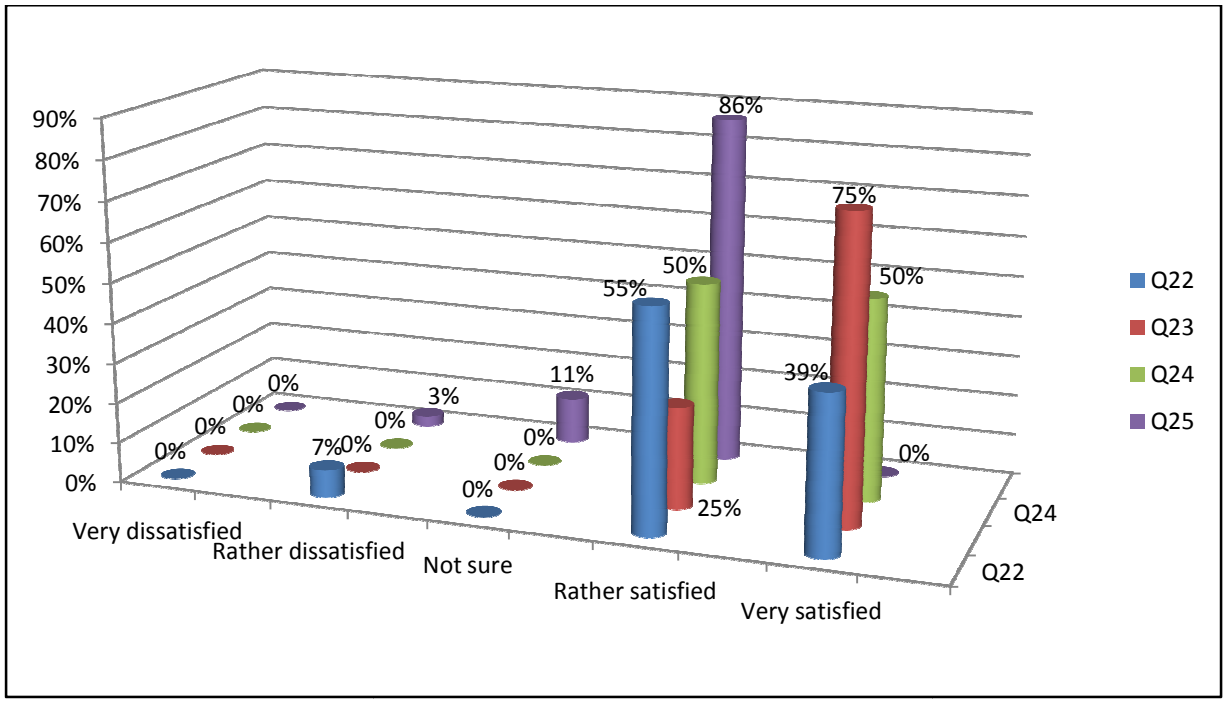
Majority of participants were rather satisfied (71%) with the tools provided by Conlog to help them with selling and providing quotes. None of the participants were very satisfied with these tools. A balance of participants was distributed amongst respondents who were not sure (18%), rather dissatisfied (9%) and very dissatisfied (2%). This was expressed by a participant who said: ‘No comment’.

Respondents were rather satisfied (77%) and very satisfied (23%) with the training program offered by Conlog. None of the participants were not sure, rather dissatisfied and very dissatisfied with Conlog training program. This was best illustrated by the comment of one participant who said: ‘It’s a good product and I get very good support from the Conlog guys. I also really enjoyed it when they sent us on training to Durban and I'm hoping that they do that again’.

4.2.2.4. Product and services ranges

The results for Frequency distribution of Product and services ranges are presented in Figure 4.10 below:

Figure 4.10: Product and services ranges frequency distribution



The ability of Conlog product and service ranges to meet customer needs show that 55% of respondents were rather satisfied, trailed by 39% of respondents who were very satisfied and 7% were rather dissatisfied. No respondents were unsure and very dissatisfied with Conlog product and service ranges to meet their needs. This was expressed by different participants in the telephone interview and personal interview as one participant said: 'Conlog product range is good, their service is excellent and they have a good team'. This was further expressed by a participant who said: 'I already do recommend Conlog. The new meters are good, reliable and clean - no cockroaches can get inside. The older ones - the Plessey meters - are always full of cockroaches. Conlog meters are accurate and reliable as seldom break down. I am busy replacing all the old

meters with the new Conlog meters. They are also tamper proof. Conlog also helps us to register the meters. Whenever I need assistance or advice, Conlog is so willing to help'.

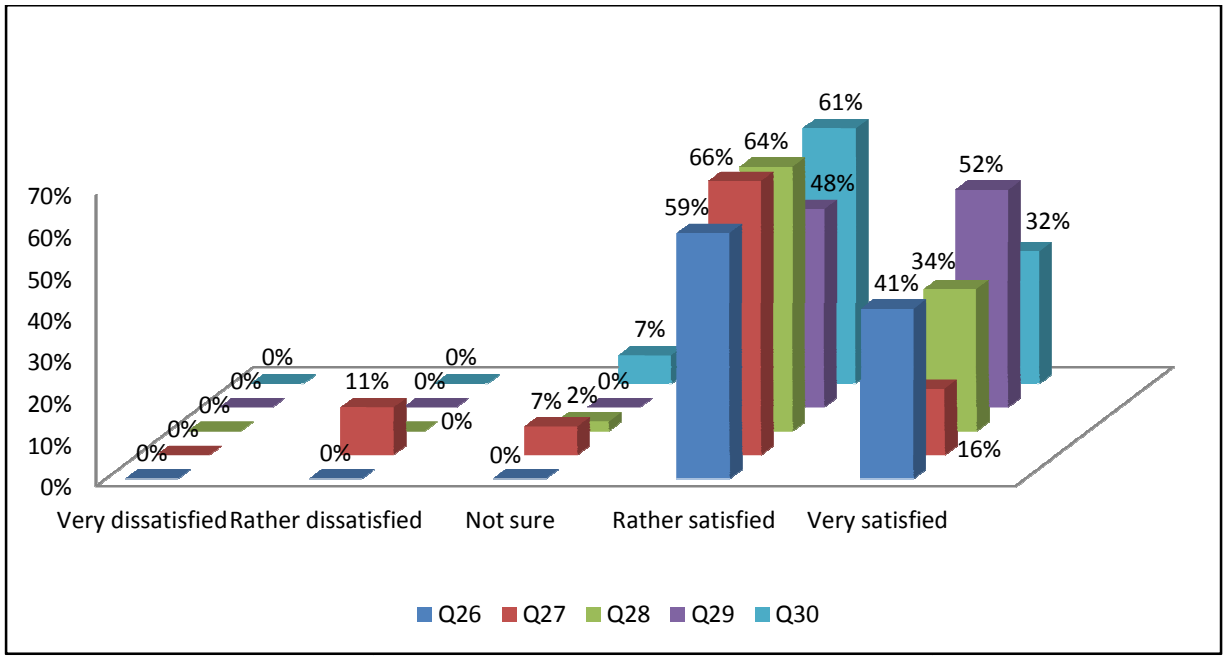
A similar trend of responses was noted between the reliability of Conlog products and the aesthetics of Conlog products whereby participants only responded as rather satisfied (25% and 50%) and very satisfied (75% and 50%). None of the respondents responded as not sure, rather dissatisfied and very dissatisfied. A participant from the contractor who was interviewed expressed this and provided technical knowledge to this view and said: 'What I like about the Conlog product is that the tamper mode works when the device is tampered with. The meter has a built in voltage protector when voltage drops to 190V and so the meter goes off - it protects people's possessions. When I need support, their assistance is quick in terms of resolving my query and giving feedback. Currently we are busy replacing old meters with new Conlog meters because they are tamper proof and offer voltage protection'.

Figure 4.10 above demonstrates that none of the participants were very satisfied with the ratio between the price they pay and the quality of the products and all services provided by Conlog. High percentages (86%) of respondents were rather satisfied, followed by 11% and 3% of respondents who were not sure and rather dissatisfied. None were very dissatisfied. This was verified by a participant who is involved in the supply chain management and said: 'The product is good. Price is the most important factor that we consider when buying anything'.

4.2.2.5. Supply of products

The results for Frequency distribution of Supply of products are depicted in Figure 4.11 below:

Figure 4.11: Supply of products frequency distribution



It is well noted in Figure 4.11 above that respondents were rather satisfied (59%) and very satisfied (41%) with the availability of Conlog most commonly used products. No respondent were very dissatisfied, rather dissatisfied and unsure about this. While 11% and 7% of respondents were rather dissatisfied and unsure with the lead times for Conlog less commonly used products, 66% and 16% of respondents were rather satisfied and very satisfied respectively. No responses from respondents who were very dissatisfied with this. This view was communicated by a participant in the rural area who said: 'It is the only product that we use, we have standardized to use Conlog BEC23 product which is widely used by many municipalities in rural areas. The only problems that we have with Conlog are in terms of availability and delivery of their BEC41 product which they are phasing out'.

Figure 4.11 further reflects the ability of Conlog to take into account the customer special requests on product supply services. This is indicated by the high response of respondents who were rather satisfied (64%), followed by 34% of respondents who were very satisfied. The minority of them (2%) were unsure about this. Not even one of the respondents was rather dissatisfied and very dissatisfied. A confirmation from telephone interviewed participant who said: ‘They endeavor to obtain ways of supporting us if we have special request on delivery’.

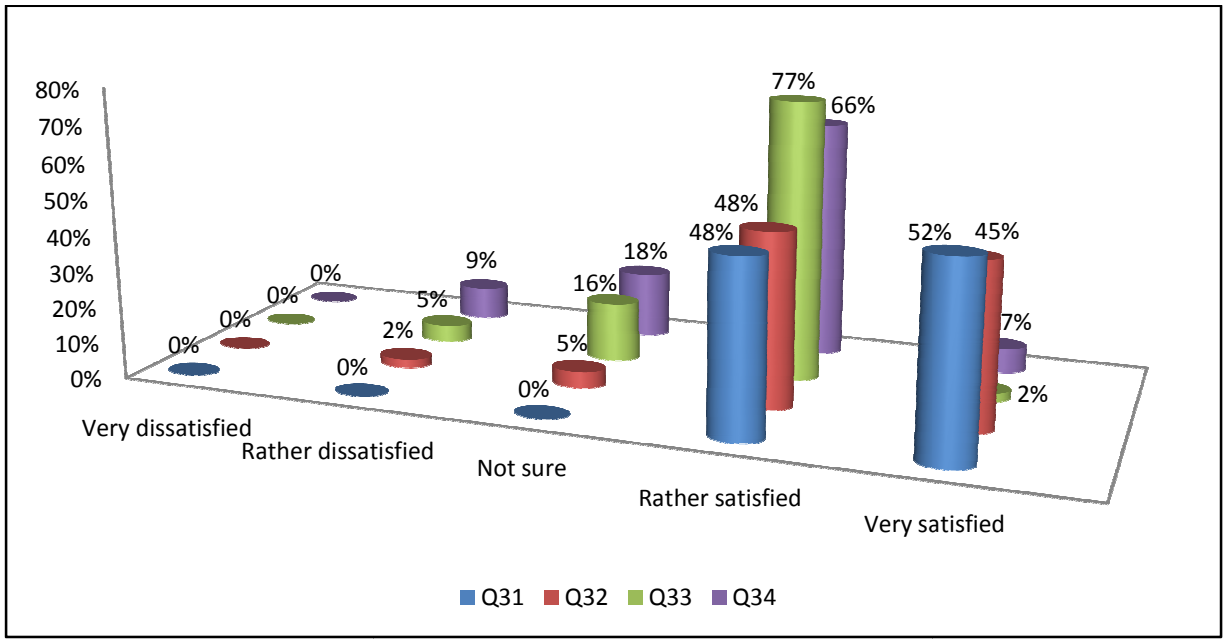
It is further observed from the data collected from respondents above that 48% and 52% of participants were rather satisfied and very satisfied with Conlog meeting promised delivery dates; this was confirmed by none of the respondents reported as not sure, rather dissatisfied and very dissatisfied. A participant who was interviewed said: ‘They keep to their promises when it comes to deliveries. We also have no problems when we return meters for repair’.

A total of 61% of respondents were rather satisfied with the notification provided by Conlog when the promised delivery date will not be met, followed by 32% of respondents who were very satisfied. A small number of respondents (7%) were not sure. None were rather dissatisfied and very dissatisfied. This view was cited by a participant who said: ‘There was a problem with the first contract we had with them because they didn't meet our delivery deadlines. The other two contracts we've had everything went off well. I like the product - it is reliable’.

4.2.2.6. After-sales service

The results for Frequency distribution of After-sales service are shown in Figure 4.12 below:

Figure 4.12: After-sales service frequency distribution



The difference between rather satisfied respondents and very satisfied respondents is 4% with 52% of respondents responded that they are very satisfied with Conlog after-sale service and 48% of respondents replied that they are rather satisfied with Conlog after-sales services. None of respondents answered as dissatisfied or not sure. The participant from the interview said: 'We are quite happy with Conlog after-sales support. They have a call centre that operates 24 hours / 7 days a week'.

The lead times quoted by Conlog for product replacement show that 48% of participants in the study were rather satisfied, followed by a very close percentage of participants (45%) who were very satisfied. Unsure, rather dissatisfied and very dissatisfied participants were 5%, 2% and 0%. This was substantiated by the participant who was

interviewed and said: ‘Conlog lead time of a new meter is 2 to 4 weeks, but the lead time of product replacement is 6 to 8 weeks. They need to improve in this’.

A related result of respondents who responded on the repair of products and equipment at Conlog workshop and the on-site products and equipment repair handled by Conlog illustrate that 77% and 66% were rather satisfied, 2% and 7% were very satisfied. Unsure participants were 16% and 18% while 5% and 9% were rather dissatisfied with the repair of products and equipment at Conlog workshop and the on-site products and equipment repair handled by Conlog. No participants were very dissatisfied in both responses.

The above data of unsure participants was concurring by participants who were interviewed and commented as follows: ‘I cannot comment on the repair and equipment at Conlog workshop since our municipality does not send meters for repair, therefore I am not sure’. The other participant commented as follows: ‘The Conlog meter lasts a long time and doesn't give me any problems’.

4.2.2.7. Overall Satisfaction

The results of Overall Satisfaction are illustrated in Figure 4.13 below:

Figure 4.13: Overall satisfaction

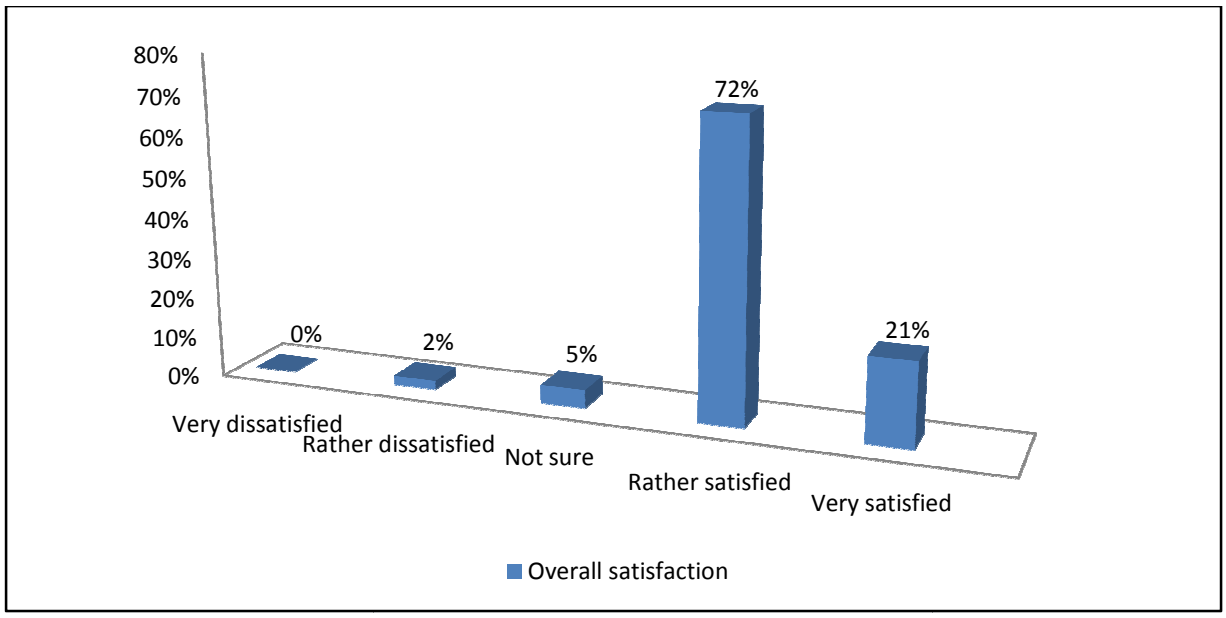


Figure 4.13 above illustrate overall customer satisfaction with Conlog electricity prepayment meters in KwaZulu-Natal which indicates that majority of respondents are rather satisfied (72%), followed by 21% of participants who are very satisfied. 5% and 2% of participants are not sure and rather dissatisfied. This view is best illustrated by the comment of one of the participant who was interviewed and said: ‘Conlog's meters are reliable - they are sturdy and as a result, there is less tampering. I work well with them because they communicate and also their administration seems to be efficient’. This was further supported by another participant who said: ‘I already recommend Conlog meters because we don't experience any problems or breakdowns - the product is sturdy and high quality. The tamper proof feature works well as it forces the meter to switch off. The Conlog brand name is synonymous with quality in the market place’.

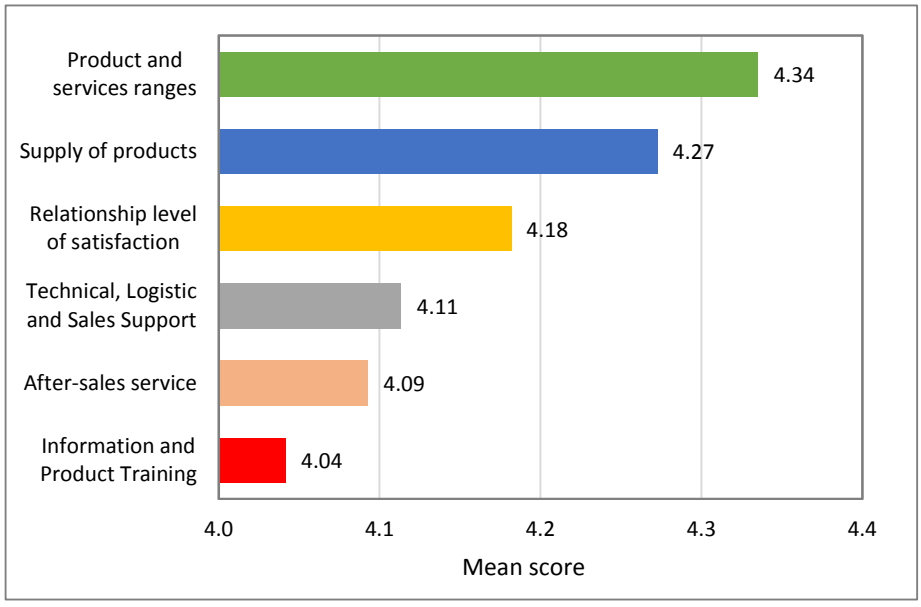
4.2.3. Means and standard deviations of the dimensions

The results of the Means and Standard Deviations are shown in Table 4.2 and Figure 4.14 below:

Table 4.2: Descriptive statistics of the dimensions

	N	Minimum	Maximum	Mean	Std. Deviation
Relationship level of satisfaction	44	3.00	5.00	4.1818	.38347
Technical, Logistic and Sales Support	44	2.80	4.60	4.1136	.30923
Information and Product Training	44	3.50	4.50	4.0417	.26199
Product and services ranges	44	3.50	4.75	4.3352	.24078
Supply of products	44	3.40	4.80	4.2727	.29912
After-sales service	44	3.50	4.50	4.0928	.26609

Figure 4.14: Mean scores of dimensions



The mean scores show that respondents expressed satisfaction with all the study dimensions. A rank order of the mean scores revealed the following: Highest mean score (m = 4.3352) for Product and Services Ranges, followed by Supply of Products (m = 4.2727), Relationship Level of Satisfaction (m = 4.1818), Technical Logistic and Sales Support (m = 4.1136), After Sales Service (m = 4.0928) and Information and Product Training (4.0417) - lowest mean score.

The standard deviation (sd) showed some variation in the level of satisfaction which was not wide. A rank order of the standard deviation scores revealed the following: Highest standard deviation score (sd = .38347) Relationship Level of Satisfaction, followed by Technical, Logistical and Sales Support (sd = .30923), Supply of Products (sd = .29912), After Sales Service (sd = .26609) and Information and Product Training (sd = .26199) - lowest standard deviation. The small variation in the satisfaction expressed for the dimensions can be seen by examining the minimum and maximum scores. For all the dimensions, some respondents indicated that they were not sure (minimum score) while others indicated that they were rather to very satisfied (maximum score).

4.3. Inferential statistics

The One-Sample Kolmogorov-Smirnov test was used to determine whether the data follows a Normal Distribution. The results showed that the data does not follow a Normal Distribution, Accordingly Non-Parametric statistics were used.

To ascertain the inter-correlations among the study dimensions, the Spearman Rank Order Correlation (rho) was used and to determine the influence of the Biographic Variables on the study dimensions, the Mann-Whitney Test and the Kruskal-Wallis Test were used.

4.3.1. Inter-correlations among the study dimensions

The results for inter-correlations among the study dimensions are shown in Table 4.3 below:

Table 4.3: Spearman's rank order correlation

		Spearman's rho		
		Correlation Coefficient	p	N
Relationship level of satisfaction	Relationship level of satisfaction	1.000	.	44
	Technical, Logistic and Sales Support	.113	.465	44
	Information and Product Training	.267	.080	44
	Product and services ranges	.247	.105	44
	Supply of products	.341*	.024	44
	After-sales service	.002	.988	44
Technical, Logistic and Sales Support	Relationship level of satisfaction	.113	.465	44
	Technical, Logistic and Sales Support	1.000	.	44
	Information and Product Training	.075	.631	44
	Product and services ranges	-.038	.808	44
	Supply of products	.148	.338	44
	After-sales service	.356*	.018	44
Information and Product Training	Relationship level of satisfaction	.267	.080	44
	Technical, Logistic and Sales Support	.075	.631	44
	Information and Product Training	1.000	.	44
	Product and services ranges	.076	.624	44
	Supply of products	.121	.435	44
	After-sales service	.436**	.003	44
Product and services ranges	Relationship level of satisfaction	.247	.105	44
	Technical, Logistic and Sales Support	-.038	.808	44
	Information and Product Training	.076	.624	44
	Product and services ranges	1.000	.	44
	Supply of products	.260	.088	44
	After-sales service	.052	.738	44
Supply of products	Relationship level of satisfaction	.341*	.024	44
	Technical, Logistic and Sales Support	.148	.338	44
	Information and Product Training	.121	.435	44
	Product and services ranges	.260	.088	44
	Supply of products	1.000	.	44
	After-sales service	.272	.074	44

Table 4.3: Spearman's Rank Order Correlation *Continue*

		Spearman's rho		
		Correlation Coefficient	p	N
After-sales service	Relationship level of satisfaction	.002	.988	44
	Technical, Logistic and Sales Support	.356*	.018	44
	Information and Product Training	.436**	.003	44
	Product and services ranges	.052	.738	44
	Supply of products	.272	.074	44
	After-sales service	1.000	.	44

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

There is a positive and significant correlation at the 1% level of significance between Relationship Level of Satisfaction and Supply of Products (rho = 0.341; $p < 0.05$). There is no significant correlation between Relationship Level of Satisfaction and Technical. Logistic and Sales Support (rho = 0.113; $p > 0.05$), Information and Product Training (rho = 0.267; $p > 0.05$), Product and Service Ranges (rho = .247; $p > 0.05$).

There is a positive and significant correlation between Technical, Logistic and Sales Support and After- Sales Support (rho = .356; $p < 0.05$). There is no significant correlation between Technical, Logistic and Sales Support and Information and Product Training (rho = .075; $p > 0.05$), Product and Services Ranges (rho = - .038; $p > 0.05$) and Supply of Products (rho = .148; $p > 0.05$).

There is a positive and significant correlation between Information and Product Training and After- Sales Service (rho = .436; $p < 0.01$). There is no significant correlation between Information and Product Training and Product and Services Ranges (.076; $p > 0.05$) and Supply of Products (rho = .121; $p > 0.05$).

There is no significant correlation between Product and Services Ranges and Supply of Products (rho = .260; p > 0.05) and After- Sales Services (rho = .050; p > 0.05).
There is no significant correlation between Supply of Products and After- Sales Service (rho = .272; p > 0.05).

4.3.2. Kruskal-Wallis Anova test

Kruskal-Wallis Anova test is a method for comparing several independent random samples and can be used as a nonparametric alternative to the one way ANOVA. Kruskal-Wallis Anova test was utilised to compare mean ranks between different dimensions of the study.

It is used for comparing two or more samples that are independent, and that may have different sample sizes, and extends the Mann–Whitney U test to more than two groups. Table 4.12 below; illustrate the comparison of mean ranks between male and female using the Mann-Whitney test

Table 4.4: Comparison of mean ranks between male and female using the Mann-Whitney test

	Gender	Mean	Std. Deviation	N
Relationship level of satisfaction	Male	4.1333	.38490	25
	Female	4.2456	.38236	19
	Total	4.1818	.38347	44
Technical, Logistic and Sales Support	Male	4.0640	.34506	25
	Female	4.1789	.24850	19
	Total	4.1136	.30923	44
Information and Product Training	Male	3.9867	.27605	25
	Female	4.1140	.22942	19
	Total	4.0417	.26199	44
Product and services ranges	Male	4.3100	.23139	25
	Female	4.3684	.25507	19
	Total	4.3352	.24078	44
Supply of products	Male	4.2720	.25087	25
	Female	4.2737	.36031	19
	Total	4.2727	.29912	44
After-sales service	Male	4.0900	.28759	25
	Female	4.0965	.24258	19
	Total	4.0928	.26609	44

	Mann-Whitney U	Z	p
Relationship level of satisfaction	202.000	-.888	.374
Technical, Logistic and Sales Support	181.500	-1.377	.168
Information and Product Training	170.500	-1.619	.105
Product and services ranges	192.500	-1.164	.244
Supply of products	207.000	-.746	.456
After-sales service	236.000	-.037	.971

a. Grouping Variable: Gender

The results of the Mann-Whitney test indicate no significant difference in the mean ranks of the dimensions between male and female at the 95% level of significance ($p>0.05$)

Table 4.5: Comparison of mean ranks between age groups using the Kruskal-Wallis Anova test

	Age	Mean	Std. Deviation	N
Relationship level of satisfaction	20-29	4.2083	.23960	16
	30-39	4.1296	.41443	18
	40-49	4.1111	.65546	6
	Over 50	4.4167	.16667	4
	Total	4.1818	.38347	44
Technical, Logistic and Sales Support	20-29	3.9625	.40804	16
	30-39	4.1667	.17150	18
	40-49	4.2667	.30111	6
	Over 50	4.2500	.10000	4
	Total	4.1136	.30923	44
Information and Product Training	20-29	4.0417	.29502	16
	30-39	4.0370	.26541	18
	40-49	4.1111	.20184	6
	Over 50	3.9583	.25000	4
	Total	4.0417	.26199	44
Product and services ranges	20-29	4.2813	.28687	16
	30-39	4.3611	.15392	18
	40-49	4.4583	.18819	6
	Over 50	4.2500	.40825	4
	Total	4.3352	.24078	44
Supply of products	20-29	4.3000	.32660	16
	30-39	4.2667	.29902	18
	40-49	4.3333	.16330	6
	Over 50	4.1000	.38297	4
	Total	4.2727	.29912	44
After-sales service	20-29	3.9844	.29536	16
	30-39	4.2269	.20966	18
	40-49	4.0833	.20412	6
	Over 50	3.9375	.23936	4
	Total	4.0928	.26609	44

	Chi-Square	df	p
Relationship level of satisfaction	2.438	3	.487
Technical, Logistic and Sales Support	5.702	3	.127
Information and Product Training	.888	3	.828
Product and services ranges	2.346	3	.504
Supply of products	1.283	3	.733
After-sales service	8.685	3	.034*

a. Kruskal Wallis Test

b. Grouping Variable: Age

The results of the Kruskal-Wallis Anova indicate a significant difference in the mean ranks of After-sales service between age groups at the 95% level of significant ($p<0.05$). There are no differences with the other dimensions ($p>0.05$).

Table 4.6: Comparison of mean ranks between race groups using the Kruskal-Wallis Anova test

	Race	Mean	Std. Deviation	N
Relationship level of satisfaction	African Black	4.2333	.32929	30
	White	4.4444	.19245	3
	Indian or Asian	3.8571	.53945	7
	Coloured	4.1667	.33333	4
	Total	4.1818	.38347	44
Technical, Logistic and Sales Support	African Black	4.1133	.33086	30
	White	4.0667	.23094	3
	Indian or Asian	4.2286	.21381	7
	Coloured	3.9500	.34157	4
	Total	4.1136	.30923	44
Information and Product Training	African Black	4.0389	.25022	30
	White	4.3333	.00000	3
	Indian or Asian	3.9524	.26726	7
	Coloured	4.0000	.36004	4
	Total	4.0417	.26199	44
Product and services ranges	African Black	4.4083	.16717	30
	White	4.0833	.52042	3
	Indian or Asian	4.1786	.18898	7
	Coloured	4.2500	.35355	4
	Total	4.3352	.24078	44
Supply of products	African Black	4.3067	.26644	30
	White	4.2667	.41633	3
	Indian or Asian	4.1429	.39521	7
	Coloured	4.2500	.34157	4
	Total	4.2727	.29912	44
After-sales service	African Black	4.1194	.26232	30
	White	4.2500	.25000	3
	Indian or Asian	4.0714	.18898	7
	Coloured	3.8125	.31458	4
	Total	4.0928	.26609	44

	Chi-Square	df	p
Relationship level of satisfaction	5.083	3	.166
Technical, Logistic and Sales Support	3.032	3	.387
Information and Product Training	5.487	3	.139
Product and services ranges	8.530	3	.036*
Supply of products	1.132	3	.769
After-sales service	4.760	3	.190

a. Kruskal Wallis Test

b. Grouping Variable: Race

The results of the Kruskal-Wallis Anova shown in Table 4.6 above, indicate a significant difference in the mean ranks of product and services range between race groups at the 95% level of significant ($p<0.05$). There are no differences with the other dimensions ($p>0.05$).

Table 4.7: Comparison of mean ranks between categories of highest qualifications using the Kruskal-Wallis Anova test

	Highest Qualification obtained	Mean	Std. Deviation	N
Relationship level of satisfaction	Matric	3.8333	.57735	4
	Certificate	4.0444	.37515	15
	Higher Certificate	4.2564	.33758	13
	Diploma	4.3750	.27817	8
	Degree	4.4167	.16667	4
	Total	4.1818	.38347	44
Technical, Logistic and Sales Support	Matric	4.0000	.16330	4
	Certificate	4.0000	.39279	15
	Higher Certificate	4.1538	.29613	13
	Diploma	4.3000	.10690	8
	Degree	4.1500	.25166	4
	Total	4.1136	.30923	44
Information and Product Training	Matric	4.0833	.34694	4
	Certificate	3.9111	.24289	15
	Higher Certificate	4.0385	.26487	13
	Diploma	4.1667	.21822	8
	Degree	4.2500	.09623	4
	Total	4.0417	.26199	44
Product and services ranges	Matric	4.4375	.12500	4
	Certificate	4.3167	.19970	15
	Higher Certificate	4.2692	.34553	13
	Diploma	4.3750	.18898	8
	Degree	4.4375	.12500	4
	Total	4.3352	.24078	44
Supply of products	Matric	4.1000	.20000	4
	Certificate	4.2000	.33806	15
	Higher Certificate	4.2615	.29872	13
	Diploma	4.4000	.23905	8
	Degree	4.5000	.20000	4
	Total	4.2727	.29912	44
After-sales service	Matric	3.9375	.37500	4
	Certificate	4.0500	.30178	15
	Higher Certificate	4.0577	.18125	13
	Diploma	4.2292	.16517	8
	Degree	4.2500	.35355	4
	Total	4.0928	.26609	44

	Chi-Square	df	p
Relationship level of satisfaction	8.967	4	.062
Technical, Logistic and Sales Support	7.465	4	.113
Information and Product Training	8.579	4	.073
Product and services ranges	2.445	4	.655
Supply of products	7.560	4	.109
After-sales service	5.421	4	.247

a. Kruskal Wallis Test

b. Grouping Variable: Highest Qualification obtained

The results of the Kruskal-Wallis Anova indicate there are no significant differences in the mean ranks of the dimensions between categories of Highest Qualification at the 95% level of significance ($p>0.05$).

Table 4.8: Comparison of mean ranks between categories of work place location using the Kruskal-Wallis Anova test

	Work place location	Mean	Std. Deviation	N
Relationship level of satisfaction	Inner city	4.3939	.25025	11
	Suburbs	3.9667	.33148	10
	Townships	4.1333	.47661	10
	Rural areas	4.2333	.41722	10
	Informal settlement	4.1111	.19245	3
	Total	4.1818	.38347	44
Technical, Logistic and Sales Support	Inner city	4.2364	.19633	11
	Suburbs	4.0200	.25734	10
	Townships	4.0600	.50816	10
	Rural areas	4.1000	.21602	10
	Informal settlement	4.2000	.20000	3
	Total	4.1136	.30923	44
Information and Product Training	Inner city	4.0909	.22808	11
	Suburbs	3.9833	.27722	10
	Townships	4.0333	.33148	10
	Rural areas	4.0833	.26352	10
	Informal settlement	3.9444	.09623	3
	Total	4.0417	.26199	44
Product and services ranges	Inner city	4.4773	.17516	11
	Suburbs	4.3000	.22973	10
	Townships	4.2250	.27513	10
	Rural areas	4.3000	.25820	10
	Informal settlement	4.4167	.14434	3
	Total	4.3352	.24078	44
Supply of products	Inner city	4.4727	.16181	11
	Suburbs	4.1200	.35528	10
	Townships	4.1600	.29515	10
	Rural areas	4.2800	.28597	10
	Informal settlement	4.4000	.20000	3
	Total	4.2727	.29912	44
After-sales service	Inner city	4.2500	.19365	11
	Suburbs	4.0000	.23570	10
	Townships	4.1083	.24861	10
	Rural areas	4.0250	.34258	10
	Informal settlement	4.0000	.25000	3
	Total	4.0928	.26609	44

	Chi-Square	df	p
Relationship level of satisfaction	8.606	4	.072
Technical, Logistic and Sales Support	4.582	4	.333
Information and Product Training	1.617	4	.806
Product and services ranges	7.525	4	.111
Supply of products	10.177	4	.038*
After-sales service	5.884	4	.208

a. Kruskal Wallis Test

b. Grouping Variable: Work place location

The results of the Kruskal-Wallis Anova indicate a significant difference in the mean ranks of supply of products between categories of work place location at the 95% level of significant ($p<0.05$). There are no differences with the other dimensions ($p>0.05$).

Table 4.9: Comparison of mean ranks between categories of activity/work using the Kruskal-Wallis Anova test

	Q6 Activity/Work	Mean	Std. Deviation	N
Relationship level of satisfaction	Installer/Contractor	3.9394	.49031	11
	Distributor	4.5333	.38006	5
	Wholesaler/Retailer	4.4444	.19245	3
	Consultant/Specifier	4.3889	.25092	6
	Supply chain management	4.2593	.22222	9
	End user	4.0000	.22222	10
	Total	4.1818	.38347	44
Technical, Logistic and Sales Support	Installer/Contractor	4.1273	.30030	11
	Distributor	4.2400	.16733	5
	Wholesaler/Retailer	4.2667	.11547	3
	Consultant/Specifier	4.0000	.25298	6
	Supply chain management	4.2667	.20000	9
	End user	3.9200	.42374	10
	Total	4.1136	.30923	44
Information and Product Training	Installer/Contractor	3.9091	.32799	11
	Distributor	4.1333	.21731	5
	Wholesaler/Retailer	4.2778	.09623	3
	Consultant/Specifier	4.1667	.18257	6
	Supply chain management	4.1111	.22048	9
	End user	3.9333	.22498	10
	Total	4.0417	.26199	44
Product and services ranges	Installer/Contractor	4.2273	.26112	11
	Distributor	4.5500	.20917	5
	Wholesaler/Retailer	4.3333	.14434	3
	Consultant/Specifier	4.1667	.37639	6
	Supply chain management	4.3889	.13176	9
	End user	4.4000	.12910	10
	Total	4.3352	.24078	44
Supply of products	Installer/Contractor	4.1818	.30271	11
	Distributor	4.3200	.17889	5
	Wholesaler/Retailer	4.5333	.23094	3
	Consultant/Specifier	4.3333	.30111	6
	Supply chain management	4.3333	.34641	9
	End user	4.1800	.30478	10
	Total	4.2727	.29912	44

	Chi-Square	df	p
Relationship level of satisfaction	15.408	5	.009*
Technical, Logistic and Sales Support	10.147	5	.071
Information and Product Training	9.556	5	.089
Product and services ranges	9.158	5	.103
Supply of products	6.523	5	.259
After-sales service	7.091	5	.214

a. Kruskal Wallis Test

b. Grouping Variable: Q6 Activity/Work

The results of the Kruskal-Wallis Anova indicates a significant difference in the mean ranks of relationship level of satisfaction between the categories of activity/work at the 95% level of significance ($p<0.05$).

4.3.3. Statistical significant

There is a statistical significant difference in the perceptions of the study dimensions among the other biographical variables (age, race, highest qualification, place location and activity/work).

Note: A comprehensive statistical significant was formulated as the Kruskal- Wallis was used for all the biographical variables.

4.3.3.1. Age

The results are shown in Table 4.15 below:

Table 4.10: Kruskal-Wallis Test – Perceptions of the study dimensions by age

	Chi-Square	df	p
Relationship level of satisfaction	2.438	3	.487
Technical, Logistic and Sales Support	5.702	3	.127
Information and Product Training	.888	3	.828
Product and services ranges	2.346	3	.504
Supply of products	1.283	3	.733
After-sales service	8.685	3	.034*

The results depicted in Table 4.15 above show a significant difference in the mean ranks of after-sales-service among the age groups (Chi-Square = 8.685; df = 3. P < 0.05)

There is no significant difference in the mean ranks of the other study dimensions among the age groups.

4.3.3.2. Race

The results of Kruskal-Wallis Test – Perceptions of the Study Dimensions by Race are shown in Table 4.16 below:

Table 4.11: Kruskal-Wallis Test – Perceptions of the study dimensions by race

	Chi-Square	df	p
Relationship level of satisfaction	5.083	3	.166
Technical, Logistic and Sales Support	3.032	3	.387
Information and Product Training	5.487	3	.139
Product and services ranges	8.530	3	.036*
Supply of products	1.132	3	.769
After-sales service	4.760	3	.190

The results in Table 4.16 above, indicate a significant difference in mean ranks of Product and services ranges (Chi-Square = 8.530; df = 3; $p < 0.05$) among the race groups.

There is no significant difference in the mean ranks of the other study dimensions.

4.3.3.3. Highest Qualifications

The results are shown in Table 4.17 below:

Table 4.12: Kruskal-Wallis Test – Perceptions of the study dimensions by highest qualifications

	Chi-Square	df	p
Relationship level of satisfaction	8.967	4	.062
Technical, Logistic and Sales Support	7.465	4	.113
Information and Product Training	8.579	4	.073
Product and services ranges	2.445	4	.655
Supply of products	7.560	4	.109
After-sales service	5.421	4	.247

There is no significant difference in the mean ranks of the study dimensions among the highest qualifications groups.

4.3.3.4. Work Place Location

The results are shown in Table 4.18 below:

Table 4.13: Kruskal-Wallis Test – Perceptions of the study dimensions by work place location

	Chi-Square	df	p
Relationship level of satisfaction	8.606	4	.072
Technical, Logistic and Sales Support	4.582	4	.333
Information and Product Training	1.617	4	.806
Product and services ranges	7.525	4	.111
Supply of products	10.177	4	.038*
After-sales service	5.884	4	.208

Table 4.18 above, indicate a significant difference in the mean ranks of Supply of products (Chi-Square = 10.177; df = 4; $p < 0.05$) among the Workplace Location Groups.

There is no significant difference in the mean ranks of the other study dimensions.

4.3.3.5. Activity/Work

The results of Kruskal-Wallis Test – Perceptions of the Study Dimensions by Activity/Work are shown in Table 4.19 below:

Table 4.14: Kruskal-Wallis Test – Perceptions of the study dimensions by activity/Work

	Chi-Square	df	p
Relationship level of satisfaction	15.408	5	.009*
Technical, Logistic and Sales Support	10.147	5	.071
Information and Product Training	9.556	5	.089
Product and services ranges	9.158	5	.103
Supply of products	6.523	5	.259
After-sales service	7.091	5	.214

The results depicted above in Table 4.19, indicate a significant difference in the mean ranks of Relationship level of satisfaction (Chi-Square = 15.408; df = 5; $p < 0.05$) among the Activity/Work Groups.
There is no significant difference in the mean ranks of the other study dimensions.

4.4. Conclusion

The results of the questionnaire study and interviews were presented and analysed in this Chapter. Descriptive statistics and inferential statistics were employed to describe and analyse the data and interpretation of the research findings. The process followed in analysing the results was the presentation of summarised results through statistical calculations, interpretation of individual statistical calculations and presentation of results through the aid of pictorial views like tables, histograms and graphs.

Conclusions and recommendations of the study will be dealt with in the next Chapter.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1. Introduction

In this concluding Chapter, the data analysis presented in Chapter 4 is discussed in relation to the research aim and objectives. The summary of the theoretical and empirical data is presented in this Chapter.

The key focus of this Chapter will be on the key findings of the objectives of the study and recommendations culminated as a result of the research listed. These findings will indicate whether or not the aim of the study has been achieved. The Chapter will include recommendations to the target organisation to sustain its customer satisfaction and ultimately determining business success. The Chapter ends with the limitations of the study and potential scope for future research. The Chapter will be concluded with key learning made as a result of the research.

5.2. Research findings

In order to answer the core of the research problem, *Customer satisfaction analysis of Conlog Electricity prepayment meters in KwaZulu-Natal: A customer perspective*, the information from the customer perspectives play an important role. Quantitative and qualitative data collection methods were used to collect all data needed for addressing the core research questions and problems of the research.

5.2.1. Summary of the empirical study

All the empirical findings were collected from the Primary data. Primary data is the data collected from the use of questionnaires and interviews. Qualitative data was generated by telephonic interviews and in-depth personal interviews which emanated from the questionnaire provided in Annexure D. Many scholars stress the popularity of survey strategies which use as their main instruments structured and unstructured interviews and questionnaires or a combination of both. In this study structured written questions and interviews were used to collect data from respondents. The survey questions ascertained respondents' feelings about customer relationship with Conlog, information and product training, after-sales support, satisfaction for dimensions service quality, and overall customer satisfaction.

The descriptive statistics of the frequency distribution of biographical variables are listed in Table 4.1. Of the 44 participants, there were slightly more of male respondents (57%) than female (43%). The majority of respondents belong to the age group between 30-39 years old (41%) and 20-29 years old (36%) followed by 14% and 9% who belong to age group 40-49 and over 50 respectively. The majority of them are of African Black ethnicity (68%). Respondents who possess a professional certificate and higher certificate are in the majority (34% and 30%) while those who possess bachelor degree are equal to those in a position of Matric (9%).

Moreover, 25% of respondents are from the inner city work place location and evenly distributed numbers of respondents are from suburbs, townships and rural areas (23%). Furthermore, the majority of participants (25%) are from installer/contractor work category and slightly steady distributed number from end user (23%) and supply chain management (21%). This revealed that electricity prepayment metering industry is male dominated and majority of these males are middle age African black men working from the inner cities, suburbs, townships and rural areas.

Responses to dimensions revealed different levels of customer satisfaction to different frequency distribution. A high response rate of rather satisfied respondents is noted when it comes to relationship level of satisfaction frequency distributed. When it comes to technical, logistic and sales support that Conlog provides to its customers, a majority of respondents were found to be rather satisfied. This was supported by one of the respondents during the interview who commented as follows: 'What I like about the Conlog product is that the tamper mode works when the device is tampered with. The meter has a built-in voltage protector when voltage drops to 190 and so the meter goes off - it protects people's possessions. When I need support, their assistance is quick in terms of resolving my query and giving feedback. Currently we are busy replacing old meters with new Conlog meters because they are tamper proof and offer voltage protection'.

The empirical study revealed that Conlog is very good at providing information and product training to its customers. This is illustrated by the results of the empirical study which confirmed that majority of participants are rather satisfied with this. The study further noted that the leading factor driving satisfaction with Conlog is their product and services range which gives customers added options to choose the best product and services which meets their desire. This was confirmed in one interview where the respondent mentioned that: 'It is a very good product. You can rely on the accuracy readings relating to usage of the meter - it measures the electricity that was actually used. The tamper proof feature works well and shuts the meter down immediately. Conlog's backup service is efficient and we get responses promptly when we need assistance'.

After-sales service support is what differentiates Conlog from its competitors in the industry of electricity prepayment metering. This is also a leading factor of Conlog as this assures customers support after sales. This provides Conlog with the ability to guide, counsel and mentor customers in the right prepayment solution for their needs. In addition to consulting, Conlog offer a broad array of professional support services, such as: infrastructure design, project management, data management, service level

agreements, training etc. Participant from the interview supported this and stated that ‘We are quite happy with Conlog after-sales support. They have a call centre that operates 24 hours / 7 days a week’.

However, it is Conlog’s unrivalled depth of experience and knowledge which separates the company from its competitors. Within the engineering division alone, the company boasts in excess of 50 years of combined experience in prepayment. This level of experience enables the company to guide customers on the right solution to meet their changing needs. This is verified by the overall satisfaction results of the empirical study.

On a different issue about the empirical assessment and qualitative assessment of the critical factors of customer satisfaction dimensions, the research results confirmed prior research on the issue and indicated that the customer critical factors of satisfaction dimensions are not only industry specific, but also country specific. Indeed, there is a differentiation on the factors that constitute the elements of the service collection important to customers depending on industry, culture, and country. In this respect, this research revealed the existence of six (6) new critical factors of customer satisfaction dimensions: customer relationship, sales support, reliability, product innovation, value for money, and convenience.

Overall, the results provide strong support for the concept of direct effects of customer satisfaction on the behavioural responses of customers. More specifically, the findings of the study indicated that when customers assess customer satisfaction to be high, they decide to stay with the existing service provider or organisation and subdue their negative behavioural intentions. Furthermore, the empirical results indicated that customer satisfaction is associated positively with word-of-mouth communications. The qualitative results also confirmed this with the following comment from the interview: ‘I already recommend Conlog meters because we don't experience any problems or breakdowns - the product is sturdy and high quality. The tamper proof feature works well as it forces the meter to switch off. The Conlog brand name is synonymous with quality in the market place’.

5.2.2. Summary of the study

Customer satisfaction has long been recognised as playing an essential role for success and survival in today's competitive environment. Not surprisingly, considerable research has been conducted on what customer satisfaction meant to customers and developing instruments that measure customer satisfaction. Further, recognising the importance of the link between customer satisfaction and profits, research has contributed to our understanding of the impact of customer satisfaction on the financial outcomes of the organisation.

The secondary data was collected from literature related to this study, online articles and journals. The secondary study in Chapter 2 revealed that service quality and customer satisfaction are extremely imperative concepts that companies must comprehend if they want to remain competitive and grow. In today's competitive environment delivering high quality service is the key for a sustainable competitive advantage. Customer satisfaction does have a positive effect on organisations profitability. Satisfied customers form the foundation of any successful business as customer satisfaction leads to repeat purchase, brand loyalty, and positive word of mouth.

The key learning documented from the study is that customer satisfaction is of immense value to any organisation. If the organisation cannot ensure that their customers are satisfied, they will look elsewhere for another supplier or service provider. The only way to retain customers is to offer good customer service. Hattingh, (2007) argued that, by not providing good customer service, any organisation opens the door to its opposition and it will impact negatively on the bottom line profitability of the organisation. Customer satisfaction is based on various aspects, none of which works on its own. If the company produces the best quality product, but gives no service, it will fail. Conversely if the company gives great service, but the product quality is poor, it will also fail. Customer satisfaction is a combination of various circumstances and will differ from industry to the next.

From the literature review in Chapter 2, factors such as service quality, and perceived value, are the key constructs affecting the customer's satisfaction with electricity prepayment metering customers. The study also points out that customer satisfaction emanates from trust, price tolerance, and customer loyalty. Therefore, building customer relationship is a backbone for all organisations in general, and companies in the electricity prepayment metering industry in particular. Issues such as customer satisfaction, service quality, customer perception, customer loyalty, are the major concerns of the currently electricity prepayment metering companies, which improves organisations performance and transform into more profits.

The study further revealed that, satisfaction and services quality have common points: in general, satisfaction is a more extensive concept than quality, since quality focuses on services dimensions and service quality is considered as a part of satisfaction. Service quality indicates customer's understanding of the services, while satisfaction is more extensive including service quality, product's quality, price, situational factors and immediate determinants (Javadeyn and Keymasi, 2005).

The study further disclosed that there are many factors that affect customer satisfaction. Such factors include friendly employees, courteous employees, knowledgeable employees, helpful employees, accuracy of billing, billing timeliness, competitive pricing, service quality, good value, billing clarity and quick service. The review in Chapter 2 concluded that customer satisfaction has a positive effect on organisation's profitability. The more customers are satisfied with products or services offered; the more are probabilities for any successful business as customer satisfaction leads to repeat purchase, brand loyalty, and positive word of mouth marketing. Customer satisfaction leads to repeat purchases, loyalty and to customer retention (Zairi, 2000). Satisfied customers are more likely to repeat buying products or services. They will also have a tendency to say good things and to recommend the product or service to others. On the other hand dissatisfied customers respond differently.

5.3. Discussion of the study findings in relation to the service quality dimensions, customer expectations and customer perceptions

As discussed in chapter two (section 2.7.1), service quality and customer satisfaction are very significant concepts that companies must comprehend if they want to remain competitive and grow. Therefore, it is crucial for management of the organisation to identify the service problems or service dissatisfaction experienced by their customers. Today, customers are becoming increasingly more demanding, less tolerant and very critical when their expectations are not met. Numerous research studies on service quality focus on how to reduce the gap between customers' expectations and their perceptions. The expected quality is what the customer expects to receive from the company and the perceived service is what the customer perceives he or she received from the company. If the customer receives the service quality expected, they are satisfied. If the customer perceives service as below expectations then, the customer is dissatisfied (Adat, 2013).

Customer satisfaction is the outcome felt by those that have experienced a company's performance that have fulfilled their expectations. Nowadays, all companies realise the significance of delivering and managing service quality, which leads to customer satisfaction. Service quality delivered can meet or exceed customer's expectations that are mainly influenced by customer's prior expectations. According to Hansemark and Albinson (2004:68) 'satisfaction is an overall customer attitude towards a service provider, or an emotional reaction to the difference between what customers anticipate and what they receive, regarding the fulfillment of some needs, goals or desire'.

The evidence also shows the positive connection between service quality, customer expectations and customer perceptions. This was supported by one of the participants who stated that 'I already do recommend Conlog. The new meters are good, reliable and clean - no cockroaches can get inside. The older ones - the Plessey meters - are always full of cockroaches. Conlog meters are accurate and reliable as seldom breakdown. I am busy replacing all the old meters with the new Conlog meters. They

are also tamper proof. Conlog also helps us to register the meters. Whenever I need assistance or advice, Conlog is so willing to help'. A high response of respondents in Figure 4.11, who were rather satisfied (64%), followed by 34% of respondents who were very satisfied, statistical prove the ability of Conlog to take into account the customer special requests on product supply services.

The above testimonial from a participant is indicative of the argument that customer satisfaction is a primary determinant of customer intentions to re-purchase a product or service; and it has been shown to also influence the development of customer loyalty. As such, customer satisfaction is one of the most critical constructs any organisation must work to facilitate. This study highlights the importance of meeting customer expectations and delivering service quality to influence customer perception. Additionally, this new empirical work suggests that service quality is an important factor influencing customer satisfaction.

Overall, it is critical for Conlog to facilitate customer satisfaction. This study has also shown that customer satisfaction is influenced by core product quality, customer expectations, customer perceptions, and service quality. Furthermore, the results of this study indicate that core product quality and meeting customer expectations hold causal influences over service quality perceptions. The importance of service quality, customer expectations and customer perceptions must be recognised by marketing executives in influencing customer satisfaction.

5.4. Recommendations

According to the review in Chapter 2, the customer satisfaction-customer loyalty association is one of the most vital relationships for marketing theory and practice due to the marketing effectiveness that these metrics recapitulate and its implications for firm profitability. Organisations, in fact, invest in developing customer satisfaction monitoring systems to better envisage how customer satisfaction translates into customer loyalty. In spite of the magnitude of these investments on the satisfaction-

loyalty relationship over the last decades, there still exist numerous knowledge gaps on this topic, including the relatively modest ability of satisfaction to predict loyalty (Bae, 2012). This is obviously frustrating for marketing practitioners and academics. Bae (2012) further argued that competitive setting heterogeneity facing customers, firms, and competitors lead to many possible different settings under which customer satisfaction translates into customer loyalty.

This current study revealed that service quality is the most significant critical factor of customer satisfaction. Angelova and Zekiri (2011:247) argued that companies need to develop a customer oriented strategy concerning customer satisfaction if they want to ensure a long term presence in the marketplace. Thus, a service quality measurement is crucial for organisation in order to track customer expectations with company performance. Service quality is a measure of how well the service level delivered matches customer expectations. Delivering quality service means conforming to customer expectations on a consistent basis.

It is further recommended that senior management at Conlog consider instigating a quarterly review of customer satisfaction. This will assist the organisation in monitoring customer perception and level of customer satisfaction on all products that are manufactured by Conlog. Conducting quarterly customer satisfaction surveys will seek to improve Conlog service quality and also improve areas that customer deems Conlog is not meeting their demands.

Finally, Conlog as the organisation can benefit from the fact of knowing how customers perceive the service quality and knowing the way of how to measure service quality. Therefore, the management can use the specific data obtained from the measurement of service quality in their strategies and plans. This will help Conlog to better understand various service quality dimensions that affect overall service customer satisfaction. In this way, Conlog can better allocate resources to provide better service to their customers. Thus, understanding the ‘fit’ between customer satisfaction and service quality is very important and challenging.

5.5. Scope for future research

There are very few researches that have been conducted in the field of the electricity prepayment metering industry; thus, future researches in this field are encouraged.
It is proposed that future research could include a similar survey on a broader scale, covering the South African market. Future research can be further explored with a similar but deeper study conducted with Conlog electricity prepayment metering customers in KwaZulu-Natal. In this regard, customer perceptions and level of customer satisfaction could result in a valuable insight into the overall customer perspective of the products and services offered by Conlog to the target market in South Africa.

Conlog as an organisation should consider the feasibility of conducting research with a selected group of key customers across the country to obtain feedback on customer satisfaction and its impact on the Conlog products and services offered to them.

5.6. Limitations of the study

A potential weakness of this study was the uncertain response rate to the survey because the respondents participated on a voluntary basis (Scheming, 2012:73). Customers who were not on e-mails or who did not have access to e-mails were excluded from the study. Those participants who are in rural areas could not be included in the interviews due to limited resources allocated to conduct the study. The study may perhaps appear to be biased due to the fact that the data gathered was only from Conlog customers in KwaZulu-Natal. The study could not be extended to customers of Conlog's competitors to compare similar characteristics as the researcher is an employee of Conlog.

Questionnaire survey e-mails (refer to Annexure C) were sent to all Fifty-Three (53) Conlog customers in KwaZulu-Natal. The initial response rate was 55%. Follow up e-mails were sent to the respondents to improve the response rate which improved the response rate to 69%. The researcher decided to further improve the response rate by

conducting telephonic interviews in addition to the questionnaire survey e-mailed and personal interviews conducted at customer site. This resulted to the final response rate of 83%.

5.7. Conclusion

The findings of the study revealed that the most important success factor for customer satisfaction in electricity prepayment metering industry in KwaZulu-Natal is service quality. An important factor in creating customer satisfaction is the ability of Conlog to understand customer needs. Respondents believe the factors such as the ability of the their Conlog contact to take their needs into account, the speed of response of Conlog to their queries related to technical, logistics and sales, the training program offered by Conlog, the reliability of Conlog products and the aesthetics of Conlog products, establish long term relationships with customers, are the important factors in the success of the organisation.

The noteworthy point is that after-sales service is also one of the most important factors in customer satisfaction and in Conlog business success. As a result, Conlog must continually examine customer satisfaction to identify the factors that are imperative from a customer perspective and thus to prioritize the most significant factors in the success of the organisation.

Finally, strategies to improve the trustworthiness between customers and Conlog as the organisation, commitment to service, how Conlog communicates with customers and how it obtains information concerning the customers' desires, and how conflicts between the customer and the organisation are dealt with during a service failure, should be implemented. The strategies when implemented will increase customer satisfaction, which in turn will lead to both the increased profitability and sustainability of the organisation in the future.

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Annexure A

Faculty of Management Sciences

Department of Entrepreneurial Studies and Management

Dear Participant

I am currently studying towards my Masters degree in Business Administration. For the purposes of my study, I intend to carry out research on Customer satisfaction analysis of Conlog Electricity prepayment meters in KwaZulu-Natal: A customer perspective

The investigation does require the completion of a questionnaire by the participant. Kindly note that by responding to the questionnaire, you would not only be making a valuable contribution to this research, but also provide valuable information that has a bearing on the success and effectiveness of customer satisfaction / customer loyalty with Conlog Electricity Prepayment meters in KwaZulu Natal.

It would therefore be appreciated if you would complete the attached questionnaire. Your response is of importance to this research so therefore please kindly provide honest answers. The answering of questions in this questionnaire should not take more than 15 minutes.

You are assured on the confidentiality of your responses, as it would be done anonymously, in that your name is not required on the questionnaire. Your participation is voluntary and you may withdraw at any time without giving any reasons. Kindly e-mail your completed questionnaire into the following e-mail address: ginam@conlog.co.za.

Thank you for your co-operation and the time that you have set aside for this research.

Yours Faithfully

……..
Mondli Gina
Cell Number: 0826617767
E-mail: ginam@conlog.co.za

Annexure B

CONSENT

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, **Mondli Gina**, about the nature, conduct, benefits and risks of this study.
- I am aware that the results of the study, including personal details regarding my sex, age, race, qualification and nature work will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

……
Full Name of Participant

I, **Mondli Gina** herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

……..
Mondli Gina
Cell Number: 0826617767
E-mail: ginam@conlog.co.za

Annexure C

NB: *Please tick ☒ one box on each question*

With regard to your background, please indicate the category in which you belong:

Q1) Gender:

Male	☐	Female	☐

Q2) Age:

10 - 19	☐	20 - 29	☐	30 - 39	☐	40 - 49	☐	Over 50	☐

Q3) Race group:

African Black	☐	White	☐	Indian or Asian	☐	Coloured	☐

Q4) Highest qualification obtained:

Matric	☐	Certicate	☐	Higher Certificate	☐	Diploma	☐	Degree	☐

Q5) Work place location:

Inner City	☐	Surburbs	☐	Township	☐	Rural Area	☐	Informal Settlement	☐

Q6) Please tell us which job is the most relevant for you. You are mainly:

☐ Installer / Contractor,
☐ Panel builder,
☐ Distributor,
☐ Wholesaler / Retailer
☐ Consultant / Specifier

☐ Supply Chain Management
☐ End User (Energy, Infrastructures, Industry, Buildings)
☐ Other : please complete in question 2

Q7) If you don't belong to an activity mentioned above, please add a description of your activity/work in the box below

YOUR LEVEL OF SATISFACTION

5	4	3	2	1
Very satisfied	**Rather satisfied**	**Not Sure**	**Rather dissatisfied**	**Very dissatisfied**

With regard to your relationship with Conlog, how would you rate your level of Satisfaction with:

	Very satisfied	Rather satisfied	Not Sure	Rather dissatisfied	Very dissatisfied
Q8) Conlog telephone reception overall	☐	☐	☐	☐	☐
Q9) The availability of your contact at Conlog	☐	☐	☐	☐	☐
Q10) The number of visits from your Conlog sales contact	☐	☐	☐	☐	☐

Regarding the technical, logistics, and sales support that you get from Conlog, how satisfied are you with:

	Very satisfied	Rather satisfied	Not Sure	Rather dissatisfied	Very dissatisfied
Q11) The ability of your contact at Conlog to understand your needs	☐	☐	☐	☐	☐
Q12) The ability of your contact at Conlog to take your needs into account	☐	☐	☐	☐	☐
Q13) The flexibility of your contact at Conlog in technical, logistics and sales negotiations	☐	☐	☐	☐	☐
Q14) The speed of response of Conlog to your queries related to technical, logistics and sales	☐	☐	☐	☐	☐
Q15) The way Conlog managed your complaints	☐	☐	☐	☐	☐

As far as information and product training is concerned, how satisfied are you with:

	Very satisfied	Rather satisfied	Not Sure	Rather dissatisfied	Very dissatisfied
Q16) The information that you get from Conlog on new products and services	☐	☐	☐	☐	☐
Q17) The information provided by Conlog to assist you make up and administer your stocks	☐	☐	☐	☐	☐
Q18) Your ease in using Conlog catalogues to select products	☐	☐	☐	☐	☐
Q19) The availability of Conlog catalogues	☐	☐	☐	☐	☐
Q20) The tools provided by Conlog to help	☐	☐	☐	☐	☐

you with selling and providing quotes					
Q21) The training program offered by Conlog	☐	☐	☐	☐	☐

With regard to product and services ranges, how satisfied are you with:

	Very satisfied	Rather satisfied	Not Sure	Rather dissatisfied	Very dissatisfied
Q22) The ability of Conlog product and service ranges to meet your needs	☐	☐	☐	☐	☐
Q23) The reliability of Conlog products	☐	☐	☐	☐	☐
Q24) The aesthetics of Conlog products	☐	☐	☐	☐	☐
Q25) The ratio between the Price you pay and the Quality of the products and all services provided by Conlog	☐	☐	☐	☐	☐

As far as the supply of products is concerned, how satisfied are you with:

	Very satisfied	Rather satisfied	Not Sure	Rather dissatisfied	Very dissatisfied
Q26) The availability of Conlog most commonly used products	☐	☐	☐	☐	☐
Q27) The lead times for Conlog less commonly used products	☐	☐	☐	☐	☐
Q28) The ability of Conlog to take into account your special requests on product supply services	☐	☐	☐	☐	☐
Q29) Conlog meeting promised delivery dates	☐	☐	☐	☐	☐
Q30) The notification provided by Conlog when the promised delivery date will not be met	☐	☐	☐	☐	☐

With regard to After-sales services, how satisfied are you with:

	Very satisfied	Rather satisfied	Not Sure	Rather dissatisfied	Very dissatisfied
Q31) Conlog After-sales services overall	☐	☐	☐	☐	☐
Q32) The lead times quoted by Conlog for product replacement	☐	☐	☐	☐	☐
Q33) The repair of products and equipment at Conlog workshop	☐	☐	☐	☐	☐
Q34) The on-site products and equipment repair handled by Conlog	☐	☐	☐	☐	☐

Taking everything into consideration, how would you rate your Overall satisfaction with Conlog and its Distributors?

	Very satisfied	Rather satisfied	Not Sure	Rather dissatisfied	Very dissatisfied
Q35) Would you say that you are	☐	☐	☐	☐	☐

If there are aspects of Conlog's pre-paid electricity arrangements, or any other aspects of Conlog's activity that you wish to comment on (and have not had the chance to do so yet), please use the box below to record your thoughts.

Thank You so much for Your Co-operation

Please save and e-mail back to ginam@conlog.co.za or ginamo@webmail.co.za

Annexure D

QUALITATIVE RESEARCH COMMENTS	
Respondents	**Comments**
1	Conlog product range is good, their service is excellent and they have a good team.
2	Excellent meters in the market
3	I already recommend Conlog meters because we don't experience any problems or breakdowns - the product is sturdy and high quality. The tamper proof feature works well as it forces the meter to switch off. The Conlog brand name is synonymous with quality in the market place.
4	Very professional and well schooled. I have satisfactory contact with them. Conlog calls on us regularly.
5	What I like about the Conlog product is that the tamper mode works when the device is tampered with. The meter has a built in voltage protector when voltage drops to 190 and so the meter goes off - it protects people's possessions. When I need support, their assistance is quick in terms of resolving my query and giving feedback. Currently we are busy replacing old meters with new Conlog meters because they are tamper proof and offer voltage protection.
6	They are on the ball! Deliveries are always spot on time. I would give them 20 out of 10 actually.
7	Their prepayment meters are user friendly and widely available.
8	The standard of workmanship is excellent - we don't have any comebacks.
9	Quality of the product - I only use their products.
10	I am happy with number of visit I received from Conlog sales person. She visits me at least twice a month which gives me confident with their support
11	I already do recommend Conlog. The new meters are good, reliable and clean - no cockroaches can get inside. The older ones - the Plessey meters - are always full of cockroaches. Conlog meters are accurate and reliable as seldom break down. I am busy replacing all the old meters with the new Conlog meters. They are also tamper proof. Conlog also helps us to register the meters. Whenever I need assistance or advice, Conlog is so willing to help.
12	No complaints and we are quite happy.
13	The Conlog meter lasts a long time and doesn't give me any problems.
14	Best meters available on the market.
15	I cannot comment on the repair and equipment at Conlog workshop since our municipality does not send meters for repair, therefore I am not sure
16	The product is good. Price is the most important factor that we consider when buying anything.
17	It is a very good product. You can rely on the accuracy readings relating to usage of the meter - it measures the electricity that was actually used. The tamper proof feature works well and shuts the meter down immediately. Conlog's backup service is efficient and we get responses promptly when we need assistance.
18	We are extremely happy with Conlog. The technical advice that they give is superb. Also, our deliveries are on time. My only complaint is that I'd like to see a rep more often.

19	Whenever I phone Conlog office, I always receive an excellent reception from Conlog staff
20	Everything is fine, we have no major issues. I am quite pleased with their service, and products that Conlog offers.
21	Conlog make very reliable prepayment meters. I've used their products for over 11 years and have never had any problems.
22	Conlog is a problem-free company to deal with.
23	We are quite happy with Conlog after-sales support. They have a call centre that operates 24 hours / 7 days a week
24	I've never had reason to complain. Their service and technical expertise is perfect. Conlog meters are excellent.
25	It is a no-nonsense product. No break downs.
26	Good reliable product. Good tender documents.
27	Well designed prepayment meters and good support structure.
28	I was very involved with the project and dealt with other service providers who weren't very interested in my business. When I approached Conlog, they seemed to have an excellent team of engineers who got a solution together.
29	Most of the municipalities and farms in our area use the Conlog meters. They are strong and reliable. The only problem that we have sometimes is trying to get the tokens for the meters.
30	No comment.
31	We are quite happy, they handle our complain very professional.
32	My only real issue with Conlog is that we don't see any reps at all - this is a problem.
33	Excellent quality product - only the keypad needs attention.
34	I like the reliability of the product and the way that the meters work, especially the split meters and the radio control meters. You basically just plug the control onto the networks. The split meter is basically tamper proof - all the controls are inside and you don't need a pilot cable.
35	Simple products to use.
36	She is very good in negotiations but she need to improve in the technical knowledge. Whenever we are experiencing technical failures with Conlog meters and we notify her, she does not have answers and she will refer them to technical team at Conlog
37	They keep to their promises when it comes to deliveries. We also have no problems when we return meters for repair.
38	They try to find ways of assisting us if we have special request on delivery.
39	There was a problem with the first contract we had with them because they didn't meet our delivery deadlines. The other two contracts we've had everything went off well. I like the product - it is reliable.
40	Conlog's meters are reliable - they are sturdy and as a result, there is less tampering. I work well with them because they communicate and also their administration seems to be efficient.
41	We've had a problem with their meters in the past, but everything is fine now.
42	Conlog catalogues are user friendly and provide various product range that Conlog offers
43	I am Ok with Conlog product
44	I don't really get involved with Conlog. The electricity section deals with them all the time. I do the tariffs. As far as I know we don't have problems with their products.

45	Conlog's products are easy to install.
46	My concern is that the split meters seem to be affected by a small surge or lightning.
47	The meters are user friendly for end users. They are easy to install. The meters are reliable - we experience very few problems. They are also tamper proof. We are currently busy with Conlog wireless meters which have given a few problems. Conlog listened to us and have improved the meter according to our needs. I have a lot of contact with Conlog and it is a professional company to deal with.
48	No problem with availability of catalogues
49	It is the only product that we use, we have standardised to use Conlog BEC23 product which is widely used by many municipalities in rural areas. The only problems that we have with Conlog are in terms of availability and delivery of their BEC41 product which they are phasing out.
50	Installation friendly products
51	Their service has definitely improved.
52	It's a good product and I get very good support from the Conlog guys. I also really enjoyed it when they sent us on training to Durban and I'm hoping that they do that again.