



**INVESTIGATING THE PERCEPTIONS OF YOUNG ADULTS ON THE SERVICE
QUALITY OF CELL PHONE NETWORK PROVIDERS**

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AND

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DECLARATION

I, **Aqhama Gxotiwe**, declare that this treatise entitled '**INVESTIGATING THE PERCEPTIONS OF YOUNG ADULTS ON THE SERVICE QUALITY OF CELL PHONE NETWORK PROVIDERS**' is my own work, that all the sources used or quoted have been indicated and acknowledged by means of completed references, and that this treatise was not submitted by me for a degree at another university.

Aqhama Gxotiwe

Date: 28 October 2019

I, **Thabani Ngwenya**, declare that this treatise entitled '**INVESTIGATING THE PERCEPTIONS OF YOUNG ADULTS ON THE SERVICE QUALITY OF CELL PHONE NETWORK PROVIDERS**' is my own work, that all the sources used or quoted have been indicated and acknowledged by means of completed references, and that this treatise was not submitted by me for a degree at another university.

Thabani Ngwenya

Date: 28 October 2019

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EXECUTIVE SUMMARY

The cell phone network provider industry is of paramount importance to individuals and businesses alike. On a daily basis, people use the products and services of this industry to keep in touch over long distances. The industry provides the digital and mechanical infrastructure to ensure that communication through mobile devices is both efficient and enjoyable. This study was an investigation of the perceptions of young adults on the service quality of cell phone network providers. Its objectives were achieved by determining the influence of predetermined variables on the service quality of South Africa's four main cell phone network providers, namely, Vodacom, MTN, Cell C and Telkom.

In order to get a better understanding of the study, the researchers conducted an extensive literature review on the subject matter, in particular, the independent variables that influence service quality. Literature sources provided four main variables that influence service quality in the cell phone network provider industry, namely, perceived security, customer satisfaction, intent for continued use and perceived connectedness. It was revealed during the literature review, that operators in the cell phone network provider industry are faced with numerous challenges as they strive to attract and retain young adult subscribers. The industry was also discovered to be very competitive, with cell phone network providers looking to edge ahead of their market rivals through investment in research and development as well as cutting edge technologies. The key technical terms of the study were also subjected to scrutiny. Service quality, in particular, was found to be a multifaceted and abstract construct that takes into account numerous customer preferences in arriving at a conclusive opinion about a product or service.

The overarching paradigm of the study was positivistic and, therefore, quantitative methods of statistical analysis were used to evaluate the primary data. A self-administered Likert-scale questionnaire was used to collect primary data from respondents. The sample, comprising of young adults between the ages of 18 and 25 inclusively, was drawn from Nelson Mandela Bay residents. The researchers then tested the validity of the primary data using Exploratory Factor Analysis (EFA) and its reliability using Cronbach's alpha coefficient. Thereafter, Pearson's product correlations and multiple regression analysis were used to assess the strengths of the relationships between the variables. Descriptive statistical tests were also carried out by determining the means and standard deviations in the distribution of the data. Subsequently, the researchers analysed the comments given by the respondents about their cell phone network

providers by identifying consistent terms and classifying them into complaints and recommendations.

It was determined from the empirical results that the independent variables were not equally weighted in importance to the respondents in influencing their service quality perceptions. As a result, some of the variables were rejected through statistical analysis. Further findings revealed that respondents believe that perceived connectedness and customer satisfaction are key factors in determining the service quality of cell phone network providers. Pearson's product correlations and multiple regression analysis revealed that customer satisfaction has a greater impact on service quality than perceived connectedness. Most respondents expressed that the costs charged by their cell phone network providers were excessive and that the level of connectivity offered was not good enough, while fewer respondents expressed that their cell phone network providers were limited in their service offering, were inaccessible, had poor security and had service consultants with poor product knowledge and customer care.

After the empirical analysis, the researchers were better positioned to make recommendations for the improvement of the service quality of cell phone network providers. Firstly, the costs of tariffs must be reduced. This must be achieved without compromising the quality of the network. South Africa's tariffs were found to be generally higher than those of other African states. Secondly, an improvement in the network speed was recommended. This was cited due to the network problems experienced by respondents during peak hours and in remote areas. Thirdly, an improvement in the customer care and product-knowledge of service consultants was recommended to increase the customer satisfaction of young adult subscribers. Lastly, the researchers recommended diversification of the product and service portfolios of cell phone network providers in order to give subscribers more options. One way to achieve this is by varying the data packages that subscribers can choose from, thereby affording subscribers multiple options to choose from depending on their financial situation.

The study not only contributes to the body of literature on cell phone network providers, but also assists in the making of key strategic decisions among industry role players. Such decisions may include, for instance, the time and resources allocated to the training of service consultants to improve the customer experience or which types of software packages to develop. Ultimately, this study makes cell phone network providers better equipped to accurately profile their young adult customer base and design products and services that efficiently meet their needs.

CHAPTER 1: PROPOSAL

1.1 INTRODUCTION AND BACKGROUND TO THE STUDY

Young adults are constantly in touch with their friends, families and colleagues. The advent of mobile phones, with their numerous applications and frenetic technological evolution has made it virtually impossible for them to keep away from their devices for more than a few minutes at a time (Lepp, Barkley & Jian Li 2017:144). Plummer, Apple, Dowd and Keith (2015:46) observe that these little gadgets permeate every aspect of life and pervade even in the most unlikely times and places with their frequent chimes and sometimes annoying ring tones. Clearly, this constant connectedness through mobile phones is of profound importance to young adults as it influences their state of mind and behaviour in more ways than they are aware (Parasuraman, Sam, Yee, Chuon & Ren 2017:125).

The most significant role players in this connectedness are invaluable network providers, without whom there would be no communication on mobile phones and other similar devices whatsoever. Young adults point out that there is an actual need to have a fully functional cell phone or tablet as these are the means by which they keep in touch, keep in the know and keep safe (North, Johnson & Ophoff 2014:115). In fact, Poushter (2016:7) states that South Africa has the highest tele density in Africa and at the fore of this use are young adults.

According to Ojiaku and Osarenkhoe (2018:480) over and above the mobile device it is the crucial choice of a network operator that will meet consumers at their points of need. These devices can only come to life if an active network is available because they rely heavily on broadband, without which their ownership would be extremely frustrating (Vorderer, Krömer & Schneider 2016:695). Network providers are all too aware of the importance of providing excellent broadband for their young subscribers. This is because 92.4% of South African young adults and children between the ages of 18 and 25 have ownership or easy access to a mobile phone (Porter, Hampshire, de Lannoy, Bango, Munthali, Tanle, Abane & Owusu 2018:544).

Cell phone network providers are therefore, in fierce competition to provide the most alluring price plans and services for their young subscribers. As stated by Mack (2014:618) broadband speed is one of the factors that influences the user experience of clients. Vodacom Group Limited has in its 2018 Integrated Report prioritised the ultimate user experience for its young subscribers as key to its Vision 2020 strategic goals (Vodacom Group Limited Integrated

Report 2018:12). Since young adults are known to be impatient yet highly demanding, network providers have gone as far as offering packages specifically geared for the young adult's niche with a view to establishing long-standing customer relationships (Mostert & Kruger 2012:41).

South Africa is known to offer some of the costliest network services in Africa, ranking 35th out of 49 in Africa (Mothobi, Gillwald & Rademan 2018:2). South African cell phone network providers, namely Vodacom, MTN, Telkom and Cell C employ various aides from their marketing toolbox in order to win over young subscribers. Their product packages are aimed at ensuring that young adults have the best user experience at the most affordable costs.

1.2 PROBLEM STATEMENT

Mothobi *et al.* (2018:6) observe that South African cell phone network providers are frequently under heavy criticism for exorbitant service costs that are not justified by their overall service quality. Shieh, Wu, Huang (2010:279) define service quality as the ability of a service provider to meet its customers' perceptions. According to Valodia, Klaaren and Roberts (2017:137) there are cell phone network providers in some countries that offer a better overall user experience at a much cheaper price than in South Africa. Ojiaku and Osarenkhoe (2018:480) posit that service quality consists of technical and functional aspects. The technical aspect relates to the output of the service, whereas the functional aspect relates to how user-friendly interacting with the network operator is. Good service quality, therefore, consists of the optimum interaction of both parameters in meeting users' needs. This creates the possibility of market space in South Africa that could potentially be exploited by foreign cell phone network providers

Fraser (2018:12) identifies the charging of out-of-bundle rates against airtime as a major contributor to the service quality perception of some cell phone network providers. This is because customers often have their airtime balances used up unintentionally. For unemployed young adults, this is problematic because it quickly depletes their call balances. Fraser (2018:12) further states, for instance, that customers who frequently buy small data bundles are highly disadvantaged by this lack of restrictions.

At the fore of the service quality debate is the involvement of the Independent Communications Authority of South Africa (ICASA) in advocating policies that ensure the provision of sufficient value-for-money services by cell phone network providers. Vodacom has come

under scrutiny for not allowing the rollover of unused data bundles on a month to month basis. Naude (2018:428) has stated that this is not only an unfair practice but also a violation of Section 63 of the Consumer Protection Act, which stipulates that recharge vouchers may not expire until a period of three years has lapsed. Naude (2018:429) also notes that there is a service quality concern in the manner in which cell phone network providers structure their cell phone contracts, as they often lead to consumers being unaware of the full costs that they should pay.

Young adult consumers are very self-conscious consumers who like to keep up with trends and will often switch between cell phone network providers because they have few permanent loyalties to brands (Sasmita & Suki 2015:286). This view is supported by Huang, Lin and Phau (2015:1234) who posit that young adults are easily influenced by fads. In other words, they follow the trend. Another reason why they may discontinue use of a cell phone network provider is when they are dissatisfied with the level of customer service that they are receiving from the cell phone network providers (Quach, Jebarajakirthy & Thaichon 2016: 440). This also motivates a lot of the switching between network providers.

Cell phone network providers are therefore in a relentless push to ensure that their service quality is superior to that of their rivals. In an age when young adults between the ages of 18 and 25 spend a significant amount of their productive time on their mobile devices, cell phone network providers have the monumental task of creating and maintaining service quality that will attract and retain young adults (Vaterlaus, Patten, Roche & Young 2015:151). The challenge is in keeping up with a niche in the market that is easily influenced by ‘idol attachment’ (Huang *et al.* 2015:1235).

1.3 RESEARCH OBJECTIVES

The following primary and secondary research objectives have been formulated to address the research problem highlighted in the current study:

1.3.1 Primary objective

The primary objective of this study is to investigate the relationship between the service quality of cell phone network providers and the perceptions of young adults in Nelson Mandela Bay.

1.3.2 Secondary objectives

The following secondary objectives have been formulated to help address the main objective of this study:

- SO¹: To investigate the relationship between perceived security and service quality of cell phone network providers;
- SO²: To investigate the relationship between customer satisfaction and service quality of cell phone network providers;
- SO³: To determine whether intent for continued use is an indicator of good service quality of cell phone network providers;
- SO⁴: To investigate the relationship between perceived connectedness and service quality of cell phone network providers.
- SO⁵: To provide conclusions and recommendations based on the results to managers of companies in the cell phone network provider industry on how to improve their service quality to young adults.

1.3.3 Methodological objectives

The following methodological objectives have been formulated to help achieve the above-mentioned primary and secondary objectives:

- MO¹: To conduct a literature review on the importance of service quality in the cell phone network provider industry and to contextualise it to young adults;
- MO²: To develop a hypothesised model that reflects the relationship between the independent variables (perceived security, customer satisfaction, intent for continued use and perceived connectedness) and the dependent variable (service quality), from which hypotheses will be suggested;
- MO³: To determine the appropriate research methodology to be used in conducting this study;
- MO⁴: To develop an appropriate measuring instrument that will be used to empirically test the influence of the independent variables on the dependent variable;
- MO⁵: To source primary data from a predetermined sample of young adults between the ages of 18 and 25 in Nelson Mandela Bay, and to statistically analyse the data, as well as test the proposed hypotheses; and

MO⁶: To provide conclusions and recommendations based on the findings of this research, which could assist management of cell phone network providers to ultimately improve their service quality by adopting appropriate service quality practices.

1.3.4 Research questions and hypotheses

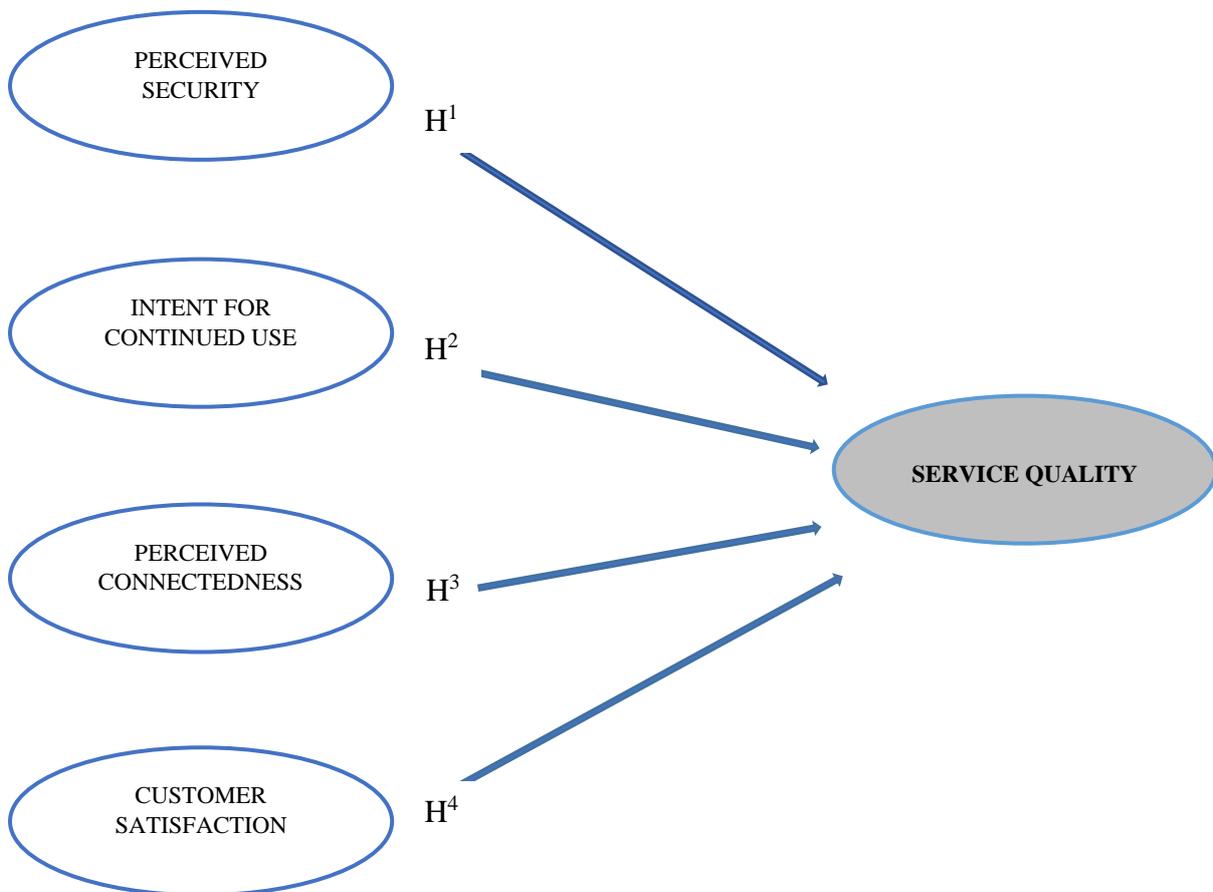
Based on the problem statement, primary, secondary and methodological objectives of this study, as well as the hypothesised framework, the following research questions are posed:

RQ¹: Does the level of the service quality indicators of cell phone network providers affect the perceptions of young adults in Nelson Mandela Bay?

RQ²: To what extent does the service quality of cell phone network providers, as measured by service quality indicators (perceived security, customer satisfaction, intent for continued use and perceived connectivity), affect the perceptions of young adults in Nelson Mandela Bay?

The research hypotheses for the current study are as follows:

Figure 1.1: Proposed hypothesised model



Source: Adapted from Park and Kim (2014:380)

The following research hypotheses are obtained from Park and Kim (2014:380) and will be employed in the current study in the context of the service quality of cell phone network providers.

H¹: There is a significant relationship between perceived security and service quality.

H²: There is a significant relationship between intent for continued use and service quality.

H³: There is a significant relationship between perceived connectedness and service quality.

H⁴: There is a significant relationship between customer satisfaction and service quality.

1.4 BRIEF LITERATURE REVIEW

Park and Kim (2014:380) identify several service quality indicators in their service quality model. The researchers have adapted this model and identified four key indicators that are applicable to the cell phone network provider industry, namely, perceived security, perceived connectedness, customer satisfaction and intent for continued use.

1.4.1 Service quality

According to Parasuraman, Zeithmal and Berry (1988) service quality refers to how efficiently a service provider meets customers at their points of need. Parasuraman *et al.* (1988) posit a service quality model that stands as a yardstick against which service providers can evaluate themselves in their efforts to provide the best services. This model, known as SERVQUAL, takes into account five factors when determining the level of service quality, namely, reliability, responsiveness, assurance, empathy and tangibles. This model is also advocated by Su, Swanson and Chen (2016:83) who single it out as a comprehensive framework for measuring the efficiency with which a service is provided.

Other scholars, however, are critical of this service quality concept, citing its inherent limitations and instead advocate the Nordic model by Grönroos (1984:40). This model defines service quality generically by pointing out that it is what the consumers receive and how they receive it (Grönroos 1984:37). In addition, Grönroos (1984:38) points out that the perception of service quality that consumers of a product have is contingent on the representations made by the service quality provider about the level of service a consumer might expect. For instance, sales and marketing campaigns that oversell a product or service might lead to poor perceptions if they do not live up to expectations (Grönroos 1984:39).

Grönroos (1984) and Parasuraman *et al.* (1988) seem to agree that service quality involves managing expectations of customers effectively so that the products and services delivered are perceived in a good light. A more recent service quality model is proposed by Brady and Cronin (2001:37) who state that service quality is the overall impression that a consumer has about a product or service. However, the complexity of people's decision-making habits needs to be accounted for by recognising factors such as the waiting period, design aspects, interaction with the service provider and the craftsmanship embodied in the product or service. It is clear therefore, that service quality is multifaceted and involves accounting for numerous parameters in efficiently meeting customer expectations. In this study, the researchers have adapted the model by Park and Kim (2014:380) to identify service quality factors relevant to cell phone network providers.

Moreover, the participation of customers in the service offering also improves the customer's perception of the service quality (Dunlap 2015:483). For instance, Vodacom 4 Less offers customers the opportunity to choose the type of tariff plan they want and that gives customers a sense of control over the quality that they receive. This creates a higher service quality perception (Vodacom 2019).

1.4.2 Perceived Security

In respect of perceived security, Colobran (2016:2) explains that it is the feeling of trust that a user has with a piece of technology, especially where the said user has provided confidential information that will be stored or processed online. The fear that users have is that their private information might be accessed by unauthorised third parties who might use it to prejudice the user, for instance a bank account number provided to an online payment portal (Yang, Liu, Li & Yu 2015:258).

According to Khalilzadeh, Ozturk and Bilgihan (2017:470) companies that use a technological interface will most likely face the challenge of creating trust in the digital spaces of interaction. It is entirely understandable that customers may initially feel a lack of perceived security when interacting through digital space with a cell phone network service provider because criminals who commit cybercrimes are generally more difficult to locate and apprehend (Furnell, Emm & Papadaki 2015:5).

1.4.3 Perceived connectedness

Hsiao and Chen (2016:21) define perceived connectedness as the feeling of constantly being in touch with other people through a remote device. Young adults, in particular, use the greatest part of the time spent on the internet creating and maintaining connectedness (Siddiqui & Singh 2016:2319). According to Siddiqui and Singh (2016:2319) of the total time spent online, 35.7% of it is attributed to connectedness in one form or another by means of social media or blogs. This excludes the use of emails. In order for people to feel connected to each other, there must be a relationship of trust between a cell phone network provider and its users (Hsiao & Chen 2016:22). Perceived connectedness is essential in creating a sense of belonging among young adults and it is not unusual anymore for them to meet and make friendships online (Kardos, Unoka, Pléh & Soltész 2018:85).

1.4.4 Customer satisfaction

Customer satisfaction is defined as the extent to which users of a product or service are fulfilled by the product or service (Saeidi *et al.* 2015:343). Customers of cell phone network providers are likely to change to a different cell phone network provider when their service expectations and needs are not met (Adebiyi, Shitta & Olonade 2016:1). Since young adults spend a significant amount of time on social media, customer satisfaction is of paramount importance to them (Mostert & Kruger 2012:41). Social media has made information about companies and their product offerings more accessible to consumers and that has resulted in stronger buyer-seller relationships. Furthermore, social media is serving as a platform where buyers and sellers can build fundamental relationships and where customers can make their voices heard (Agnihotri, Dingus, Hu & Krush 2016:172). Vodacom, for instance, has included as part of its product offering social tickets, which improve the quality of interaction of its users on social media (Vodacom 2019).

1.4.5 Intent for continued use

Hsiao and Chen (2015:343) posit that the decision from customers to continue using products and services is highly influenced by how well their expectations are met. There is a direct relationship between how much customers enjoy the product or service and whether they decide to continue using it (Oghuma, Libaque-Saenz, Wong & Chang 2016:37). When customers buy products and services with specific pre-conceived expectations, as soon as these products fail to meet their expectations, they get demotivated to continue use (Chung, Chun & Choi 2016:35). Tseng (2015:87) supports this view and states that when consumers know that

they can get the help that they require when they need it, they are more likely to continue with the use of the products or services in question.

1.5 RESEARCH DESIGN AND METHODOLOGY

This study will employ quantitative research design where the researchers will make use of a descriptive research method.

A quantitative research approach will allow for more efficiency when testing the hypotheses that have already been assumed in respect of the study. The researchers will remain independent of the study throughout the process and refrain from providing their personal opinions as facts, using credible, previously published work to build up the study. Well thought out questionnaires constructed from the variables in the hypothesis will be used to test the validity of the hypotheses. The results of the surveys will then be analysed statistically and presented using statistical methods (McCusker & Gunaydin 2015:538).

This approach will allow for effective statistical analysis to be done and will be a suitable tool to analyse data from many respondents. The data will be collected using a carefully constructed questionnaire as the research instrument. It will be inclusive of questions which will assist in determining the relationship between the dependent variable (service quality), and the pre-determined independent variables (perceived security, customer satisfaction, intent for continued use and perceived connectedness). The questionnaires will be administered to young adults between the ages of 18 and 25 in Nelson Mandela Bay. Their confidentiality will be honoured in this process as their names will not be included in the questionnaire. This will in turn allow for them to respond honestly.

The chosen method will enable the researchers to find out the perceptions of young adults on the service quality of Vodacom, Cell C, MTN and Telkom by testing the hypothesised model adapted from Park and Kim (2014:380). After statistical analysis is done, conclusions and recommendations will be drawn from the study. In order to successfully address the research objectives of this study, the research is divided into two categories, namely secondary and primary research.

1.5.1 Secondary research

Secondary data is data that is obtained from the findings of another researcher who used it for a different purpose (Johnston 2017:619). Walliman (2017:69) asserts that it is data that has been collected and interpreted on the basis of a previous study, however its reliability is lower than that of the primary data. According to Struwig and Stead (2017:82) common examples of secondary data sources comprise journal databases, company and institutional websites, business reports as well as state publications. Secondary research, therefore, consists of the analysis of what is already known, with a view to integrating such foreknowledge into a new study and drawing meaningful conclusions (Johnston 2017:620).

The researchers will conduct an extensive literature review to identify the perceptions of young adults regarding the service quality of cell phone network providers operating in South Africa. This will be done in order to achieve the primary objective of the study. The secondary research of this study will employ the use of research that has been previously conducted by Park and Kim (2014), Ojiaku and Osarenkhoe (2018) and Porter *et al.* (2018).

Furthermore, the researchers will utilise the library facilities at the Nelson Mandela University to access international databases such as Emerald and Sabinet, which will be used as credible search engines for the purposes of secondary research. Secondary information will be gathered on cell phone network providers and the relationship between service quality and the independent variables of the study. The relevant secondary sources obtained will form the basis for the proposed hypothesised framework in Figure 1.1.

1.5.2 Primary research

According to McCusker and Gunaydin (2015:538) primary research involves controlling the manner in which data is accumulated, with the intention of deriving meaningful information from it. In this study, the researchers will make use of questionnaires as a research tool for obtaining primary data. In conducting the primary research for this study, the researchers will present an overview of the research design and paradigm adopted, the sampling techniques and data collection methods deemed appropriate for the study. The measuring instrument will also be presented, along with the data analysis methods that will be employed.

1.5.2.1 Research design, paradigm and methodology

Hussein (2015:4) defines a paradigm as an underlying philosophy that has a cultural context to it, which directs the researcher in their enquiry. This definition concurs with that of Antwi and Hamza (2015:215) who state that a paradigm is a collective mindset among a group of scholars that guides their method of acquiring information. Bernard (2017:24) identifies two prominent paradigms that may be used as a basis for enquiry, namely, positivism and interpretivism. According to Hogain (2018:17) the positivist paradigm leans heavily on cause and effect relationships when explaining people's behaviour and uses strict rules in its interpretation of experimental data. Interpretivism, on the other hand, is predicated on the belief that merely knowing an outcome will not suffice. Further enquiry must be made into the subject under investigation by allowing room for reasons, thoughts and feelings to be expressed (Kivunja & Kuyini 2017:33).

The study will make use of the positivist paradigm, which forms the basis of quantitative research. According to McCusker and Gunaydin (2015:538) quantitative research is a method of enquiry that aims to categorize and enumerate data in order to explain phenomena. As such, this method is non-subjectivist and focuses more on facts. According to Rahman (2016:102) the positivist paradigm is suitable where researchers want to collect survey data, conduct tests and do statistical analysis.

Conversely, qualitative research comprises of rich data that is collected from a few participants, allowing them to express their subjective thoughts, feelings and opinions (Hussein 2015:8). Interpretivism forms the basis of qualitative research. This study, however, will not make use of this method because the researchers deem it time consuming under the stipulated time frame for completion of the study. Also, the open-endedness of the nature of the data gathered from this method makes it subject to different interpretations.

There are numerous approaches at the disposal of researchers that can be used for quantitative enquiry. Struwig and Stead (2017:6-8) identify exploratory, descriptive, experimental and quasi-experimental research techniques as useful aides in the toolbox of quantitative enquiry. An exploratory research method aids the researcher in constructing a research question that will be key in addressing a problem about which limited information is available. That is, there is not much information published about it. Furthermore, the sample used in the exploratory research method is also minimal (Struwig & Stead 2017:6). Struwig and Stead (2017) identify

descriptive research as a means of carrying out quantitative enquiry. This method seeks to accurately detail an occurrence to the reader by addressing how or why the occurrence has taken place (Nassaji 2015:129). An integration of a positivistic research paradigm and quantitative research methodology will be used in this study, and a descriptive research approach will be adopted. Consequently, the researchers will be able to apply a statistical model to investigate a large number of respondents and analyse the data (Nardi 2018:11).

1.5.2.2 Population, sampling and data collection

A research population comprises of every individual who is eligible for selection under the incumbent investigation (Miller 2017:16). Chow, Shao, Wang and Lokhnygina (2017:7) agree with this definition by theorizing that a population includes everyone who meets the criteria described in the hypotheses of a study. For the purposes of this study, the research population consists of all young adults in the Nelson Mandela Bay Municipality. However, because it is unrealistic to test all young adults aged between 18 and 25 in Nelson Mandela Bay within the designated time for this investigation, a sample will be selected from the population.

According to Chow *et al.* (2017:7), a sample consists of individuals drawn from the population, who are representative of the population, and on whom the testing of the hypotheses will be carried out. Two types of sampling techniques are recognized by researchers such as Etikan, Musa and Alkassim (2016:1) and MacInnis, Krosnick, Ho and Cho (2018:707) namely, probability sampling and non-probability sampling. Probability sampling is where a sample is selected from the population in such a manner that there is an equal chance of every individual being picked for testing (Etikan *et al.* 2016:1). In other words, before the selection, no one in the population stands zero chance of becoming a respondent. Non-probability sampling, on the other hand, involves the use of a biased mechanism in the selection of the sample (Vehovah, Toepoel and Steinmetz 2016:22). In other words, the respondents eventually picked for testing do not stand an equal chance as the rest of the population.

Etikan *et al.* (2016:2-3) identify two non-probability sampling techniques, namely convenience and purposive sampling. This study will make use of a convenience sampling technique to select the sample. Convenience sampling is where the researcher elects to make use of members of a population who are within easy reach or willing to participate (Etikan *et al.* 2016:2). The researchers deem this technique to be appropriate under the circumstances, as the research will

be conducted in the Nelson Mandela Bay metro where there are a lot of young adults and will assist in reducing the cost of conducting the research.

Young adults at Nelson Mandela Bay will be approached by researchers and self-administered questionnaires will be handed out to willing respondents. Sufficient time will be given for them to respond, after which the researchers will collect the questionnaires for analysis at a later stage of the research.

1.5.2.3 Design of the measuring instrument

In order to achieve the objectives of the study, it is very important to ask the relevant questions. A questionnaire that is properly constructed is crucial to this end. If the questionnaire is not designed in a well thought-out manner, the results gathered from the respondents could jeopardise the study (Brace 2018:1). According to Patten (2016:2) questionnaires yield findings that make it easier for researchers to arrange and enumerate data in tables.

The research instrument that will be employed by the researchers in this study is a self-administered questionnaire. A cover letter will be included in the questionnaire, giving a brief explanation of the purpose of the study and an indication of the regard for the confidentiality of all respondents. Instructions on how respondents are to complete the questionnaire will also be included, along with definitions of the relevant technical terms where appropriate. The structure of the questionnaire will be such that all four of the independent variables and the dependent variable will be represented by their fair share of questions under Section A. Section B will allow for respondents to make brief comments, while Section C will consist of the respondents' biographical details. The cover letter will also stipulate what will be done with the information at completion of the study, offering respondents the opportunity to indicate if they would be willing to allow the researchers to use any of their data for future research. Along with the aforementioned, an indication will be given that the study is conducted under the Department of Business Management of Nelson Mandela University.

1.5.2.4 Data Analysis

After the primary data has been collected, it will be evaluated using various analytical tools. Firstly, the data collected will be captured and organised using Microsoft Excel, after which Statistica software will be used to analyse the data. Struwig and Stead (2017:136) advocate the necessity of research data to be both reliable and valid. The data collected must be valid, that

is, it must reflect accurate findings in respect of the investigation (McCusker & Gunaydin 2015:539). Chaplin, Cook, Zurovac, Coopersmith, Finucane, Vollmer and Morris (2018:403) state that there are two types of validity, internal and external validity. Chaplin *et al.* (2018:403-404) further state that internal validity is the assurance of the observer as to how much of the outcome is influenced by the cause, whereas external validity is the extent to which investigative findings can be extrapolated to the bigger population from which a sample is drawn. The researchers will test the validity of the research data using Exploratory Factor Analysis (EFA).

Secondly, the data must be reliable, that is, the methodology adopted in conducting the study and the results yielded must be dependable if the study is replicated (Noble & Smith 2015:2). The reliability of the data will be assessed using Cronbach's alpha coefficient. The Cronbach alpha coefficient is used to inspect the reliability of the Likert scale and the researchers will apply it to this effect (Vaske, Beaman & Sponarski 2017:163). According to Vaske *et al.* the Cronbach alpha coefficient is an effective tool for analysing responses that are given on Likert-type scales such as 'strongly agree' to 'strongly disagree'.

Thirdly, descriptive statistical analysis will be carried out. This will entail the translation of numerical data into information that is simple to read and easy to understand by someone other than the researcher (Jackson 2015:109). Jackson also states that this involves the use of statistical measures such as central tendency, width distribution and the shape of the distribution. From the statistical analysis the researchers will make use of the mean, which is the calculated average, as a means of deducing patterns and identifying trends within the data (Crowder 2017:2).

Lastly, the researchers will measure the strength of the relationship between the dependent variable and the independent variables. Two analytical tools will be used to this end, namely, Pearson's product correlations and multiple regression analysis. According to Ho, Plewa and Lu (2016:2199) multiple regression analysis is ideal in determining the correlation between related variables. The researchers will make use of these statistical tools to assess the accuracy of the hypotheses of the study.

The comments from Section B will be grouped according to the different sentiments of the respondents that the researchers identify. These sentiments will be determined by common key words used by the respondents in their responses.

1.6 SCOPE AND DEMARCATION OF THE STUDY

This study will be limited to Nelson Mandela Bay Municipality. One of the reasons for the limitation to this geographical area is that conducting the study by testing the entire population of young adults is superlative and unrealistic. It, therefore, must be limited because of time constraints, the potential costs of testing an entire population as well as reachability and sampling challenges anticipated. This will allow for ease of access in the data collection process. The study is also limited to young adults between the ages of eighteen and twenty-five because studies show them to be very opinionated and sensitive to service quality (North *et al.* 2014:115). The study will focus on the four major South African cell phone network providers which are Vodacom, MTN, Cell C and Telkom. This is because respondents are more likely to identify with at least one or more of these cell phone network providers (Porter *et al.* 2018:544).

1.7 STRUCTURE OF THE STUDY

The researchers have presented their study in the following format:

Chapter one consists of an introduction, problem statement, primary, secondary and methodological objectives, research question, research design, hypotheses and a brief literature review. The introduction and problem statement give insight into the nature of cell phone network providers and the challenges pertaining to service quality in this industry. A background of the research is highlighted by pointing out problems associated with the services of cell phone network providers. The objectives outline the means with which the research will be undertaken. The research design details how the researchers will go about answering the research question and ultimately testing the hypotheses. The literature review provides definitions and brief explanations of key concepts and technical terms.

Chapter two will provide a literature review on the service quality of cell phone network providers. In this chapter, the researchers will discuss factors that influence the perceptions of young adults in respect of service quality as identified by Park and Kim (2014), namely, perceived security, customer satisfaction, intent for continued use and perceived connectedness. Thereafter, the importance of service quality in the cell phone network industry will be emphasized.

Chapter three will focus on the research design and methodology. The researchers will give an exposition of the logic behind the chosen methodology. Here, the researchers will go in-depth on the sampling technique adopted for the study, the measuring instrument that will be employed in data gathering, as well as the method elected to collate primary data. At the end of the chapter, statistical techniques will be discussed.

Chapter four will present the empirical results of the study. In addition to this, the researchers will outline the findings of the tests conducted on the validity and reliability of the investigation.

Chapter five will give a conclusion to the study by briefly summarising the previous chapters, along with a synopsis of the key findings of the literature review and empirical investigation. Moreover, the contributions and limitations of the study will be highlighted, and recommendations for future research will be postulated.

1.8 CONTRIBUTION OF THE STUDY

The study will contribute to the knowledgebase of cell phone network providers in South Africa, informing them of the standard of service quality that is expected by young adults and the ways in which they can improve their service. Young adults typically spend an average of six hours a day on their mobile devices and cell phone network providers that offer them the best service quality will be strategically positioned in the market to benefit from this lucrative user group (Roberts, Pullig & Manolis 2015:13).

Managers and directors of cell phone network providers will be better advised to revise their strategic objectives to tailor their product offerings and services in a manner that accurately meets the needs of young adults in South Africa. The findings of this study will be useful to technical experts, who will benefit from the input given candidly by the young users of their services. This will help them in redesigning their user interfaces to improve the overall customer experience.

The study will contribute to the academic base of knowledge, particularly insofar as the understanding of service quality is concerned. Academics will benefit from the input from young adults about how service quality must keep up with the technologically dynamic cell

phone network industry. Traditionally held theories about service quality, such as SERVQUAL (Parasuraman *et al.* 1988:14) and the Balance Theory (Carson, Carson, Knouse & Roe 1997:104) will be evaluated based on the findings of this study.

Additionally, it will give insight to young adults about the different facets of service quality. An extensive exposition of secondary sources will enable young adults to be informed about the service quality challenges experienced by cell phone network providers in their attempts to provide the best user experience. Some of the service quality problems are not entirely within the ambit of cell phone network providers, for instance, Telkom subscribers often experience connectivity problems due to electricity black outs (Telkom 2019). Moreover, in certain instances, malicious damage to property could be influential in affecting the level of service quality. Young adults' attention will be drawn to such matters, with a view to helping them understand that not all service quality concerns are a result of poor governance.

1.9 DEFINITIONS OF KEY CONCEPTS

With the study focusing on the perceptions of young adults on service quality of cell phone network providers, clear definitions of relevant terminology are presented in Table 1.1 below:

Table 1.1: Definitions of key concepts

Key Concept	Definition/Description	Sources
Perception	The overall opinion, evaluation and assessment that a customer has about a service.	Hafez and Akther (2017:143)
Service quality	In business and marketing parlance, this is the customer's sentiment about the extent to which a service or product can adequately meet the customer's needs and expectations.	Hult, Morgeson, Morgan, Mithas and Fornell (2017:38)

Table 1.1: Definitions of key concepts (ctd)

	The impression a customer has about whether a service is as valuable as it is made out to be.	Kiran and Diljit (2017:109)
	The amount of expertise that a service provider invests in a product or service in order to please and retain customers.	Kasiri, Cheng, Sambasivan and Sidin (2017:91)
Cell phone network provider	A company that specialises in the provision of telecommunications services to its clients, that is, the connection of people to each other and the access to services through wireless devices.	Vodacom (2018)
Young adult	An individual between the ages of 15 and 34. <i>Note: For the purposes of this study, the researchers will investigate respondents between the ages of 18 and 25.</i>	Statistics South Africa (2018)

1.10 RESEARCH STUDY TIME FRAME (2019)

The researchers have set out the study timeline objectives as follows:

Table 1.2: Research study time frame

DATE	ACTIVITY
11 February – 15 March	<ul style="list-style-type: none"> • Preparation of the research proposal • Submission of final draft to study leader
25 March	ASSESSMENT 1: RESEARCH TOPIC, PROBLEM STATEMENT, RESEARCH OBJECTIVES AND SHORT RESEARCH DESIGN
18 March – 29 March	<ul style="list-style-type: none"> • Preparation and submission of second draft of the research proposal to study leader [literature review (secondary research) empirical investigation (primary research) research design, paradigm and methodology population, sampling and data collection design of the measuring instrument]
30 March – 7 April	<ul style="list-style-type: none"> • Refinement of proposal and corrections
8 April	ASSESSMENT 2: DRAFT RESEARCH PROPOSAL
15 April	<ul style="list-style-type: none"> • Submission of ethical clearance form
9 – 28 April	<ul style="list-style-type: none"> • Preparation of literature review and submission of draft to study leader
30 April – 5 May	<ul style="list-style-type: none"> • Refinement of literature review and corrections
6 May	ASSESSMENT 3: LITERATURE REVIEW
7 May – 20 May	<ul style="list-style-type: none"> • Preparation of proposed research design and submission of draft to study leader
21 May – 26 May	<ul style="list-style-type: none"> • Refinement of research design and corrections
27 May	ASSESSMENT 4: RESEARCH DESIGN
28 May – 4 June	<ul style="list-style-type: none"> • Preparation of methodology chapter and drafting of research instrument

Table 1.2: Research study time frame (ctd)

11 June	<ul style="list-style-type: none"> • Final submission of methodology chapter and questionnaire
12 June – 9 July	<ul style="list-style-type: none"> • Data collection and preparation of first draft of empirical results
10 July	<ul style="list-style-type: none"> • Submission of first draft of empirical results to study leader
5 August	<ul style="list-style-type: none"> • Submission of empirical data to study leader for discussion and analysis
6 August – 30 August	<ul style="list-style-type: none"> • Preparation and refinement of results chapter
2 September	<ul style="list-style-type: none"> • Submission of results chapter draft to study leader
3 September – 8 September	<ul style="list-style-type: none"> • Refinement of results chapter
9 September	<ul style="list-style-type: none"> • Final submission of results chapter
14 October	<ul style="list-style-type: none"> • Submission of full treatise to study leader
28 October	SUBMISSION OF FULL TREATISE TO MODULE COORDINATOR

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

The previous chapter outlined the introduction and background, problem statement, objectives, brief literature review and the research design and methodology of the study. The primary objective of the study is to investigate the predetermined variables that influence the perceptions of young adults in respect of the service quality provided by South African cell phone network providers. Before conducting an empirical investigation, the researchers will present an extensive literature review of the cell phone network provider industry.

In this chapter, the researchers will discuss the cell phone network provider industry by giving an overview of the industry, a background of the main role players in the South African cell phone network provider industry as well as their latest financial and operational performance results. An explanation of the importance of the perceptions of young adults to this industry will also be given, after which the challenges experienced by the main role players will be reviewed. A discussion of the hypothesised model for this study and its rationale will then follow. The technological advancements associated with cell phone network providers will subsequently be highlighted. Finally, the researchers will explore the future prospects of this industry by pointing out key developments currently taking place as well as those anticipated in future.

2.2 OVERVIEW OF THE CELL PHONE NETWORK PROVIDER INDUSTRY

The African continent is home to numerous cell phone network providers (Stork, Esselaar & Chair 2017:607-609). These companies are major contributors to the continent's economic and technological sphere and they constantly remodel themselves in a quest to increase their revenues, market share and competitive edge (Dike & Rose 2019:29). Some of the South African cell phone network providers have already gone a long way in achieving their objectives of becoming global market players. MTN for instance, operates in 21 countries globally and has a footprint in European and Asian markets, making it an easily recognisable brand (Sutherland 2015:471).

Cell phone network providers provide invaluable services for customers by being the intermediaries of communication through voice, text and data channels (Sutherland 2015:472).

In recent times, cell phone network providers have played a crucial role in the monetary system by facilitating electronic monetary transactions (Gosavi 2018:343). Ngugi and Komo (2017:117) state that in Africa this service was introduced by Vodafone through its Kenyan partner, Safaricom in 2007 and termed M-PESA. According to Ngugi and Komo (2017:119) this mobile money system has been a resounding success. Moreover, cell phone network providers are crucial in a transformational marketplace where the evolution of communication takes place at an unprecedented rate (Curwen & Whalley 2018:26). According to Ghanbari, Laya, Alonso-Zarate and Markendahl (2017:137) in today's dynamic business world, enterprises that lag due to inefficient information systems stand to lose out on lucrative growth opportunities. Cell phone network providers, therefore, help bridge the information gap that could be ruinous to the bottom lines of companies as they facilitate the flow of information between companies, clients, suppliers and contractors (Marković Vujičić, & Kyaruzi 2018:18-19).

Cell phone network providers are also important in the personal affairs of individuals. Kim and Kim (2019:241) posit that human beings by their nature, are social creatures who thrive on being connected to others. Cell phone network providers play a significant role in this connectedness by allowing for communication that transcends time and space (Kim & Kim 2019:3). Moreover, young adults, in particular, have expressed that they feel safer whenever they are confident that they are connected to their mobile network (North *et al.* 2014:115). According to Hampshire, Porter, Owusu, Mariwah, Abane, Robson, Munthali, DeLannoy, Bango, Gunguluza and Milner (2015:93) a very notable development involving cell phone network providers is their increasing involvement in providing accessible medical health channels of communication for people in remote areas, where it was previously difficult to request emergency medical services. Hampshire *et al.* (2015:93) further state that young people find the ability to rely on cell phone network providers in such times very important, especially because it brings a level of modernity to their rural living.

According to Lai and Hong (2015:725) young adults are constantly bombarded by a barrage of information and, as such, their learning has transitioned from conventional paper and pen scholarship to digital and information-systems based tutelage. Khan, Al-Shihi, Al-Khanjari and Sarrab (2015:911) support this point of view by advocating the use of mobile learning platforms facilitated by cell phone network providers, allowing for collaboration among learners and educators at different institutions. According to Khan *et al.* (2015:911) cell phone network providers are already involved in creating interconnected systems of teaching and

learning in technologically advanced countries such as South Korea, United States, Japan and Singapore. Yousafzai, Chang, Gani and Noor (2016:785) theorize that this shift towards mobile learning is a significant step towards alleviating the overall costs of learning in future for young adults who are faced with the challenge of mobility in order to acquire an education.

2.3 THE MAIN ROLE PLAYERS IN THE SOUTH AFRICAN CELL PHONE NETWORK PROVIDER INDUSTRY

There are four main telecommunications companies in South Africa, namely, Vodacom, MTN, Cell C and Telkom. In this section, the researchers will present a brief background and description of each of the aforementioned cell phone network providers.

2.3.1 Vodacom

Vodacom Group Limited was founded in 1994 and is the largest cell phone network provider in South Africa, with a subscriber population of 103 million across all its markets, and a 4G network coverage of 80.1% locally (Vodacom Integrated Report 2018:1). The company operates in five other countries on the African continent, namely, Tanzania, Kenya, Democratic Republic of Congo, Mozambique and Lesotho (Aniche & Ukaegbu 2016:115). Vodacom has earned a reputation as the market leader in most of its markets and is widely regarded as a very innovative cell phone network provider (Khan 2016:5). Its major competitive edge over its rivals is its commitment to providing the ultimate user experience through consistently learning the weaknesses of its competitors, investing heavily in its software and network systems, employing the most qualified experts in the field and formulating a price structure that targets both high and low income earners (Senguo & Kilango 2015:129-130).

2.3.1.1 Vodacom's products and services

Vodacom offers tailor-made product and service solutions to companies and individuals. Previously, Vodacom services comprised of only landline and voice services. The company later differentiated into text and broadband services, and by 2011 served 50% of the market (Prakash 2015:21). Presently, the products and services offered to companies comprise of broadband and landlines, which provides companies with wireless internet connectivity and telephone lines; cloud and hosting, which provides companies with secure servers to store their sensitive information and intellectual property; mobile and voice, which provides companies with unique solutions to their wireless communication needs; tracking and monitoring, which

provides companies with Global Positioning System (GPS) enabled solutions to track their mobile assets in real-time (Vodacom 2019). A key element to the product and service offering of Vodacom is a commitment to integrate customers' views and suggestions about how to improve the service quality. Koc, Ulukoy, Kilic, Yumusak & Bahar (2017:391) term this business principle *customer participation* and posit that it is an effective tool for improving service quality perceptions.

2.3.1.2 Vodacom's role in sustainability

Vodacom is involved in various community service projects through its Vodacom Foundation arm. According to Vodacom (2019) the Vodacom Foundation's main objective is to use the company's technological and innovative capacity to enhance the lives of underprivileged communities. Vodacom's Mobile Education programme, for instance, is aimed at providing technological teaching and learning aids as a means to improve access to information and enhance the learning experience of students. A further sustainability initiative of Vodacom is also noted by (Kaaya 2015:46) that Vodacom is actively involved in sport, where it sponsors football clubs with soccer boots, balls and Vodacom branded kits. Young adults who are unemployed are also catered for through the Vodacom Youth Academy's free skills development programme, which aims to empower students with tertiary qualifications or aptitude for Mathematics and Science. Also, Vodacom runs a bursary scheme which is an ongoing sponsorship initiative that awards 110 recipients with financial aid for their tertiary education annually (Vodacom 2019). Furthermore, Karaosmanoglu, Altinigne and Isiksal (2016:4161) credit Vodacom with having played a significant role in creating accessibility to telecommunications to disadvantaged communities through its community phone service initiative.

2.3.2 MTN

MTN Group Limited was also founded in 1994 and is the second largest cell phone network provider in South Africa on a market share basis (Khan 2016:1; Sutherland 2015:478). However, it has a total of 233 million subscribers in 21 countries that constitute its markets, making it eclipse its local rival Vodacom on a global scale (MTN Integrated Report 2018:4). White, Kitimbo and Rees (2019:66) agree that although MTN is runner up to Vodacom in the South African mobile network industry market it is the bigger cell phone network company across Africa and was the first to take its services outside the borders of South Africa. This cell phone network provider has a 4G network coverage of 33% in South Africa (MTN

Integrated Report 2018:27). Owusu and Duah (2018:9) assert that MTN's major competitive advantage lies in its ability to retain its users much longer than its industry rivals through a combination of attractive products and promotions as well as lower tariffs.

2.3.2.1 MTN's products and services

MTN's product and service offering consists of personal and business packages. Within its personal package, MTN offers voice minutes and data, MTN Top-Up and data only. Within its business package, MTN offers numerous tailor-made solutions for companies. These consist of cloud solutions, security, managed networks, enterprise mobility, unified communication and software solutions (MTN 2019). MTN is well known for the use of social media such as Facebook and Twitter to promote its products and services to customers, as well as filter reviews from customers and use them to improve on the service offering (Boateng 2016:444).

2.3.2.2 MTN's role in sustainability

MTN has a mobile learning initiative which aims to provide internet connectivity to students at campuses across various institutions of higher learning. This initiative, known as Digital Schools or the School Connectivity project, assists students by establishing computer-based learning centres to enhance the learning experience and productivity of students. According to Abdul-Hamid (2017:502) MTN is actively involved in the economic empowerment of disadvantaged communities by way of farming implements to cooperatives, motorised tricycles to paraplegics and MTN branded power banks to communities where electricity is unavailable. Moreover, Okpala (2016:205) credits MTN with having contributed to the development of school buildings and homes in disadvantaged communities, along with providing biodegradable recharge cards that are environmentally friendly. MTN has also embarked on building digital libraries in underprivileged communities to facilitate accessibility to learning (Chigbu, John-Okeke & Omekwu 2016:4). The company shows an interest in the healthcare sector by providing support to clinics and hospitals in the form free downloads of essential applications by healthcare professionals to aid them in the performance of their duties (Watkins, Goudge, Frances, Gómez-Olivé & Griffiths 2018:145). Young adults will find MTN's Students for the Advancement of Global Entrepreneurship start-up program to be a very useful initiative in equipping them with the necessary skills in light of the Global Entrepreneurial Revolution taking place. Entrepreneurs with disabilities are especially singled out to benefit from this initiative for equity purposes (MTN 2019).

2.3.3 Cell C

Cell C started its operations seven years later than its predecessors. Founded in 2001, this cell phone network provider reported a total active subscriber population of 16.3 million at the end of its 2017 financial year (Cell C Annual Results Presentation 2017:7). The total number of subscribers on Cell C's network, however, is not easily determinable because it is currently not listed on the Johannesburg Stock Exchange and is therefore not compelled to release such information to the public (Mothobi *et al.* 2018:2). Khan (2016:11) states that Cell C is the third largest of the South African cell phone network operators and pinpoints its lack of competitiveness against its local rivals to its relatively poor service quality. Despite this, Mothobi *et al.* (2018:5) state that Cell C has pledged to increase the investment in its infrastructure in order to compete successfully with Vodacom and MTN. In order to achieve this, Cell C will restructure its operations by releasing its third-party contractors and acquiring a new transmission system as this is envisioned to improve the quality and range of its network coverage (Mothobi *et al.* 2018:5).

2.3.3.1 Cell C's products and services

Cell C's service offering is comparable to that of MTN. Its products and services are designed for personal and business purposes. Personal services consist of voice contracts, data contracts, prepaid services and other bundles. Its business package consists of mobile voice, mobile data, value-added services, telecom expense management, wireless application service provider (WASP) services and corporate self-service (Cell C 2019). In 2012, Cell C had been noted for its role in competitive pricing when it reduced its call rates to 99 cents per minute, which prompted its competitors to react by making price cuts of their own. The 99 cents per minute product was eventually scraped and is no longer part of Cell C's product offering (Prakash 2015:47).

2.3.3.2 Cell C's role in sustainability

Cell C's approach to sustainability is to advocate the cause of young women by running empowerment initiatives specifically for the girl child (Sewchurran 2016:164). Matshane (2017:179) applauds the annual Cell C Take a Girl Child to Work Day® programme which seeks to expose young women to career opportunities available to them, giving them an opportunity to develop networks and receive mentorship. Additionally, an ongoing CellC*girl* Bursary Fund that gives financial support to 30 young women at universities and FET colleges is run by the company (Cell C 2019). In addition, as a means to give back to the community,

Cell C allows its subscribers to visit websites that it deems essential for free, namely, Careers24, iLearn, Scholars4Dev and BBC News among others. The Cell C Kindness initiative supports communities with food hampers and clothing. Cell C's employees are also involved in voluntary community service and Cell C facilitates this by offering them 3 days of annual paid leave in respect of this programme (Cell C 2019).

2.3.4 Telkom

According to Telkom (2019) Telkom SA Limited was founded in 1991 as a state-owned company when the Department of Posts and Telecommunications divested into three separate entities, namely Telkom SA Limited, South African Post Office Limited and The Department of Posts and Telecommunications. A part of Telkom's shares was later privatised through sales to Black Ginger Media LLC and Elephant Consortium (Telkom 2019). In 2009, Telkom embarked on its diversification objectives by selling its equity in Vodacom and founding 8ta, which was later rebranded as Telkom Mobile (Hawthorne 2018:376). The partly state-owned company had a 6% subscriber market share in 2017 (Makhura 2018:12). However, this subscription figure dropped to 5% in 2018 (Maseko 2018:24). By 30 September 2018, Telkom's subscriber population was 6.5 million (Telkom Interim Results Presentation 2018:7).

2.3.4.1 Telkom's products and services

Telkom offers products and services for three broad market segments, namely, mobile, home and business. The mobile market segment caters for individuals by providing Telkom branded phones and devices, contracts, prepaid services and low-cost data deals. The home market segment caters for the unique needs of families by providing internet packages that are inclusive of the entire household as well as telephone lines and modems. The business package provides companies with connectivity solutions that cater for unique operations of each company. These include mobile contracts for employees, wireless broadband and mobile devices (Telkom 2019).

2.3.4.2 Telkom's role in sustainability

Telkom conducts its sustainability programmes through its Telkom Foundation arm. There are 4 main areas of support that this foundation focuses on, namely, education, psychosocial support, employee volunteering as well as the Adopt-a-project scheme. In respect of its education programme, Telkom gives computers, provides Wi-Fi, furniture, educational material to learners and training for educators. The psychosocial programme is geared to equip

learners with the necessary knowledge to balance the mental and emotional aspects of their development through professional counselling sessions. An employee volunteering programme, Giving from the Heart, is also conducted on a regular basis, and allows employees to voluntarily donate a portion of their remuneration to charity (Telkom 2019). Despite all these commendable initiatives, Robb and Mondliwa (2018:19) discredit Telkom for being monopolistic in the South African telecommunications industry due to its close connection to the government and, therefore, policymaking bodies which give the company an unfair advantage in the market. This has hampered the emergence and growth of new companies within the industry (Madumi 2018:62). Employees also volunteer their time and skills by raising awareness about online safety, donating groceries, painting schools and donating academic material. A further initiative, Adopt-a-project, is another sustainability programme conducted by Telkom with the express aim of improving the Mathematics and Science skills of high school learners. Telkom does this by tapping into its core business infrastructure such as communications technology to aid learners in these problematic subject areas (Telkom 2019).

2.4 FINANCIAL AND OPERATIONAL PERFORMANCE OF SOUTH AFRICAN CELL PHONE NETWORK PROVIDERS

Cell phone network providers constitute some of the largest companies in the world and are for the most part profitable due to the invaluable services they provide (Asimakopoulou & Whalley 2017:64). In South Africa, Vodacom, MTN and Telkom are all listed on the Johannesburg securities exchange, while Cell C is currently unlisted.

Khan (2016:2-5) observes that there is a data revolution taking place in the cell phone network provider industry that is contributing substantially to the revenues of these companies. This is evidenced by the year-on-year revenue attributed to data and voice communication that has risen steadily between 2009 and 2017 for all four major South African cell phone network providers (Hawthorne 2018:374). Approximately 90% of young adults use internet-based applications, thereby, playing a significant role in the data revolution that is currently taking place (Perrin 2015:4). According to Sobaih, Moustafa, Ghandforoush and Khan (2016:297) the use of data among young adults extends beyond just their social media habits, but they are increasingly using data to carry out their academic assignments and research programmes. It is therefore clear that young adults play a major role in the revenue streams of cell phone network

providers. Another factor to consider is the surge in the number of young adults who own smartphones. Haug, Castro, Kwon, Filler, Kowatsch and Schaub (2015:299) observe that 98% of young adults who own mobile devices own smartphones, which primarily make use of data to run their applications. A comparison of the financial results and performance indicators of South African cell phone network providers is presented in Table 1.1 below.

Table 2.1: Financial and operational performance results of South African cell phone network providers for the 2018 year of assessment.

	VODACOM	MTN	CELL C*	TELKOM
Total number of subscribers (millions)	73.8	233	16.3	5.2
Year-on-year increase in subscribers	10.5%	7.3%	3.8%	30.2%
	R' billions	R' billions	R' billions	R' billions
Revenue	86.4	134.6	15.7	41.0
Capital expenditure	11.6	26.4	NA	7.9
Earnings before interest and tax (EBIT)	23.1	48.2	NA	10.5
Total expenses for the year	53.5	125	14.4	22.2
Net profit	15.6	9.6	(1.3)	3.1
Year-on-year increase in revenue	10.8%	1.3%	(0.1%)	0.1%
Capital expenditure as a percentage of revenue	13.4%	19.6%	NA	19.3%
	Cents	Cents	Cents	Cents
Headline earnings per share	923	337	NA	597
Dividend per share	815	500	NA	355

Source: Vodacom Integrated Report 2018; MTN Integrated Report 2018; Telkom Integrated Report 2018; Cell C Preliminary Unaudited Financial Information 2018.

**Cell C's published results not yet audited.*

According to the results of the 2018 year of assessment, Vodacom, MTN and Telkom were profitable, while Cell C incurred a net loss and, therefore, could not pay dividends to its shareholders. The reason for Cell C's net loss is a decrease in the revenue of prepaid airtime due to Cell C's price restructuring strategy, with a view to increase the volume of sales. This coupled with adverse conditions in the market and a drop in the sales of low margin yielding products and services such as voice and mobile data, contributed to the R1.3 billion loss reported for the 2018 financial year (Cell C 2019).

2.5 THE IMPORTANCE OF THE PERCEPTIONS OF YOUNG ADULTS

Hafez and Akther (2017:143) define a perception as the overall opinion, evaluation and assessment that a customer has about a service. In concurrence with this definition, Mmutle and Shonhe (2017:4) define a perception as a customer's thoughts or feelings about the manner in which a service is delivered. Cawsey and Rowley (2016:760) observe that all companies work hard to enhance their corporate image. According to Cawsey and Rowley (2016:761) corporate image is always treated as a matter of importance among large companies and it should be a priority for any organisation. Cell phone network providers are no different. Domfeh, Kusi, Nyarku and Ofori (2018:41) concur with this observation by identifying the lengths that cell phone network providers go to maintain and enhance their corporate image. In conjunction with this viewpoint, Boateng and Okoe (2015:308) further state that social media advertising is one of the means by which companies enhance their corporate image and that it is a potent marketing aide to reach out to young adults. However, Boateng and Okoe (2015:308) also warn that the potency of this marketing tool is two-fold, as it could easily lead to bad publicity if service quality expectations are not efficiently met.

Vaterlaus, Jones, Patten and Cook (2015:108) posit that young adults spend the largest portion of their days on social media. Young adults are, therefore, well placed to influence the perceptions of companies with whose brands they come into contact within social media spaces. According to Yamamoto, Kushin and Dalisay (2015:882) young adults often use social media platforms to voice their discontent and to vent out their dissatisfaction. It is, therefore, evident that a well-orchestrated social media campaign contributes positively to influencing the perceptions of young adults. Conversely, cell phone network providers have often been accused of overselling their products and services (Bell 2015:2). According to Ni, Shen and Zhu (2015:3) this is particularly evident where sales representatives are contracted to promote

an innovative product or service, as they tend to overly heighten customer expectations. Gönsch (2019:3) is of the opinion that overselling, if implemented successfully, poses the risk of creating intense desire for a product or service but in many instances leads to disappointment and consequently, poor customer perception. Since young adults are very trend sensitive, as they tend to keep up with the latest developments in social and technological spheres, where the expectation versus delivery gap is not adequately serviced, a company may suffer a loss of their trust due to poor perception (Vaterlaus *et al.* 2015:107; Stefano, Casarotto Filho, Barichello & Sohn, 2015:434).

2.6 CHALLENGES EXPERIENCED BY CELL PHONE NETWORK PROVIDERS

Petrova, MacDonell and Parry (2016:91) identify technological glitches and service failures as major challenges experienced by cell phone network providers. These challenges may be self-imposed due to negligence or reactive due to actions instituted against them and have the potential to adversely affect the service quality perceptions that current and prospective customers have about them (Liotou, Tsolkas, Passas, Merakos 2015:146). According to Karapantelakis and Markendahl (2015:27) the major challenge faced by cell phone network providers is the rapidly changing technological landscape, as this requires them to consistently upgrade their physical and digital infrastructure in order to meet the changing needs of business and individuals alike. Another challenge is mooted by Li, Samaka, Chan, Bhamare, Gupta, Guo & Jain (2017:20) who observe that that the current network structures, physical infrastructure and business systems do not have the capacity to support the innovative 5G broadband speed yet and this will pose massive integration challenges with the global digital infrastructure. Li *et al.* (2017:20) predict that the introduction of 5G networks will require cell phone network providers to incur huge capital outlays in order to remain competitive in local and international markets, which may present considerable risks.

Cell phone network providers are often plagued by lawsuits instituted against them by regulatory bodies, disgruntled former and current employees, industry competitors, government and other institutions or related parties in respect of their business and ethical practices (Granville & Irvine 2015:6; *Makate v. Vodacom (Pty) Ltd 2016 4 SA 121 (CC) 46-58*). The ownership of intellectual property, for instance, has come under scrutiny in the South African cell phone network provider industry. In *Makate v. Vodacom (Pty) Ltd 2016 4 SA 121 (CC) 46-58* as cited in Jafta and Wallis (2017) a disgruntled former employee contended that

Vodacom did not adequately compensate him for intellectual property that he claims to own in his personal capacity. This high-profile case is currently under review in the Constitutional Court of the Republic of South Africa and is popularly referred to as the Please Call Me saga (Muhlberg 2019:38).

Naude (2018:428) identifies Vodacom as a perpetrator of numerous terms and conditions which are deemed unfair to consumers by the Independent Communications Authority of South Africa (ICASA) and the National Communications Commission (NCC). According to Naude (2018:428-429) Vodacom is guilty, among its numerous alleged offences, of violating Section 63 of the Consumer Protection Act which stipulates that an airtime voucher that has not been redeemed may not lapse until a period of three years has expired. Eiselen (2016) cited in Naude (2018:427) reiterates the same legal position by expressing a concern about cell phone network providers' interpretation of the law. Eiselen (2016) cited in Naude (2018:427) clarifies that Section 63 has been misconstrued by South African cell phone network providers and that the three-year voucher validity period does indeed apply to airtime vouchers. In *Vodacom Service Provider Company (Pty) Ltd and Another v National Consumer Commission 2012*, two contentious matters among others, were raised against Vodacom, which also ostensibly applied to all South African cell phone service providers, namely, the fact that cell phone network providers' contracts required major amendments to their terms and conditions, and that a regard for the need to reimburse prejudiced customers must be clearly articulated (Magaqa 2015:43).

Another high-profile case that involves a South African cell phone network provider took place in 2015 in Nigeria (Mba, Onaolapo, Stringhini & Cavallaro 2017:1307). The Nigerian Communications Commission ruled in 2011 that all cell phone network providers must deactivate the sim cards of their unregistered users. MTN, however, was penalised for its failure to comply with the new regulatory provisions within the stipulated time frame, with a \$5.2 billion fine, later reduced to \$1.7 billion being imposed on the company for its delay in de-registering 5.1 million users (Realista 2017:1; Akisanmi 2018:4). Realista (2017:12) observes that the adverse effects of the bad service quality perception consequently suffered by MTN as a result of this imposition led to the loss of 25% of its market value over a period of six weeks as well as the loss of approximately 18 million users on its network. In addition, cell phone network providers have the constant challenge of reassuring their users that their mobile money platforms are secure as there has previously been security and data breaches causing scepticism in customers (Wang, Hahn & Sutrave 2016:4).

2.7 SERVICE QUALITY

Park and Kim (2014:380) identify several service quality indicators in their service quality model. The model consists of eight variables, namely, intention to use, perceived usefulness, perceived mobility, perceived connectedness, service and system quality, satisfaction, attitude and perceived security. The researchers have adapted this model and identified four key variables that are applicable to the cell phone network provider industry. These variables are perceived security, perceived connectedness, customer satisfaction and intent for continued use. The researchers have selected these four variables by condensing Park and Kim's eight variables on the basis of definition. The variables that are closely related by definition have been combined to arrive at the model that is proposed for this study.

Several authors have proposed different models for investigating service quality. The researchers have considered the SERVQUAL model as adapted by Teeroovengadum, Kamalanabhan and Seebaluck (2016:246) and the Nordic model as adapted by Mittal, Gera and Batra (2015:333). According to Ganiyu (2016:9) the SERVQUAL model presents the unique challenge of a lack of consensus among its advocates about the definitions of key technical terms such as 'customer expectations' and 'service quality gap'. Santos, Contreras, Faúndez and Palomo-Vélez (2015:36) argue that although it is the standard framework for determining the level of service quality, SERVQUAL's application across different types of service sectors raises questions about its effectiveness in ever-changing business environments. According to Sharma, Sharma, Khan and Srivastava (2016:265) a basic limitation of the SERVQUAL model is that it does not consider factors such as after-sales services and the manner in which queries are addressed by service providers. Sharma *et al.* (2016:265) deem these factors to be very important in influencing a customers' perceptions of service quality. A further limitation is noted by Chen (2016:9) who states that the SERVQUAL model is too non-specific and does not take into account the special circumstances affecting a service provider within a specific industry, hence its relatively easy application across various industries. Also, the numerous refinements to the model often make it difficult to distinguish it from other models which may be similar (Aljasser & Sasidhar 2016:132).

The researchers also considered the Nordic model. The Nordic service quality model has two facets by which it determines the level of service quality, namely, staff behaviour and physical quality (Hemsley-Brown & Alnawas 2016:2774). These facets are not defined for the context of the cell phone network provider industry and the researchers will, therefore, not be applying

the Nordic model. According to Rauch, Collins, Nale and Barr (2015:89) the Nordic model is ideal for conducting service quality investigations in the hospitality industry. The researchers, therefore, deem this model unsuitable for determining the service quality perceptions in the cell phone network provider industry. Furthermore, Stiglitz (2015:12) suggests that the Nordic model is flawed in the context of today's dynamic business world because it does not account for the creative space of individual companies that is crucial in their attempts to meet customer expectations. The premise of the Nordic model is that service quality is a function of the interaction between the type of service provided and the manner in which the service is provided (Khader & Madhavi 2017:19). Much like the SERVQUAL model, the Nordic model has been refined numerous times over an extensive period and the researchers will, therefore, not be making use of it.

The researchers have opted to use the model advocated by Park and Kim (2014:380) as they deem this model appropriate in investigating the perceptions of young adults on service quality as it is applied within the cell phone network provider industry. The variables in the research hypothesis are, therefore, drawn from a model that is both recent and relevant to the incumbent study. However, in order to understand the concept of service quality, a discussion of both the SERVQUAL and Nordic models is presented below:

According to Teeroovengadam *et al.* (2016:246) service quality refers to how efficiently a service provider meets customers at their points of need. Teeroovengadam *et al.* (2016:246) posit that the SERVQUAL model stands as a yardstick against which service providers can evaluate themselves in their efforts to provide the best services. This model takes into account five factors when determining the level of service quality, namely, reliability, responsiveness, assurance, empathy and tangibles. SERVQUAL is also advocated by Su *et al.* (2016:83) who single it out as a comprehensive framework for measuring the efficiency with which a service is provided. Other scholars such as Polyakova and Mirza (2016:364) however, are critical of this service quality concept, citing its inherent limitations and instead advocate an adapted version of the Nordic model by Grönroos (1984:37). According to Mittal *et al.* (2015:333) this model defines service quality generically by pointing out that it is what consumers receive and how they receive it. In addition, Mittal *et al.* (2015:334) point out that the perception of service quality that consumers of a product have is contingent on the representations made by the service quality provider about the level of service that consumers might expect. For instance, sales and marketing campaigns that oversell a product or service might lead to poor perceptions

if they do not live up to expectations (De Kervenoael, Yanik, Bozkaya, Palmer & Hallsworth 2016:88).

Polyakova and Mirza (2016:64) and De Kervenoael *et al.* (2016:88) are in consensus that service quality involves managing the expectations of customers effectively so that the products and services delivered are perceived in a good light. A more recent conceptualisation of service quality is proposed by Yarimoglu (2014:87) who states that service quality is the overall impression that a consumer has about a product or service. However, the complexity of a consumer's decision-making habits needs to be accounted for by recognising factors such as the waiting period, design aspects, interaction with the service provider and the craftsmanship embodied in the product or service. It is clear, therefore, that service quality is multifaceted and involves accounting for numerous parameters in efficiently meeting consumer expectations.

- *The importance of service quality*

According to Jones and Shandiz (2015:49) all types of companies must provide a high level of service quality. Lindsey Hall, Baker, Andrews, Hunt and Rapp (2016:26) concur with this assertion by stating that customers expect the best service regardless of the nature of the service provider. Lindsey Hall *et al.* (2016:26) further state that customers often have a range of alternatives and will easily opt for one that meets their expectations more accurately. This encumbers service providers with the responsibility of acquiring an intimate knowledge of their customers' preferences as this will ultimately translate into revenues and a good corporate image (Hult *et al.* 2017:37-38). Every company must, therefore, have a systematic means of identifying how to accurately diagnose its customers' preferences by using tools such as the Importance-Performance Analysis (IPA) (Lai & Hitchcock 2016:140). Lai and Hitchcock (2016:140) recommend this tool for the improvement of the overall customer experience and the identification of aspects that service providers must consider in order to reach their ideal level of service quality. This is because a company that fails to reach the necessary level of service quality loses its competitive edge (Hemmington, Kim & Wang 2018:4).

Hemmington *et al.* (2018:4) further elaborate on the importance of service quality by advocating the need for companies to prioritise benchmarking activities. As a means to bridge the gap in the level of service quality, companies need to establish a standard that they can benchmark themselves against Hemminton *et al.* (2018:4-5). With regard to the cell phone network provider industry, Olatokun and Ojo (2016:400) reiterate that service quality is

invaluable in attracting new customers, keeping the existing customer base as well as earning their loyalty. By educating their employees on service quality and building a company culture of being customer centric, companies prove to their customers that service quality is of paramount importance (Psomas & Jaca 2016:390). Psomas and Jaca (2016:384) are of the view that companies that have a high regard for service quality often experience improved profit margins.

2.7.1 Perceived security

In respect of perceived security, Colobran (2016:2) explains that it is the feeling of trust that a user has with a piece of technology, especially where the said user has provided confidential information that will be stored or processed online. Alkhwaldi, Kamala & Qahwaji (2019:1) define perceived security as the extent to which users trust a service provider to keep their sensitive information from being used by unauthorised individuals. The fear that users have is that their private information might be accessed by unauthorised third parties who might use it to prejudice the user, for instance a bank account number provided through an online payment portal (Yang *et al.* 2015:258). According to Khalilzadeh *et al.* (2017:470) companies that use a technological interface will most likely face the challenge of creating trust in the digital spaces of interaction. It is entirely understandable that customers may initially feel a lack of perceived security when interacting through digital space with a cell phone network service provider because criminals who commit cybercrimes are generally more difficult to locate and apprehend (Furnell *et al.* 2015:5).

2.7.1.1 The importance of perceived security

According to Arpaci, Kilicer and Bardakci (2015:94) it is important for any scepticism to be allayed in order for users to feel secure online. Van de Weijer, Leukfeldt and Bernasco (2018:2) observe that approximately 2.5 million cyber-crimes take place in first world countries annually, with hacking, consumer fraud and identity theft being the most common types of white-collar crimes. It is against this background that users have a reason to be distrustful of services provided on mobile networks. In addition to the aforementioned cyber-crimes, stalking is also a serious concern, with 30.4% of people reporting having experienced online stalking on some level (Van de Weijer *et al.* 2018:2). A major point of contention raised by Hajli and Lin (2016:112) is the ownership of information that users submit online. Hajli and Lin (2016:112) argue that before users opt for a service provider, they require the assurance that they will have the ability to modify the content and control the accessibility of their personal

information. Furthermore, it has been determined that 90% of the population of young adults in the United States of America feel vulnerable and unsafe from online white-collar crimes (Boehmer, LaRose, Rifon, Alhabash & Cotten 2015:1022). Boehmar *et al.* (2015:1022) note that 86% of these young adults reveal that they have remained with the same banking password since registering their online banking profiles and suggest the incorporation of cyber security education into school curricula as a means to averting cybercrime.

Rhodes (2017:24) affirms that the internet is a platform on which numerous crimes are committed by singling out human trafficking atop the list of criminal activities that can be perpetrated in front of a computer screen. Often the victims of human trafficking are young adults, as seen in South Africa, where many desperate unemployed youths are lured into trafficking websites by criminals posing under the pretext of genuine employers. The expansive nature of the internet seems to exacerbate security concerns. Weimann (2016:40) classifies the internet into two categories, namely, the upper layer and the deep web. According to Weimann (2016:40) the upper layer is easily accessible and is what most people use on a daily basis, whereas the deep web is not easily accessible due to high encryption and is therefore the platform on which crimes such as terrorism, drug trafficking, racketeering and sale of unlicensed firearms take place. All these factors present perceived security threats and point to the need for cell phone network providers to address these concerns.

2.7.2 Perceived connectedness

Hsiao and Chen (2016:21) define perceived connectedness as the feeling of constantly being in touch with other people through a remote device. Young adults, in particular, use the greatest part of the time on the internet creating and maintaining connectedness (Siddiqui & Singh 2016:71). This view is supported by Vaterlaus *et al.* (2015:151) whose findings determine that young adults are occupied by their mobile devices more than any other technological device daily. According to Siddiqui and Singh (2016:71) of the total time spent online, 35.7% of it is attributed to connectedness in one form or another by means of social media or blogs, excluding the use of emails. In order for people to feel connected to each other, Hsiao & Chen (2016:22) posit that there must be a relationship of trust between a cell phone network provider and its users. Perceived connectedness is essential in creating a sense of belonging among young adults and it is not unusual anymore for them to meet and make friendships online (Kardos, Unoka, Pléh & Soltész 2018:85).

2.7.2.1 *The importance of perceived connectedness*

Zeifman and College (2018:139) state that human beings have an innate desire to connect with each other and to feel as a part of a unit. This phenomenon is known as the Attachment Theory and has been observed by Gazit and Aharony (2018:391) in the context of family WhatsApp groups. According to Gazit and Aharony (2018:392) WhatsApp groups have become important in families and other circles alike for the purpose of connectedness by offering social support platforms that readily contribute to the physical and mental well-being of group members. The ability of people to keep connected, despite physical separation, contributes to healthier relationships (Gazit & Aharony 2018:391).

Turner (2015:105) posits that mobile devices are effective tools in bringing together like-minded individuals. For instance, artists are able to connect and share their work with their colleagues and receive feedback using mobile interfaces. Therefore, cell phone network providers play a key role in creating support systems that facilitate connectedness. Turner (2015:106) further outlines the importance of the media by which connectedness is achieved by stating that face-to-face communication in real-time is more fulfilling. Young adults do not use their mobile devices for recreational purposes only, but also for important tasks as a gateway to productive information (Vorderer *et al.* 2016:698). Additionally, the importance of perceived connectedness is advocated by Szczepański and Saeed (2014:11032) who claim that perceived connectedness is crucial where patients use mobile devices to monitor the condition of their health. In today's modern health systems, where patients can be monitored remotely in real time, it is important for individuals to be assured of connectedness to their medical practitioners by having a reliable cell phone network provider (Abdullah, Ismael, Rashid, Abou-Elnour & Tarique 2015:13).

2.7.3 Customer satisfaction

Customer satisfaction is defined as the extent to which users of a product or service are fulfilled by the product or service (Saeidi *et al.* 2015:343). Usually, customers of cell phone network providers are likely to change to a different cell phone network provider when their service expectations and needs are not met (Adebiyi *et al.* 2016:1). Since young adults spend a significant amount of time on social media, customer satisfaction is of paramount importance to them (Mostert & Kruger 2012:41). Social media in its various forms, has made information about companies and their product offerings more accessible to consumers and that has resulted in stronger buyer-seller relationships. Social media is serving as a platform where buyers and

sellers can build relationships and where customers can make their voices heard. As a result, cell phone network providers who pay close attention to their customers' needs on these platforms will be better placed to satisfy their customers (Agnihotri *et al.* 2016:172). Vodacom, for instance, has included as part of its product offering free browsing on selected social media platforms as well as social tickets, which improve the quality of interaction of its users on social media (Vodacom 2019).

2.7.3.1 The importance of customer satisfaction

According to Kaura, Prasad and Sharma (2015:404) when customers are satisfied with the products and services rendered, they become loyal to the service provider. Service providers ultimately want to achieve this because a loyal customer base is relatively cheaper to maintain than to attract new customers frequently (Kaura *et al.* 2015:404). Scholars put forward numerous subjective definitions of loyalty and are not in full agreement about how it relates to customer satisfaction (Van Lierop, Badami & El-Geneidy 2018:54). Hsiao, Chang and Tang (2016:344) posit that there is a direct relationship between customer satisfaction and long-term loyalty, with one variable equally capable of influencing the other. However, Hsiao *et al.* (2016:345) also contend that there are instances where customer satisfaction and brand loyalty are mutually exclusive, with one having no bearing on the other. Most studies, however, have found that customer satisfaction and customer loyalty are mutually inclusive, with satisfaction significantly affecting loyalty (Themba, Razak & Sjahrudin 2019:3). Izogo and Ogbar (2015:252) assert that the main indicator of customer satisfaction is a service provider's ability to keep a substantial number of loyal customers. A further argument is posed by Izogo and Ogbar (2015:254) that customer satisfaction often translates into consistent profitability and attracts new customers. Therefore, customers that are satisfied indicate their intention to use a service provider's services for the foreseeable future and they recommend it to prospective buyers as well (Van Lierop *et al.* 2018:55).

According to Calvo-Porrall and Lévy-Mangin (2015:534) in the cell phone network provider industry, customers who are satisfied will not hastily switch between service providers. This is important because a loyal customer base has positive financial implications for the service provider (Premkumar and Rajan 2017:21). In order for a service provider to meet its ideal financial performance levels, Premkumar and Rajan (2017:21) suggest that it must provide its services at the appropriate time, place and cost. Li (2015:374), however, argues that even in the cell phone network provider industry, a lack of satisfaction does not imply that a customer

will switch allegiance to rival service providers, as some customers often remain loyal in the belief that they cannot get better service from an alternative service provider. An alternative reason posed for remaining loyal to a cell phone network provider despite poor satisfaction is the cost of switching between networks (Hadi, Aslam & Gulzar 2019:2). According to Mannan, Mohiuddin, Chowdhury and Sarker (2017:143) the biggest concern for cell phone network providers is the loss of subscribers to competitors as a result of poor customer satisfaction. This concern is exacerbated by the financial implications of attracting new subscribers as opposed to marketing products and services to the existing client base, as it costs five times more to attract new customers than to retain them (Marinkovic & Kalinic 2017:139).

2.7.4 Intent for continued use

Chang, Hung, Cheng and Wu (2015:49) define intent for continued use as an individual's indication of the likelihood to continue utilising the products and services of a service provider. Hsiao and Chen (2015:343) posit that the decision of customers to continue using products and services is highly influenced by how well their expectations are met. In concurrence with this position, Oghuma *et al.* (2016:37) indicate that there is a direct relationship between how much customers enjoy a product or service and whether they decide to continue using it. When customers buy products and services with specific pre-conceived expectations, as soon as these products fail to meet their expectations, they get demotivated to continue use (Chung *et al.* 2016:35). Tseng (2015:87) supports this view and states that when consumers are confident that they will receive the help they require at the appropriate time, they are more likely to continue with the use of the products or services in question.

2.7.4.1 The importance of intent for continued use

According to Hamari and Koivisto (2015:421) the intention to continue using a product or service is determined by the usability of the product or service as well as how useful the product or service is deemed to be. Hoehle, Zhang and Venkatesh (2015:338) emphasise the attribute of user-friendliness as a key factor in decisions about the intent for the continued use of a product or service. According to Oghuma *et al.* (2016:37) cell phone network providers that provide the best user interface between themselves and their customers, between their customers and third parties and between customers and other customers stand to benefit from their continued use. This is evidenced by the continued use of services such as Cell C's Airtime Share facility and Vodacom's Vodacom Now!, which enable users to easily transfer airtime to other users within the same network (Cell C 2019; Vodacom 2019).

Joia and Altieri (2018:205) state that individuals also intend to continue use of products and services when they stand to gain from them and when they know that the individuals around them expect them to continue with the use of that product or service. Basak and Calisir (2015:183) hypothesise that satisfaction and a positive attitude have a positive effect on the intention for continued use. Chan, Cheung, Shi, Lee and Lee (2016:70) assert that when a company knows the intentions of its customers, the company is able to plan more effectively on how it should invest in its research and development, infrastructure, capacity and evolve and adjust itself in the marketplace in order to meet customer expectations.

According to the Commitment-Trust Theory posed by Hashim and Tan (2015:146) a consistent interchange of valuable information between two parties is essential in creating long-term mutually beneficial relationships. As such, Celuch, Robinson and Walsh (2015:280) conceptualize intention for continued use by stating that for a service provider to accurately discern the long-term intentions of its customers, it must evaluate whether the feedback about its services is valuable. This, therefore, requires a relationship of commitment and trust between both parties (Wang, Wang & Liu 2016:626). Over and above the technical expertise of providing a service, Wang *et al.* (2016:627) are of the view that the psychological factors of trust and commitment are more assuring indicators of customers' intentions to continue using the product or service in the long-term. In addition, the level of confidence that a user has in carrying out tasks using a service provider's products or services, contributes to the user's intentions to continue a relationship with the service provider (Bøe, Gulbrandsen & Sørebo 2015:377). The researchers, therefore, infer that the confidence that users exhibit in a service provider is important in determining whether users intend to continue the relationship with the service provider.

2.8 TECHNOLOGICAL INNOVATIONS OF CELL PHONE NETWORK PROVIDERS

Jia and Winseck (2018:40) observe that the twenty first century is characterised by a rapid evolution of technology and that among the leaders of this revolution are companies in the cell phone network provider industry. Checko, Christiansen, Yan, Scolari, Kardaras, Berger, and Dittmann (2015:405) assert that the shift from paper-based and manual systems to digitization of information systems in business, health and various other sectors, including private life has necessitated this technological revolution among cell phone network providers. Checko *et al.*

(2015:408) identify an increased population of network subscribers as the main driver of this evolution. Ghezzi, Cortimiglia and Frank (2015:346), however, are of a different disposition, stating that cell phone network providers are not the orchestrators at the forefront of the technology revolution but are merely reacting by adopting the latest technology to do their business. According to Ghezzi *et al.* (2015:347) this is necessary because the cell phone network provider industry cannot afford to be technologically stagnant in the face of an ever-changing business environment; it needs to keep abreast with the times. Several notable technological innovations are attributed to cell phone network providers and the researchers highlight some of them below.

2.8.1 Mobile money

Rea and Nelms (2017:1) define mobile money as an application that enables individuals to perform banking transactions on their mobile devices instead of visiting a conventional bank. Muthiora (2015:5) explains that it is the means by which the exclusiveness of traditional banking may be afforded to everyone. Mobile money gives customers of cell phone network providers the convenience of purchasing recharge vouchers, sending money and paying accounts from the comfort of their private spaces (Rea & Nelms 2017:5). Gosavi (2018:355) applauds this technological innovation for being a cheaper and equally safe alternative to maintaining a bank account.

2.8.2 Mobile cloud service

Due to the high volume of data transmission and usage by both companies and private individuals, cell phone network providers have played a major role in devising an ingenious solution to address the increased data traffic. This innovation for the management of excessive data on mobile networks is known as the mobile cloud (Lo'ai, Mehmood, Benkhelifa, & Song 2016:6172). In computer science parlance, a cloud is a virtual network where digital information is stored and managed in real-time without the need for a network manager (Botta, Donato, Persico, Pescapé 2016:686). According to Carvalho, Woungang, Anpalagan, Jaseemuddin and Hossain (2017:80) this virtual network is invaluable in addressing the problem of digital data management brought about by the transition of networks from the 4G to the 5G generation networks. Lo'ai *et al.* (2016:6171) attribute the rise in cloud technology to the ever-increasing use of mobile devices and the need to access sensitive digital information conveniently at different locations. Arpaci (2016:152) mentions several uses that young adults might find the cloud useful for, namely, a convenient and virtual storage medium for their data,

personal and academic material, an interactive platform on which large amounts of data can be shared as well as a medium through which unfinished projects may be accessed at different locations. The cloud is also a means to address the limits of disk space and Random-Access Memory (RAM), which slow down the performance of mobile devices when stretched (Lo'ai *et al.* 2016:6171).

2.8.3 Big data

Cavanillas, Curry and Wahlster (2016:3) estimate that by 2020, there will be 16 trillion gigabytes of digital data that can be used for decision making purposes. According to Cavanillas *et al.* (2016:4) big data is the means by which advanced technology is used in accurately searching for useful information in a database. Young people are constantly exposed to copious amounts of data and big data techniques are used to simplify and downscale this data to make it more comprehensive (Benselin & Ragsdell 2016:284). According to Benselin and Ragsdell (2016:284) this phenomenon is known as information overload and requires the use artificial intelligence to analyse big data according to an individual's unique online behaviour and patterns, with the purpose of improving its usability. Cell phone network providers facilitate this process by providing the connectivity required to access big data (Zheng, Yang, Zhang, Chatzimisios, Yang & Xiang 2016:44).

2.9 THE FUTURE OF CELL PHONE NETWORK PROVIDERS

Ghezzi *et al.* (2015:350) observe that there is steady transition from the use of voice services to the preference for data-oriented applications in the cell phone network provider industry. According to Ghezzi *et al.* (2015:350) this shift is attributed to the rapid permeation of smart mobile devices and improved value-added services by transformative cell phone network providers. In line with this observation, Shen (2015:2) purports that a gradual evolution to 5G technology is the most notable development in the cell phone network industry. According to Li, Da Xu and Zhao (2015:244) 5G and the Internet of Things (IoT) are the next generation of digital and physical infrastructure systems that will facilitate communication between devices and people. Shen (2015:2) asserts that 5G networks will enable the performance of network infrastructure at 1000 times faster than the current network infrastructure, which is 4G. This will connect between 10 and 100 times more data devices while allowing 10 times more battery life for mobile devices on the network and drastically reducing the rate at which messages are processed (Shen 2015:2). Gupta and Jha (2015:1208) identify 6 challenges that will be

addressed by 5G technology, namely, broader network coverage, higher broadband speed, lower costs, improved connectedness and user experience. However, Rupprecht, Dabrowski, Holz, Weippl and Pöpper (2018:2521) posit that the introduction of 5G technology will require more stringent online security measures to lower any breaches of privacy and fraudulent attacks. Currently, technical experts are searching for measures that can be implemented to solve the security issue and measures are under development and testing towards this end (Rupprecht *et al.* 2018:2524).

According to French and Shim (2016:841) cell phone network providers will play a pivotal role in achieving an 'internet of things' society, where various technological gadgets and household appliances will be synchronised for improved user experience. French and Shim (2016:842) state, for instance, that people will be able to instruct their appliances to perform chores such as cooking and washing dishes with the most minimal amount of effort. Porter and Heppelmann (2015:5) are of the opinion that businesses and customers will benefit extensively from the internet of things by allowing real time monitoring of the performance of appliances purchased from a supplier. According to Porter and Heppelmann (2015:5) the internet of things will bring progressive change to business at large by allowing for the manufacture of devices that are able to self-diagnose and auto-correct themselves in case of any malfunction.

Vodacom (2018) has stated that there is an evolution in the telecommunications industry that requires cell phone network providers to strategize on avenues to differentiate themselves through their value-added services. As a result, Vodacom has indicated its intention to introduce its own payment gateway called Vodapay (Vodacom 2019). This will enable Vodacom customers to transfer money directly between sender and recipient without any intermediary (Vodacom 2019). Latif, Qadir, Farooq and Imran (2017:4) predict that cell phone network providers will be invaluable in improving healthcare services by facilitating the performance of remote machine assisted therapy and surgery. Conversely, sceptics such as Polese, Giordani, Mezzavilla, Rangan and Zorzi (2017:2073) point out that 5G will not be able to fulfil the role for which it is intended because of technological constraints brought about by data traffic. This has resulted in speculation of an advanced wireless network in future in the form of 6G systems, which will be an improvement on the predecessor 5G networks (Strinati, Barbarossa, Gonzalez-Jimenez, Kténas, Cassiau, & Dehos 2019:2-5).

2.10 SUMMARY

In this chapter, an exposition of the cell phone network provider industry was conducted. The cell phone network provider industry in South Africa comprises of four major companies, namely, Vodacom, MTN, Cell C and Telkom. These companies have an important role that they play in the connectedness of young adults. With the exception of Cell C, these companies are profitable for the most part. Cell phone network providers often face technological challenges and legal disputes which mar their service quality perceptions among young adults. The industry is fast-changing and is expected to make technological innovations at a quick pace. All four South African cell phone network providers are involved in corporate social responsibility initiatives which cater to the needs and development of young adults. In the following chapter, the research design and methodology of the study will be discussed in detail wherein the techniques employed in collecting and analysing data obtained from the empirical investigation will be presented.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

The previous chapters presented the introduction and background of the cell phone network provider industry and a literature review on the industry in South Africa. A detailed exposition of the variables affecting service quality perceptions was also provided. This chapter focuses on the research design and methodology that will be employed in collecting and analysing data from respondents. A discussion of positivistic and interpretative paradigms will be given, along with the rationale for the paradigm eventually chosen for the study. An overview of the data collection, analysis and hypotheses-testing process will be given. In addition, a list of possible questions to be used in the research instrument will be presented.

3.2 RESEARCH METHODOLOGY

Taylor, Bogdan and DeVault (2015:3) define research methodology as the means by which challenges are tackled and the way in which solutions are sought. According to Flick (2015:5) an investigation that is conducted in the social sciences must be methodical and well structured. The hypothesis and the aim of the investigation determine the research methodology that is adopted in respect of the study in question (Taylor *et al.* 2015:3). In conjunction with the above viewpoints, Kumar (2019:13) asserts that research methodology refers to the processes and skills that are applied to a set of data in order to extract meaningful information about a particular matter. Kumar (2019:13) suggests that the primary purpose of having a sound research methodology is the preparation of information that aids decision-making processes and gives better understanding about the subject under investigation.

There are three methods of investigative enquiry identified by Hesse-Bibber (2015:777-778), namely, qualitative methods, quantitative methods and triangulation. The research methodology adopted in a study is guided by an overarching paradigm. According to Mayoh and Onwuegbuzie (2015:93) a research paradigm is a philosophy that guides scholars in their attempts to better understand a subject. Halcomb and Hickman (2015:3) suggest that in order for studies to be successful, paradigms and methodologies must complement each other. According to Halcomb and Hickman (2015:3) qualitative methodology is synonymous with an

interpretative paradigm, whereas quantitative methodology is synonymous with a positivistic paradigm. Triangulation involves adopting both paradigms (Hesse-Biber 2015:778).

3.2.1 Positivistic research methodology

The positivistic paradigm is the basis of quantitative enquiry (Babones 2016:454). Bonell, Moore, Warren and Moore (2018:3) point out that the premise of positivism is predicated on the assumption that a predetermined specific action will bring about a predictable outcome. In conjunction with this assertion, Bonell *et al.* (2018:5) argue that positivism must not be limited to just causal relationships about phenomena, but that associations between such phenomena must actually be observable. Ryan (2015:423) suggests that positivism is not merely a paradigm, but also a culture shared by individuals who have a common understanding about a particular phenomenon. According to Kivunja and Kuyini (2017:30) the positivistic paradigm creates restrictions within which enquiry is conducted on the basis of a pre-existing knowledge base.

3.2.2 Interpretative research methodology

Interpretivism is basis upon which qualitative enquiry is conducted (Antwi & Hamza 2015:221). According to Thanh and Thanh (2015:24-25) the interpretative paradigm gives the participants of a study the leeway to contextualise their responses. Thanh and Thanh (2015:25) elaborate the main difference between positivism and interpretivism as being the usefulness of interpretative enquiry in arriving at a more in-depth understanding of the subject. This is attributed to the fact that interpretative enquiry accepts numerous points of view from different individuals.

While qualitative enquiry is favourably viewed by many scholars, sceptics such as Noble and Smith (2015:1) identify its major flaws as a lack of empirical thoroughness, inadequate rationale behind its adopted methodology and its susceptibility to the researcher's own views. In addition, Noble and Smith (2015:1) cite the absence of a standard systematic framework for the application of qualitative enquiry as a major cause for concern.

3.2.3 Research methodology adopted in this study

The researchers deem quantitative enquiry appropriate for the incumbent study. The justification for this option is that the positivist paradigm can be applied in numerous situations and will often yield consistent results (Kelly, Dowling & Miller 2018:7). Furthermore, Kelly *et al.* (2018:9) identify a major flaw of the interpretative paradigm as its lack of objectivity,

susceptibility to numerous interpretations of a similar reality, a cultural bias and consequently, the disparity between individual opinions of the material world and the actual material state of the world. Kivunja and Kuyini (2017:30) state that a key element of positivism is its ability to reinforce knowledge that has been proven multiple times. It is, therefore, not disruptive in its findings. An additional flaw of the interpretative paradigm is mooted by Creswell and Poth (2017:202) who state that this paradigm produces findings that generally lack validity and are unreliable.

3.3 RESEARCH METHODS

The concept research design refers to how data is collected, analysed, interpreted and presented (Creswell & Poth 2017:5). This study will employ quantitative research design where the researchers will make use of a descriptive research method. In this subsection, the researchers will discuss the research methods available for use under positivistic and interpretative research paradigms.

3.3.1 Research methods for a positivistic study

A positivistic study employs various methods of collecting data. These methods, comprising of surveys and experiments, are explained in detail below.

3.3.1.1 Surveys

Fink (2015:2) defines a survey as a technique used to describe, compare or explain individual and societal knowledge, feelings, values, preferences and behaviour. According to Bulmer (2017:13) surveys are the most common means by which primary data is collected in investigative studies. Struwig and Stead (2017:90-93) identify various types of questionnaires such as personal interviews, telephone surveys and mail surveys. The researchers will make use of a self-administered Likert-scale questionnaire as the measuring instrument of this study. Respondents will be able to complete the questionnaire both on paper as well as on a computer if necessary.

3.3.1.2 Experiments

Experimental research involves the use of control groups and test groups as well as the observation of how test groups respond to the application of the variables of a study (Bulmer 2017:8). Campbell and Stanley (2015:8) concur with this definition and explain the application

of experimental research as follows: two groups of similar participants are elected and a set of variables applied against one group with the express intention of identifying how it will differ from the control group at the end of the experiment. The disparity between the two groups is then measured to determine the extent to which the variables influence the participants. Zellmer-Bruhn, Caligiuri and Thomas (2016:401) applaud experimental research as an effective means of evaluating the accuracy of conducting research and suggest that its success is contingent upon the researcher's ability to regulate the intensity of the independent variables. Experimental research, however, has several notable limitations and disadvantages. Campbell and Stanley (2015:2-3) note that there is often a disparity between the actual outcomes of an experiment and the wording used by a researcher to describe the experimental results. According to Mutz and Pemantle (2016:2) this inconsistency is attributed to the lack of a universal framework of standardising the results of a vast range of studies that can be conducted through experimental research. Where such frameworks have been formulated, Mutz and Pemantle (2016:2-7) posit that there is still the possibility of a lack of accuracy in the experimental outcomes. The lack of accuracy in such instances could be attributed to pre-experimental conditions that are outside the researcher's control, the tendency towards bias where experimentation is conducted via convenience sampling as well as the effect of pre-experimentation preparations (Mutz & Pemantle 2016:2-7).

3.3.2 Research methods for an interpretative study

An interpretative study employs various methods of collecting data. These methods, comprising of observations and interviews, are explained in detail below.

3.3.2.1 Observations

According to Kim and Park (2018:858) observation is the scientific process of scrutinizing phenomena using one's senses, reporting on the findings and drawing conclusions. In conjunction with this definition, Wellberry and McAteer (2015:1) pose that observation is one of the most crucial aspects of scientific enquiry by placing importance on its effect on the outcomes of the study. Sanjari, Bahramnezhad, Fomani, Shoghi and Cheraghi (2014:5) emphasize the importance of a researcher's ability to observe participants and draw accurate conclusions when conducting an interpretative study. Two types of observation techniques at the disposal of the researcher are identified by Laurier (2016:1), namely, participant observation and non-participant observation. Participant observation entails the researcher's involvement with the participants of the study, which often creates a biased perspective from

the researcher (Allsop, Allen, Clare, Cook, Raxter, Upton & Williams 2010:17). Non-participant observation, on the other hand, entails the lack of involvement by the researcher in the field activities of the participants and its advantage is that the participants can be observed in their natural interaction with the environment thereby reducing bias (Flick 2018:223).

3.3.3.2 Interviews

Castillo-Montoya (2016:811) defines an interview as an interactive tool of qualitative enquiry that enables the researcher to receive first-hand accounts of participants and how the participants interpret phenomena. Interviews are a common method of acquiring interpretative data and have the crucial advantage of being flexible to suit numerous situations (King, Horrocks & Brooks 2018:49). Oltmann (2016:3) points out the major advantage of interviews as the richness of the data obtained and its lack of researcher subjectivity. Depending on the nature of the study, interviews may take different forms. Flick (2018:147-170) identifies four different types of interviews; focused interviews, in which participants share a common experience; expert interviews, where participants are field experts in the subject of enquiry; ethnographic interviews, in which data is obtained from participants of a particular ethical, cultural or anthropological background; and problem-centred interviews, where participants are purposefully sampled due to their exposure to a dilemma under investigation. Interviews must be conducted in keeping with ethical tenets. King *et al.* (2018:34) mention confidentiality, participant permission and participant understanding of the study as part of the set of ethical principles that need to be adhered to when conducting interviews.

3.4 DATA COLLECTION

In this section the researchers will discuss secondary and primary data collection. The secondary data collection section will consist of a definition and discussion on secondary data. The primary data collection section will consist of a definition of primary data and a discussion on the following concepts; target population, sample, sampling techniques and the research instrument.

3.4.1 Secondary data collection

Dunn, Arslanian-Engoren, DeKoekkoek, Jadack and Scott (2015:1296) define secondary data as data that is used for new studies while having been previously obtained for a different primary purpose. A concurrent definition is mooted by Curtis and Allen (2018:4) who view

secondary data in the form of previously published literature that is used to support primary data. Secondary data analysis, therefore, entails the interrogation of data obtained from raw data findings, summaries of numbers and published journals (Struwig & Stead 2017:82). In the incumbent investigation, the researchers will obtain their secondary data from published journal articles, peer-reviewed papers, online textbooks, official corporate publications and published legal cases. These are readily available from Google Scholar as well as journal databases such as Emerald, Sabinet, and ResearchGate. Official company and state department websites are also credible sources of secondary data. The researchers will make use of the Nelson Mandela University's Library and Information Services to access the secondary data required for the study. The secondary data collected pertains to the perceptions of young adults on the service quality of cell phone network providers. Secondary data has often been criticised for several shortcomings. Rahman (2017:105), for instance, identifies several disadvantages of secondary data such as the difference between the original intention of the author of the source and the intentions of subsequent researchers who make use of the data. In addition, Rahman (2017:105) contends that secondary data is time-consuming and its ability to be projected to a bigger population is constrained. As a result, it cannot be entirely relied upon.

3.4.2 Primary data collection

The researchers will collect primary data using a questionnaire as the research instrument. The purpose of collecting primary data in this study is to investigate the influence of the pre-determined variables on the service quality perceptions. Walliman (2017:69) defines primary data as data that has been discovered first-hand, seen in person or documented close to the occurrence. According to Walliman (2017:70) people come into contact with primary data on a daily basis through their interactions with the environment and other people. The data that is obtained in this manner is deemed more accurate than data obtained from secondary sources but also has several notable criticisms. According to Richter, Meissner, Strangfeld and Zink (2016:79) the process of collecting primary data is lengthy and that results in the data being perceived as dated once the study has been completed. While primary data is ideal for drawing accurate conclusions, a general concern noted by Sun and Lipsitz (2018:175) is its collection costs that are relatively high. Most studies, however, recommend the collection of primary data for scientific enquiry.

The primary data will be collected from a target population. A target population is a group of participants who have specific characteristics that make them suitable to participate in the study

(Etikan *et al.* 2016:2). Within the target population is a specific list of all participants from which a research sample is drawn, this is known as the sampling frame (Rahi 2017:3). The target population in this study consists of young adults between the ages of 18 and 25 who reside in the Nelson Mandela Bay Municipality. This study will make use of a convenience sampling technique to select the sample. Convenience sampling is where the researcher elects to make use of members of a population who are within easy reach or willing to participate (Etikan *et al.* 2016:2)

Vehovar, Toepoel and Stinmetz (2016:327) identify two broad classes of sampling methods, namely, probability and non-probability sampling. Probability sampling is entirely random, and all members of the target population have an equal chance of being selected into the sample. Non-probability sampling, on the other hand, involves the deliberate selection of respondents into the sample and, as such, not all of them have an equal chance of selection into the sample (Vehovar *et al.* 2016:327-328). Emerson (2015:166) points out that there are numerous non-probability sampling techniques available to researchers such as convenience sampling and snowball sampling among others. According to Waters (2015:368-369) snowball sampling involves the use of respondents to identify further respondents and as a result, is useful in accessing populations that ordinarily are out of reach to the researcher. This study will make use of convenience sampling, which entails the handing out of questionnaires to any respondents who are readily available from the target population (Emerson 2015:166). Should the need arise, the study will also supplement convenience sampling with the use of snowball sampling in order to reach the desired number of respondents.

A self-administered questionnaire has been selected as the research instrument for this study. The researchers will distribute the questionnaire by handing it in person to willing respondents as well as via email where necessary. Struwig and Stead (2017:90-96) advocate the use of questionnaires in studies with a large number of respondents. Furthermore, Bhaskar and Manjuladevi (2016:648) state that questionnaires have the added advantage of being less costly to administer than other research instruments and if administered anonymously, yield accurate results. Questionnaires can also be administered using different media such as e-mails and hard-copy handouts (Bhaskar and Manjuladevi 2016:649). The questionnaire for the incumbent study will consist of a cover letter and three sections. The cover letter will state the topic, the purpose of the investigation, an indication of the regard for confidentiality, instructions on how to fill-in the questionnaire, the approximate time it will take to complete the questionnaire and how the respondents are expected to submit the completed questionnaire. Respondents will

also be duly informed that they are at liberty to withdraw from participating at any given moment. Section A will consist of questions in respect of the pre-determined variables that are deemed to influence the service quality perceptions of young adults. The questions in Section A will be Likert-scale type questions with responses ranging from strongly disagree, disagree, neutral, agree to strongly agree. The pre-determined variables are derived from the service quality model advocated by Park and Kim (2014:380), namely, perceived security, customer satisfaction, intent for continued use and perceived connectedness. Section B will allow respondents to make brief comments in respect of the study and Section C will consist of respondent's biographical details such as their gender, age and level of education. A copy of the questionnaire will be attached in Annexure A.

Table 3.1: Survey questionnaire items

Statement	Sources adapted from
Perceived Security	
I am certain that the privacy of my information on my mobile network is guaranteed.	Park and Kim (2014:380)
I am confident that no unauthorised parties can view my data stored on my mobile network without my consent.	Park and Kim (2014:380)
I am certain that my data will not be altered online by unauthorised person/s.	Park and Kim (2014:380)
I am confident that I will always be able to access my information stored on my mobile network.	Self-developed
I am confident that the data stored on my mobile network will not be lost.	Self-developed
I am confident that my location information and whereabouts remain privy to myself, my mobile network operator and authorised person/s only.	Self-developed
I am confident that upon losing my mobile device, my mobile network operator is able to track it.	Self-developed
I am satisfied with the security provided by my mobile network operator.	Park and Kim (2014:380)

Table 3.1: Survey questionnaire items (ctd)

Customer satisfaction	
My cell phone network provider meets my expectations.	Self-developed
I would recommend my cell phone network provider to others who wish to use it.	Self-developed
My cell phone network provider helps me perform tasks on my device more efficiently.	Self-developed
My cell phone network provider understands my user needs.	Self-developed
I enjoy spending time on my mobile device because of my cell phone network provider.	Self-developed
I am content with the pricing structure and tariffs of my cell phone network provider.	Forogh, Dasanayaka, Al Serhan, Alariki, Houjeir and Recezy (2017:124)
I find it easy to access the products and services that I require from my cell phone network provider.	Forogh, Dasanayaka, Al Serhan, Alariki, Houjeir and Recezy (2017:124)
My cell phone network provider fits in well with my lifestyle needs.	Self-developed
Intent for continued use	
I plan to continue using my cell phone network provider's services for the foreseeable future.	Park and Kim (2014:380)
Satisfaction with my cell phone network provider keeps me using its products and services.	Park and Kim (2014:380)
I continue using my cell phone network provider because its products and services are user-friendly.	Hamari and Koivisto (2015:421)
I continue using my cell phone network provider's products and services because of societal expectations.	Joia and Altieri (2018:205)
I continue using my cell phone network provider's products and services because I find no better alternative.	Li (2015:374)

Table 3.1: Survey questionnaire items (ctd)

I continue using my cell phone network provider's products and services because it regularly upgrades its technology.	Self-developed
I continue using my cell phone network provider's products and services because of the high costs of switching to other providers.	Hadi, Aslam and Gulzar (2019:2)
I intend to continue using my cell phone network provider because it is an enjoyable experience.	Merikivi, Tuunainen and Nguyen (2017:412)
Perceived connectedness	
I feel connected to the outside world because I can access any information online through my mobile network provider.	Park and Kim (2014:380)
I feel connected to online spaces because my mobile network supports the applications that I use.	Park and Kim (2014:380)
I feel at ease knowing that my cell phone network provider gives me access to services that interest me at any time.	Park and Kim (2014:380)
I have a sense of belonging through the use of my cell phone network provider's services.	Kardos, Unoka, Pléh and Soltész (2018:85)
I am confident of broadband connectivity through my cell phone network provider wherever I am.	Self-developed
I can connect easily to people using different cell phone network providers.	Hsiao and Chen (2016:21)
My cell phone network provider satisfies my inherent need to feel connected to others.	Zeifmann and College (2018:139)
My cell phone network provider enhances the connectedness in my relationships.	Gazit and Aharony (2018:392)
Service quality	
I am content with the network coverage provided by my cell phone network provider.	Forogh, Dasanayaka, Al Serhan, Alariki, Houjeir and Recezy (2017:124)

Table 3.1: Survey questionnaire items (ctd)

My cell phone network provider's support services meet my expectations.	Tilahun (2016:25)
My cell phone network provider provides a broad range of useful products and services.	Park and Kim (2014:380)
I have not experienced any service limitations while using my cell phone network.	Park and Kim (2014:380)
I receive good after-sales service from my cell phone network provider.	Sharma, Sharma, Khan and Srivastava (2016:265)
My cell phone network provider addresses complaints in a timely manner.	Teeroovengadam, Kamalanabhan and Seebaluck (2016:246)
My cell phone network provider employs competent staff to attend to customer service complaints.	Hemsley-Brown and Alnawas (2016:2774)
My cell phone network provider uses the latest technology to identify my personal customer preferences.	Lai and Hitchcock (2016:140)

3.5 DATA ANALYSIS

Data analysis is the second part of the research methodology and it involves scaling down a large volume of data in order to draw meaning from it (Bryman 2016:11). Tools such as graphs are commonly used in data analysis as they reflect consistencies in the data (Chambers 2017:8). According to Bengtsson (2016:8) this is done with a view to making the researcher impartial by arranging the data categorically. The primary data will be captured onto Microsoft Excel spreadsheets and subsequently exported for statistical analysis using Statistica version 13.0. From the Statistica software, the researchers will determine measures of central tendency, frequencies and dispersions. Moreover, the researchers will extract inferential statistics such as Pearson's correlation co-efficient and multiple regression analysis. These will assist in determining the validity and reliability of the data collected.

3.5.1 Descriptive statistics

Frankfort-Nachmias and Leon-Guerrero (2017:15) define descriptive statistics as processes that assist a researcher in structuring data collected from a sample. In conjunction with this

definition, Jackson (2015:98-104) views descriptive statistics as the means by which data obtained from a study is collated and described using numerical measures. In compiling descriptive statistics, a researcher's objective must be to condense the data without distorting its meaning (Mishra, Pandey, Singh, Gupta, Sahu & Keshri 2019:67). Most scholars, including Mishra *et al.* (2019:67) agree that there are three main types of descriptive statistics: measures of central tendency, measures of frequency and measures of dispersion. Measures of central tendency consist of the mean, median and mode. Measures of frequency consist of frequency and percentage. Lastly, measures of dispersion comprise of the variance, standard deviation, inter-quartile range and the coefficient of variation.

The mean is the most commonly used measure and is calculated by determining the arithmetic and mathematical average that is the sum of scores divided by the number of scores. The median is the mid-point of a distribution of data. The mode is the re-occurrence of the same response or what is most frequently observed in the population (Jankowski & Flannelly 2015:40-45). Deshpande, Gogtay and Thatte (2016:64-66) define variance as the difference between an individual member of the sample and the average member of the sample. Standard deviation is a measure of the dispersion between recorded data and the mean of the population. Inter-quartile range is determined by splitting the range of data into four equal parts. The coefficient of variation is expressed as a percentage and is used to determine the spread between two sets of data (Deshpande *et al.* 2016:64-66).

3.5.2 Validity

Leung (2015:325) defines validity as the relevance of the research question, methodology, design, sampling and data analysis for the purposes of the research. According to Straus (2017:26) validity is the most crucial and challenging facet of an instrument to determine. This is attributed to the fact that it is difficult to obtain an instrument that accurately measures the desired primary data against existing secondary data. Straus (2017:26) also purports that the challenge of validity is attributed to a lack of correct benchmarking for the instrument to be used in spite of the large body of written work available. The accuracy of the results in addressing the research question determines the validity of the research. In order for the methodology adopted for the research and outcomes to be valid, Leung (2015:325) advises that the overarching research paradigm must be kept in mind at all times throughout the study. Heale and Twycross (2015:66) also explore the concept of validity by emphasizing that accuracy is the key determinant of validity. Therefore, a study must be designed such that the

research instrument and procedures correctly capture the purposes for which the study is undertaken (Heale and Twycross 2015:66-67).

Validity has been widely conceptualised by numerous researchers and various types of validity have been proposed. Evans, Huising and Silbey (2016:7) identify two major classes of validity, namely, internal and external validity. Internal validity is concerned with how consistent results are among respondents or participants within the sample frame whereas external validity is concerned with how consistent results are with secondary data outside of the sampled population in a particular study (Evans *et al.* 2016:7). Internal validity, therefore, seeks to establish a high degree of correlation between the results of the study and the independent variable of the study, while external validity seeks to establish a high correlation between the results of the study and the general population of non-respondents (Siegmund, Siegmund and Apel 2015:9).

Validity is measured using the Exploratory Factor Analysis (EFA). The researchers will use this tool to reduce all unnecessary influences that might affect the dependent variable of the incumbent study. This is known as latent factor reduction (Osborne 2015:1). Reio and Shuck (2015:13) are of a similar disposition, as they advocate EFA as a useful tool for quantitative enquiry. According to Reio and Shuck (2015:13) EFA is used during the early stages of a study to identify the highest number of elements that affect relationships between variables. It must be noted that EFA, unlike its parallel concept, Confirmatory Factor Analysis (CFA), does not consider the theoretical background behind the variables and may be carried out in the presence or absence of a theoretical background (Reio and Shuck 2015:13). Researchers note three important applications of EFA in investigative enquiry, namely, scaling down variables to the most relevant required for the study, determining the nature of relationships between measured variables and their theoretical basis thus providing for accurate hypotheses, and serving as proof that the chosen research instrument will contribute to valid results (Osborne 2015:1; Barendse, Oort, and Timmerman 2015:87; Beeson, Holmboe, Korte, Nasca, Brigham, Russ, Whitley and Reisdorff 2015:843).

3.5.3 Reliability

According to Kamper (2019:286) reliability is the degree to which a process can be carried out several times and yield consistent results. Sutton, Atamna, Steinman and Mair (2019:75) are of the view that validity precedes reliability and that the two concepts are not mutually exclusive. Therefore, in order for a study to be reliable, it must also be valid (Sutton *et al.*

2019:75; Kamper 2019:286). Noble and Smith (2015:1) advise that when researchers are evaluating the reliability of their research, they are to focus on how dependable the methodology and research instrument are in yielding truthful results. Furthermore, in order for a study to be reliable, Sarma (2015:184) suggests that such a study must produce a similar set of results if carried out repeatedly with respondents in the same setting. This position is reiterated by Mohajan (2017:2) who associates reliability of research findings with the ability of a research instrument to cater for the occurrence of arbitrary mistakes, thereby producing consistent results. Goode, Salmon, Taylor, Lenné and Finch (2017:16) posit two important characteristics of reliable studies; firstly, that a researcher's methodology must produce the same results consistently when used on different samples of respondents; secondly, when the researcher's methodology is used by any other researcher, it must still produce the same results even if the latter researcher is less experienced in the field of study.

Reliability can be detected when the primary research data is consistent with data that has been obtained from secondary sources (Leung 2015:326). Goode *et al.* (2017:16), however, express the lack of a standard framework for determining acceptable reliability in most studies as a major concern, as each researcher will eventually use their discretion to determine the acceptable level of reliability as well as the error that is deemed material. In order to increase the reliability of research findings, Palić (2015:9) suggests that researchers must apply a mixed methods approach to verify their findings with primary and secondary data from other similar studies.

The reliability of a study is measured using Cronbach's alpha (Bonett and Wright 2015:3). Taber (2018:1275) lauds Cronbach's alpha as one the most essential and prevalent tools to test for reliability of the research and instrument. Diedenhofen and Musch (2016:51) further appraise Cronbach's alpha by stating that alpha can be determined in one session and that no complementary exercise is required that complies with stringent rules. Some scholars highlight commonly held misunderstandings about the application of Cronbach's alpha. Cho and Kim (2015:210) posit that a high alpha measurement does not mean that there is correlation between the sets of data under investigation. In addition, Cho and Kim (2015:218) warn that Cronbach's alpha is not necessarily the best measure of reliability, citing other coefficients such as McDonald's and Max's coefficients. Vaske *et al.* (2017:163-164) highlight the limitations of Cronbach's alpha by positing that the number of items on its rating scale are insufficient and therefore, have the undesired effect of concealing errors given by survey respondents. However, it is common to use Cronbach's alpha as the standard test for reliability as no

conclusive evidence can be found that other coefficients serve as better determinants of reliability.

3.5.4 Pearson's correlation co-efficient and multiple regression analysis

Zhou, Deng, Xia and Fu (2016:209) describe Pearson's correlation coefficient as the degree to which one variable depends on another variable. Scholars in various fields still prefer to use this variable relationship measuring tool to determine co-dependency. The value obtained from an analysis of two sets of data using Pearson's correlation coefficient can be negative, neutral or positive depending on the type of relationship between the data (Schober, Boer and Schwarte 2018: 1763). This tool, therefore, assists the researcher to establish a level of confidence in the relationship between data where there is uncertainty about their correlation (Schober *et al.* 2018:1763). The researchers will make use of this tool to evaluate the correlation between the independent variables and the dependent variable of this study.

According to Chatterjee and Hadi (2012:1) regression analysis is a technique used to determine the correlation between variables, including variables that may not be linearly related. Regression analysis is a repetitive process where outcomes are utilised to scrutinise, affirm and identify the inserted data (Chatterjee & Hadi 2012:20). Multiple regression analysis is lauded by Nataraja, Nagaraja and Ganesh (2018:2-3) who advocate it as a means with which formality can be achieved in assessing relationships between linear and non-linear variables. The researchers will also make use of this tool in order to assess the correlation between the identified independent variables and the dependent variable.

3.5.5 Content and language analysis

According to Bennett, Barrett and Helmich (2019:8) where respondents are required to give subjective views on the subject in question, content analysis and language analysis are the appropriate techniques to analyse the data from the responses. Content analysis involves identifying consistent themes or patterns within the data in order to get an overview of the sentiments of the respondents (Nassaji 2015:130). Language analysis, on the other hand, involves the identification of specific descriptive terms and phrases that reflect a respondent's position on the subject under investigation (Bennett *et al.* 2019:10). The researchers will analyse Section B of the questionnaire by identifying recurring word patterns in order to understand the respondents' perceptions on the service quality of their cell phone network providers. Furthermore, specific words that give an overall perception of the cell phone network providers will be singled out, along with any phrases that help give a better

understanding of the respondents' perceptions. Subsequently, conclusions will be drawn to get an overall understanding of the respondents' perceptions.

3.6 SUMMARY

In this chapter quantitative and qualitative research methodologies were explored. Positivistic and interpretative paradigms were explained. The researchers explicated the characteristics of both research paradigms and highlighted their relative merits. An indication of the chosen research methodology was given, namely, quantitative research. The methods that can be adopted for both interpretative and positivistic enquiry were explained and a brief rationale for the use of a positivistic approach was given. Data collection methods consisting of secondary and primary data were discussed and the chosen research instrument for the study was explained. An explanation of the data analysis techniques which will be used in analysing the data's validity and reliability was also given. Finally, Pearson's correlation coefficient and multiple regression analysis were discussed.

In the following chapter, a presentation on the empirical results gathered from the investigation of the perceptions of young adults on the service quality of cell phone network providers will be given.

CHAPTER 4: EMPIRICAL RESULTS

4.1 INTRODUCTION

In Chapter 3 the researchers presented the methodology that was used to conduct this study. The selected approach was positivistic and as such quantitative analysis was carried out. A survey was conducted to collect the primary data and the selected research instrument was a Likert-scale questionnaire. Respondents were also given the opportunity to make brief comments in respect of the study. Secondary data was obtained from literature in order to acquire a better understanding of the study. The researchers distributed questionnaires to 160 respondents. 150 questionnaires were successfully completed and returned. 10 of the questionnaires were either not returned or deemed unfit for analysis due to reasons such as incompleteness and ineligibility. Therefore, 93.75% of the questionnaires were successfully completed and useable for empirical analysis.

In this chapter the researchers will present the results obtained from the empirical analysis of the primary data. Primary data was captured on Microsoft Excel and analysed using Statistica 13.0. The results in respect of the biographical data will be presented first, followed by results in respect of the Likert-scale responses. Subsequently, the results of the comments made by the respondents will be presented.

4.2 BIOGRAPHICAL RESULTS

The findings presented in Figures 4.1 to 4.6 below were obtained from respondents between the ages of 18 and 25 inclusively who reside in Nelson Mandela Bay. The respondents' cell phone network providers, ethnicities, gender, levels of education and employment status were captured for analysis and are presented as follows:

Figure 4.1: Cell phone network providers of the respondents

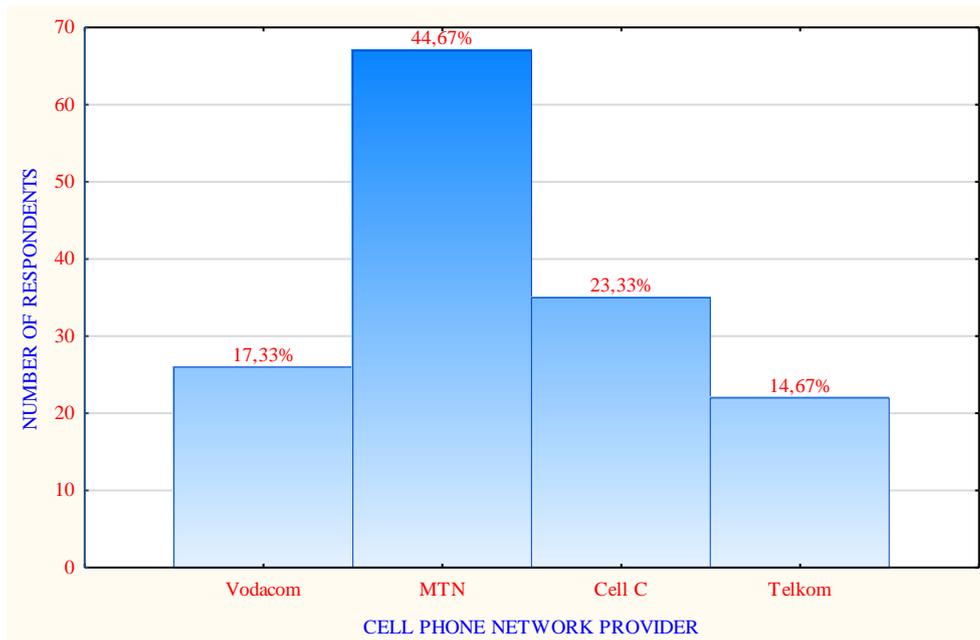


Figure 4.1 reveals that most of the respondents (44.67%) subscribe to MTN. Cell C has the second highest number of subscribers from the study with 23.33% of the respondents, while Vodacom and Telkom take third and fourth place with 17.33% and 14.67% of the respondents respectively

Figure 4.2: Ethnicities of the respondents

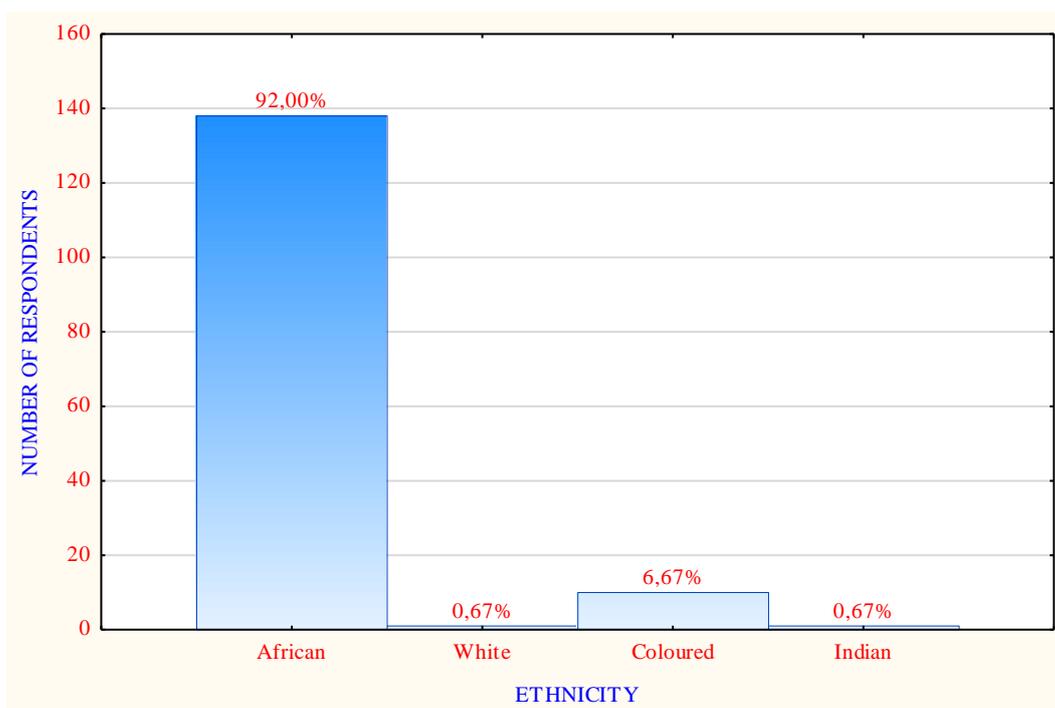
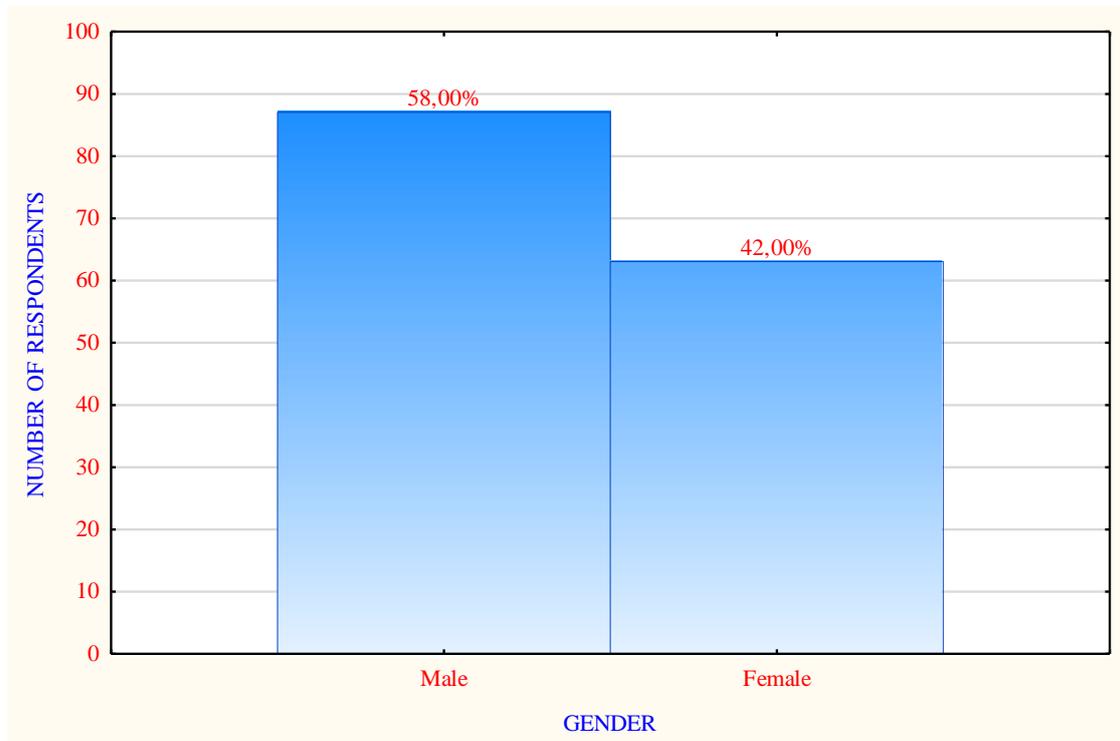


Figure 4.2 depicts that the largest number of respondents (92%) were of African descent, with Coloured respondents constituting 6.67% of the population. White and Indian respondents were tied at 0.67% of the sample apiece.

Figure 4.3: Gender of the respondents.



In Figure 4.3 the difference between the numbers of respondents according to gender is presented, with male and female respondents constituting 58% and 42% of the sample respectively.

Figure 4.4: Ages of the respondents.



In Figure 4.4 the distribution of the respondents according to age is depicted. The number of respondents increases gradually with age. 7.43% and 21.62% of the respondents were in the age ranges of 18-19 and 20-21 respectively. Similarly, 29.73% of the respondents were in the 22-23 category while 41.22% of the respondents were in the 24-25 category.

Figure 4.5: Level of education of the respondents.

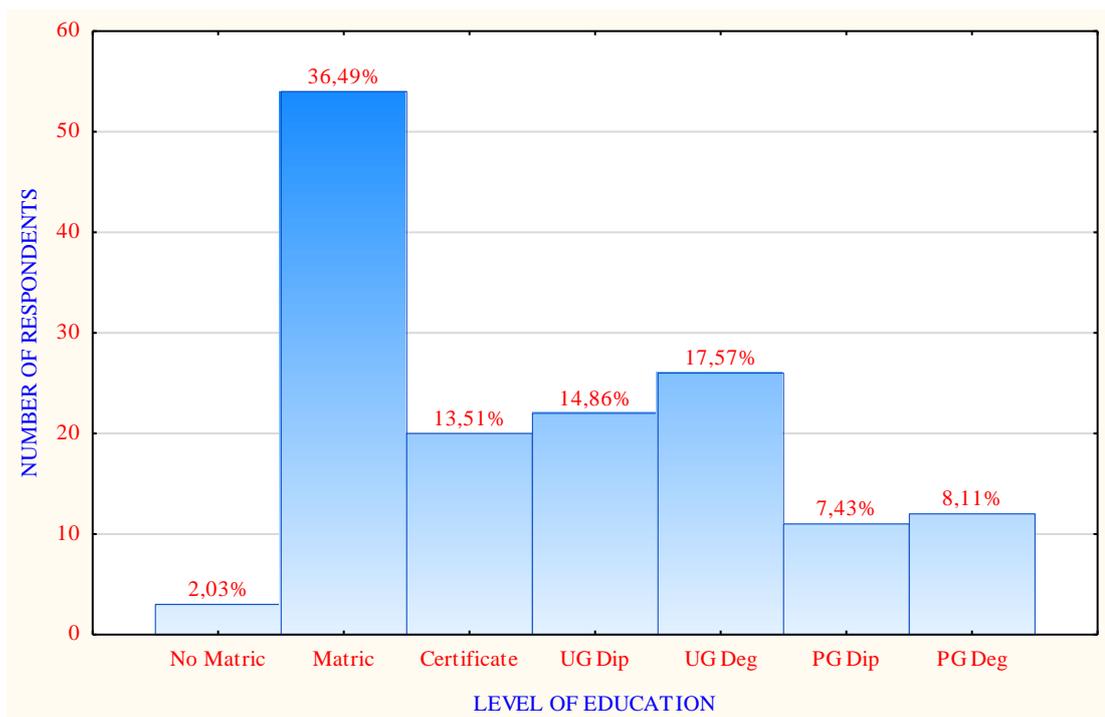
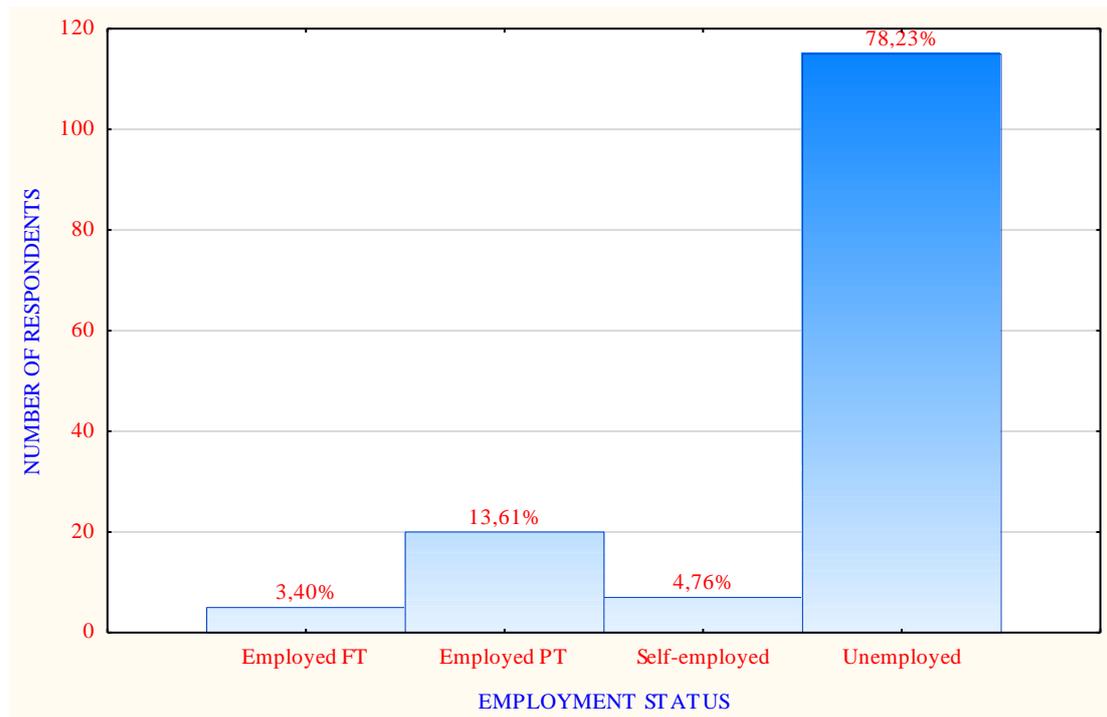


Figure 4.5 shows that 36.49% of the respondents held a matric certificate. The respondents that held qualifications from tertiary institutions were distributed as follows: 17.57% held an undergraduate degree, 14.86% an undergraduate diploma, 13.51% a certificate, 8.11% a postgraduate degree and 7.43% a postgraduate diploma. Only 2.03% of the respondents had no formal education at all.

Figure 4.6: Employment status of the respondents.



The results in Figure 4.6 reveal that an overwhelming majority of the respondents (78.23%) were unemployed, while 13.61% were employed part-time. Respondents that were employed self-employed and employed full-time constituted 4.67% and 3.40% of the sample respectively.

4.3 VALIDITY AND RELIABILITY ANALYSIS RESULTS

The researchers made use of an exploratory factor analysis (EFA) to determine the validity of the research instrument in measuring the components of the hypothesised model. Factor loadings greater than 0.5 were considered significant in determining validity in respect of the study (Hair, Black, Babin & Anderson 2014:115). Cronbach's alpha coefficient was used to determine the reliability of the findings of the study. A Cronbach alpha coefficient of 0.7 was

considered acceptable in determining the reliability of the study (Hair *et al.* 2014:90). In this section the researchers will present the results in respect of validity and reliability for the independent variables as well as the dependent variable of the study. The full factor loadings are attached in Annexure B. A total of forty questions were developed to measure four independent variables and one dependent variable. The questions were codified for analysis to represent their respective variables as follows:

Table 4.1: Codification of research instrument variables

Variable	Code
Perceived security	PS
Customer satisfaction	CS
Intent for continued use	CU
Perceived connectedness	PC
Service quality	SQ

The results of the EFA revealed that item CU (intent for continued use) did not load as expected, but rather cross-loaded into the factor loadings of the other variables. As a result, the researchers have excluded intent for continued use from the empirical analysis and will reformulate the definitions and hypotheses in respect of the study. The remaining three independent variables were subsequently tested for validity. The EFA did not yield any cross-loadings of factors, however, item PS5 in respect of perceived security did not load in the analysis and was therefore discarded from further testing. The results of the EFA in respect of perceived security, customer satisfaction, perceived connectedness and service quality are presented as follows:

4.3.1 Perceived security

An EFA was carried out to determine the validity of the scale measuring the independent variable perceived security. Cronbach's alpha coefficient was used to determine the reliability of the tests carried out in respect of perceived security. The factor loadings and Cronbach alpha coefficient for perceived security are presented in Table 4.2.

Table 4.2: Validity and reliability of perceived security

Variance in data: 14.26%		Cronbach's alpha coefficient: 0.7872		
Item		Factor loadings	Item total correlation	Cronbach alpha if deleted
PS2	I am confident that no unauthorised parties can view my data stored in mobile networks without my consent.	0,7877	0,6491	0,7330
PS1	I am confident that the privacy of my information on my mobile network is guaranteed.	0,7512	0,6494	0,7315
PS4	I am confident that I will always be able to access my information stored on my mobile network.	0,6360	0,5461	0,7538
PS3	I am confident that my data will not be altered online by unauthorised persons.	0,6310	0,4759	0,7671
PS8	I am satisfied with the security provided by my mobile network operator.	0,5828	0,5422	0,7555
PS6	My location information and whereabouts remain privy to myself, my mobile network operator and authorised persons only.	0,5462	0,4436	0,7733
PS7	I am confident that upon losing my mobile device, my mobile network operator is able to track it.	0,5432	0,3218	0,8001

Table 4.2 shows that seven of the eight items developed to measure perceived security loaded into the EFA, that is, items PS1, PS2, PS3, PS4, PS6, PS7 and PS8, with the exception of item PS5. Item PS5 did not load into any of the other variables as it fell significantly short of the acceptable factor loading threshold of 0.5. This may be attributed to respondents feeling that the data stored on their mobile networks did not pose a significant threat to their security. Ooi and Tan (2016:37) observe that data loss on mobile networks is usually a significant security

concern only among users who stand to incur a substantial financial loss. The researchers infer that young adults do not deem the loss of their data on mobile networks as a significant concern. As such, item PS5 may not be a valid measure of the perceived security construct for the incumbent study. Apart from item PS5, the factor loadings in respect of this construct ranged from 0.5432 to 0.7877, which was well above the 0.5 threshold.

On this basis, the researchers assert that there is sufficient evidence for the validity of the perceived security factor in measuring the service quality perceptions of young adults in Nelson Mandela Bay. The Cronbach alpha coefficient for the perceived security factor was determined at 0.7872, which is marginally above the 0.7 threshold for reliability. This indicates that the scale measuring the factor perceived security is reliable. The factor loadings in respect of perceived security explain 14.26% of the total variance in the data collected for the study.

4.3.2 Customer satisfaction

Table 4.3 presents the factor loadings and Cronbach alpha coefficient for the factor customer satisfaction.

Table 4.3: Validity and reliability of customer satisfaction

Variance in data: 17.91%		Cronbach's alpha coefficient: 0.8545		
Item		Factor loadings	Item total correlation	Cronbach alpha if deleted
CS8	My cell phone network provider fits in well with my lifestyle needs.	0,7607	0,7111	0,8232
CS4	My cell phone network provider understands my user needs.	0,6955	0,6503	0,8312
CS2	I would recommend my cell phone network provider to others who wish to use it.	0,6816	0,6501	0,8306

Table 4.3: Validity and reliability of customer satisfaction (ctd)

Variance in data: 17.91%		Cronbach's alpha coefficient: 0.8545		
Item		Factor loadings	Item total correlation	Cronbach alpha if deleted
CS6	I am content with the pricing structure and tariffs of my cell phone network provider.	0,6679	0,5135	0,8497
CS5	I enjoy spending time on my mobile device because of my cell phone network provider.	0,6340	0,5969	0,8370
CS3	My cell phone network provider helps me perform tasks on my device more efficiently.	0,6293	0,5560	0,8418
CS1	My cell phone network provider meets my expectations.	0,6106	0,6191	0,8001
CS7	I find it easy to access the products and services that I require from my cell phone network provider	0,6100	0,4970	0,8480

Table 4.3 shows that all eight items developed to measure customer satisfaction loaded successfully into the EFA, that is, items CS1, CS2, CS3, CS4, CS5, CS6, CS7 and CS8. This may be attributed to the respondents feeling that the items accurately measured their satisfaction with their cell phone network. The factor loadings in respect of customer satisfaction ranged from 0.6100 to 0.7606, which was well above the 0.5 threshold.

On this basis, the researchers assert that there is sufficient evidence for the validity of the customer satisfaction factor in measuring the service quality perceptions of young adults in Nelson Mandela Bay. The Cronbach alpha coefficient for the customer satisfaction factor was determined at 0.8545, which is marginally above the 0.7 threshold for reliability. This indicates that the scale measuring the factor customer satisfaction is reliable. The factor loadings in

respect of perceived security explain 17.91% of the total variance in the data collected for the study.

4.3.3 Perceived connectedness

Table 4.4 presents the factor loadings and Cronbach alpha coefficient for the factor perceived connectedness.

Table 4.4: Validity and reliability of perceived connectedness.

Variance in data: 16.17%		Cronbach's alpha coefficient: 0.8445		
Item		Factor loadings	Item total correlation	Cronbach alpha if deleted
PC3	My cell phone network provider fits in well with my lifestyle needs.	0,7459	0,7016	0,8094
PC6	My cell phone network provider understands my user needs.	0,7002	0,5942	0,8244
PC7	I would recommend my cell phone network provider to others who wish to use it.	0,6830	0,5942	0,8243
PC4	I am content with the pricing structure and tariffs of my cell phone network provider.	0,6658	0,5546	0,8291
PC2	I enjoy spending time on my mobile device because of my cell phone network provider.	0,6032	0,6047	0,8231
PC8	My cell phone network provider helps me perform tasks on my device more efficiently.	0,5773	0,4934	0,8361
PC1	My cell phone network provider meets my expectations.	0,5712	0,5736	0,8267

Table 4.4 shows that seven of the eight items developed to measure perceived connectedness loaded successfully into the EFA, that is, items PC1, PC2, PC3, PC4, PC6, PC7 and PC8, with the exception of item PC5. Item PC5 did not load into any of the other variables as it fell significantly short of the acceptable factor loading threshold of 0.5. This may be attributed to the respondents feeling that broadband connectivity does not necessarily imply connectedness. Other factors could therefore be more strongly associated with perceived connectedness. According to Al-Arabi, Ahmad and Salman (2015:71) in order for a user to feel connected there has to be an actual interaction between a user and other people and not only a connection with the network provider. PC5 may, therefore, not be a valid measure of the perceived connectedness construct for the incumbent study. Apart from item PC5, the factor loadings in respect of this construct ranged from 0.5712 to 0.7459, which was well above the 0.5 threshold.

On this basis, the researchers assert that there is sufficient evidence for the validity of the perceived connectedness factor in measuring the service quality perceptions of young adults in Nelson Mandela Bay. The Cronbach alpha coefficient for the perceived connectedness construct was determined at 0.8445, which is marginally above the 0.7 threshold for reliability. This indicates that the scale measuring the factor perceived connectedness is reliable. The factor loadings in respect of perceived security explain 16.71% of the total variance in the data collected for the study.

4.3.4 Service quality

Table 4.5 presents the factor loadings and Cronbach alpha coefficient for the factor service quality.

Table 4.5: Validity and reliability of service quality

Variance in data: 39.03%		Cronbach's alpha coefficient: 0.7736		
Item		Factor loadings	Item total correlation	Cronbach alpha if deleted
SQ4	I have not experienced any service limitations while using my cell phone network provider.	-0,5359	0,3978	0,7641

Table 4.5: Validity and reliability of service quality (ctd)

Variance in data: 39.03%		Cronbach's alpha coefficient: 0.7736		
Item	Factor loadings	Item total correlation	Cronbach alpha if deleted	0,8244
SQ7	My cell phone network provider employs competent staff to attend to customer service complaints.	-0,6027	0,4522	0,7530
SQ5	I receive good after-sales service from my cell phone network provider.	-0,6115	0,4594	0,7518
SQ1	I am content with the network coverage provided by my cell phone network provider.	-0,6249	0,4767	0,7491
SQ3	My cell phone network provider provides a broad range of useful products and services.	-0,6404	0,4860	0,7478
SQ6	My cell phone network provider addresses complaints in a timely manner.	-0,6786	0,5379	0,7383
SQ2	My cell phone network provider's support services meet my expectations.	-0,7038	0,563967	0,73312

Table 4.5 shows that all eight items developed to measure service quality loaded successfully into the EFA, that is, items SQ1, SQ2, SQ3, SQ4, SQ5, SQ6, SQ7 and SQ8. This may be attributed to the respondents feeling that the items accurately measured the service quality experience with their cell phone network provider. The factor loadings in respect of service quality ranged from -0.7038 to -0.5359, which was marginally above the 0.5 threshold. The Cronbach alpha coefficient for the service quality factor was determined at 0.7736, which is marginally above the 0.7 threshold for reliability. This indicates that the scale measuring the factor service quality is reliable. The factor loadings in respect of perceived security explain 39.03% of the total variance in the data collected for the study.

Overall, perceived security, customer satisfaction and perceived connectedness account for 48.35% of the variance in the data obtained for the study. Factor loadings for these independent variables loaded as expected. Factor loadings in respect of service quality also loaded as expected. However, factor loadings in respect of intent for continued use did not load as expected.

4.4 REVISED HYPOTHESISED MODEL AND HYPOTHESES

As a result of the factor analyses, the operationalisation of the dependent and independent variables was reformulated. Table 4.6 presents the reformulated definitions of the variables of the study.

Table 4.6: Revised variable definitions

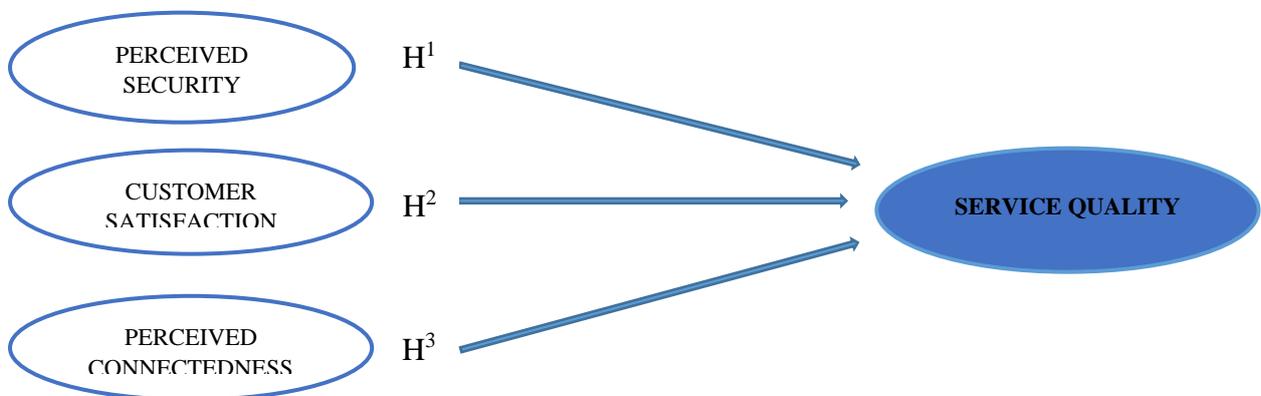
Variable	Operationalisation
Perceived security	Refers to the level of trust that a user of a mobile device has in the cell phone network provider. It is usually indicated by how much information a user divulges to third parties through the cell phone network provider as well as the sensitivity of such information to the user. The level of trust is exercised only to the extent that the user is comfortable enough that divulgence of such information will not prejudice the user.
Customer satisfaction	Refers to the efficiency with which a cell phone network provider meets the expectations of users in delivering its products and services. It also refers to the ability to match products and services with the appropriate users. The manner, timing, platform and extent of the delivery is influenced by an ongoing relationship between the user and the cell phone network provider. This leads to more accurate profiling of users by cell phone network providers and, therefore, greater ability to meet their customer needs more effectively.

Table 4.6: Revised variable definitions (ctd)

Variable	Operationalisation
Perceived connectedness	Can be explained in two ways; connectedness to other people and connectedness to the cell phone network provider. This refers to the confidence that a user has in their cell phone network provider that connectivity with both other people and the service provider is almost always guaranteed. Users perceive a connection when they are assured that they can communicate with their contemporaries as well as their service provider both actively and passively as and when the need arises.
Service quality	Refers to a user’s overall opinion of the manner of delivery and nature of a cell phone network provider’s products and services. It consists of multiple facets brought together by the user in arriving at the decision whether they find using the cell phone network provider to be enjoyable.

Furthermore, the hypothesised model was revised, and the hypotheses reformulated to suit the objectives of the study more accurately. The relationships depicted in the revised hypothesised model and the reformulated hypotheses were subjected to further empirical testing.

Figure 4.7: Revised hypothesised model – Investigating the perceptions of young adults on the service quality of cell phone network providers.



Source: Adapted from Park and Kim (2014)

The reformulated hypotheses are as follows:

H¹: There is a significant relationship between perceived security and service quality.

H²: There is a significant relationship between customer satisfaction and service quality.

H³: There is a significant relationship between perceived connectedness and service quality.

4.5 DESCRIPTIVE STATISTICS ON THE STUDY DATA

In this section a descriptive statistical analysis of the data obtained from the respondents will be conducted. The analysis will be carried out by determining the measures of central tendency and dispersion of the data on Statistica. These comprise of the mean scores, standard deviations and the frequency distributions. The respondents have also been grouped into three categories, namely agree, disagree and neutral. The mean number of respondents who either strongly agreed or agreed with the statements in the questionnaire have been categorised into the agree section. Similarly, respondents who either strongly disagreed or disagreed with the statements have been categorised into the disagree section. A neutral category has also been created for the mean number of respondents who were neutral in their responses. Table 4.7 presents the mean scores and standard deviations returned for the data.

Table 4.7: Descriptive statistics

Variable	Mean	Standard Deviation	Agree %	Neutral %	Disagree %
Perceived security	3,0763	0,6844	17.33	74.00	8.67
Customer satisfaction	3,2239	0,7306	26.00	61.33	12.67
Perceived connectedness	3,5184	0,6636	44.67	50	5.33
Service quality	3,1513	0,6221	16.67	75.33	8.00

The mean is used to determine the average responses returned from the data for each of the variables thereby giving a general idea of how most of the respondents responded. From the mean scores of the descriptive analysis, it can be deduced that the respondents were neutral on

most of the statements of the variables as set out in the questionnaire. Perceived connectedness returned the highest mean score (3.5184), implying that most respondents agreed to the statements of the variable than the statements of the other variables. Customer satisfaction returned the second highest mean score (3.2239), while service quality (3.1513) and perceived security (3.0763) were third and fourth respectively. The standard deviation returned on customer satisfaction was the highest at 0.7306. This represents the largest deviation from the mean score for all the variables. A large standard deviation implies that there were extremely varying views about the factor under investigation (Lee, In & Lee 2015:220). Perceived security returned the second highest standard deviation (0.6844), while perceived connectedness (0.6636) and service quality (0.6221) were third and fourth respectively.

17.33% of the respondents agreed with the statements pertaining to perceived security, 74.00% were neutral and 8.67% disagreed. 26% of the respondents agreed with the statements pertaining to customer satisfaction, 61.33% were neutral and 12.67% disagreed. 44.67% of the respondents agreed with the statements pertaining to perceived connectedness while 50% were neutral. Only 5.33% of the respondents disagreed with the statements pertaining to perceived connectedness. 16.67% of the respondents agreed with the statements pertaining to service quality, while 75.33% remained neutral and 8.00% disagreed.

4.6 PEARSON'S PRODUCT CORRELATIONS

To determine whether the factors under investigation in this study were associated with one another, Pearson's product correlations were calculated. Table 4.8 presents the results of the correlations between the three independent variables of the study and the dependent variable.

Table 4.8: Pearson's product correlation coefficients

Variable	PS	CS	PC	SQ
PS	1,0000	0,3952*	0,3572*	0,3984*
CS	0,3952*	1,0000	0,6079**	0,6572**
PC	0,3572*	0,6079**	1,0000	0,6070**
SQ	0,3984*	0,6572**	0,6070**	1,0000
* moderate correlation		**strong correlation		

Note: Significant correlations are reported for $p < 0.05$

The analysis of the correlations between the variables reveals that all the correlations between the variables were positive and significant. A closer inspection of the results reveals that the three highest correlations were strong while the 3 lowest correlations were moderate. The strongest correlations (0.6572) were reported between customer satisfaction and service quality. Customer satisfaction and perceived connectedness also correlated strongly at 0.6079. Hall (2015:3) suggests that the closer the Pearson product correlation is to 1, the stronger the correlation between variables. Of the three strong correlations, perceived connectedness and service quality reported the lowest association at 0.6070. The lowest correlations were reported for perceived connectedness and perceived security at 0.3572. Customer satisfaction and perceived security reported a higher correlation of 0.3952 while service quality and perceived security reported a correlation of 0.3984.

With regard to the correlations between the independent variables and the dependent variable, two were strong and one was moderate. Service quality correlated strongly with both customer satisfaction and perceived connectedness. The correlation between service quality and perceived security was moderate. Pearson's product correlations, therefore, show that all the variables are correlated.

4.7 MULTIPLE REGRESSION ANALYSIS

In order to assess the influence of the independent variables on the service quality perceptions of young adults, a multiple regression analysis was carried out. Table 4.8 presents the results of the multiple regression analysis for the variables of the study.

Table 4.9: Influence of independent variables on service quality

Dependent variable: Service quality					$R^2 = 0.5124$ $F(3.146) = 51.162$ $p < 0.0000^{**}$	
Independent variables	b*	Std.Err.	b	Std.Err.	t(146)	p-value
Perceived security	0,1219	0,0637	0,1108	0,0579	1,9131	0,0577
Customer satisfaction	0,4227	0,0750	0,3599	0,0638	5,6379	0,0000 ^{**}
Perceived connectedness	0,3065	0,0737	0,2874	0,0691	4,1574	0,0001 ^{**}
Key: * $p < 0.05$ ** $p < 0.01$ N = 150						

Table 4.8 shows that the influence of the independent variables on the dependent variable service quality was positive [$F(3,146) = 51.162; p < 0.001$]. As pertains to the overall fitness of the model chosen for the study, the independent variables explained 51.24% of the variance in service quality. Two of the three variables (customer satisfaction and perceived connectedness) used after revision of the hypotheses were found to have a positive influence on service quality. A positive linear relationship was reported between customer satisfaction ($b^* = 0.4227; p < 0.001$) and service quality. In other words, the more the satisfaction that young adult users experience from their cell phone network providers, the better the perception about the service quality they will have. A positive linear relationship was also reported between perceived connectedness ($b^* = 0.3065; p < 0.001$) and service quality. In other words, the more the connectedness that young adult users perceive on their cell phone network provider, the better the perception that they will have about the service quality of the cell phone network provider.

Against this background, the researchers have sufficient evidence for the hypothesised relationships between the independent variables customer satisfaction (H^2) and perceived connectedness (H^3) and the dependent variable service quality. This study found no significant or positive statistical relationship between perceived security (H^1) ($b^* = 0.1219; p = 0.0577$) and service quality. In other words, perceived security has no influence on the perceptions of young adults at Nelson Mandela Bay about the service quality of cell phone network providers.

4.8 ANALYSIS OF COMMENTS BY RESPONDENTS

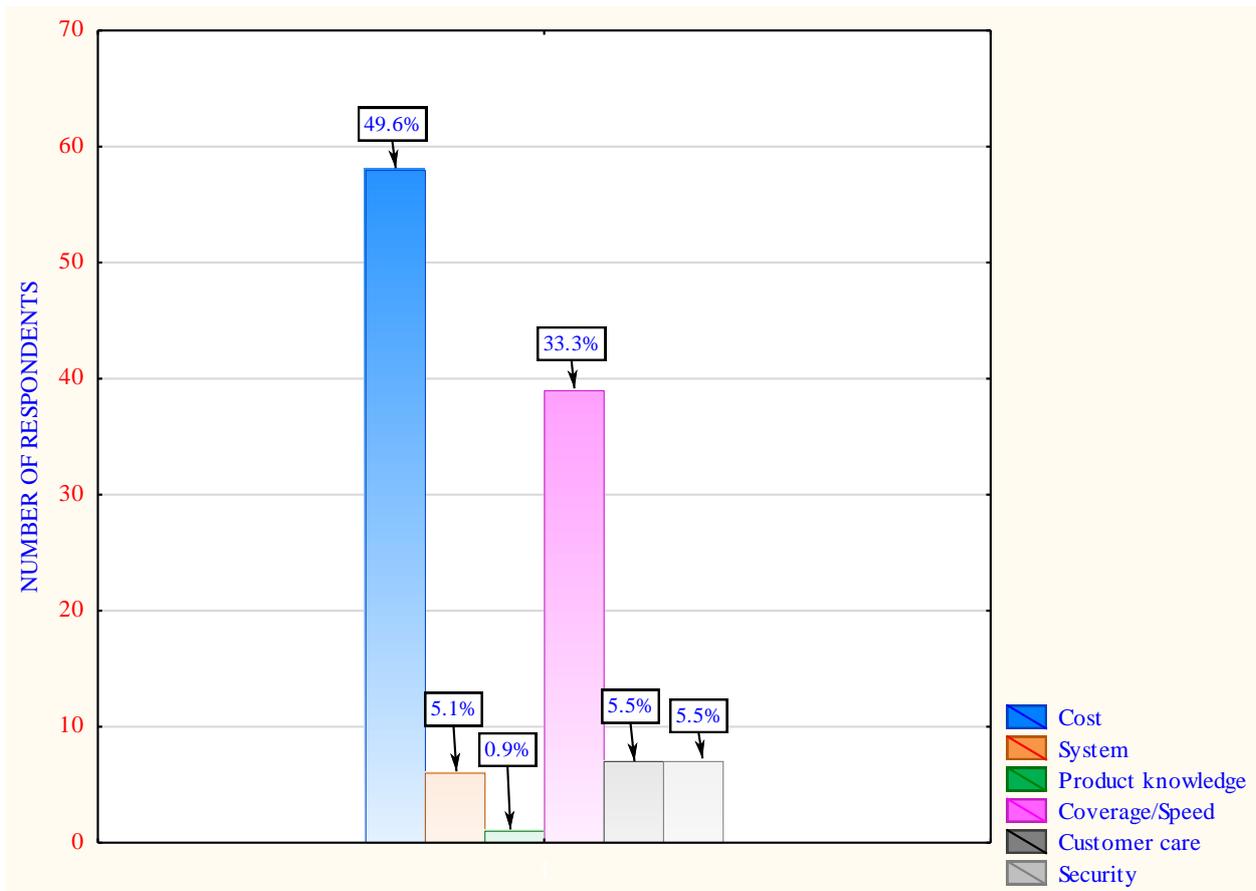
In order to obtain a more accurate view of the service quality perceptions of young adults, an analysis of their comments was carried out. The results of the brief comments were coded and classified into two broad categories, namely, complaints and recommendations. Within each broad classification six subcategories were identified by the researchers based on the respondents' remarks in Section B of the research instrument. The subcategories of the complaints broad class consisted of cost, system, product knowledge, network coverage (including network speed), customer care and security. The subcategories of the recommendations broad class consisted of lower tariffs, more products, improved customer care, improved connectivity (including network speed), more service centres and improved security. 17 respondents indicated that they had neither complaints nor suggestions on the service quality of their cell phone network provider, while 13 expressed that they were overall satisfied with their cell phone network provider. 3 respondents did not make any comments.

41 did not make any recommendations for the improvement of service quality in their comments. The results of the analysis presented in Figure 4.8 and Figure 4.9 are, therefore, based on the comments of 117 and 109 respondents respectively.

4.8.1 Complaints

The histogram below presents the complaints made by respondents in respect of their cell phone network providers.

Figure 4.8: Complaints on the service quality of cell phone network providers



Note: A respondent may make a complaint in one or more subcategories. The subcategories are not mutually exclusive.

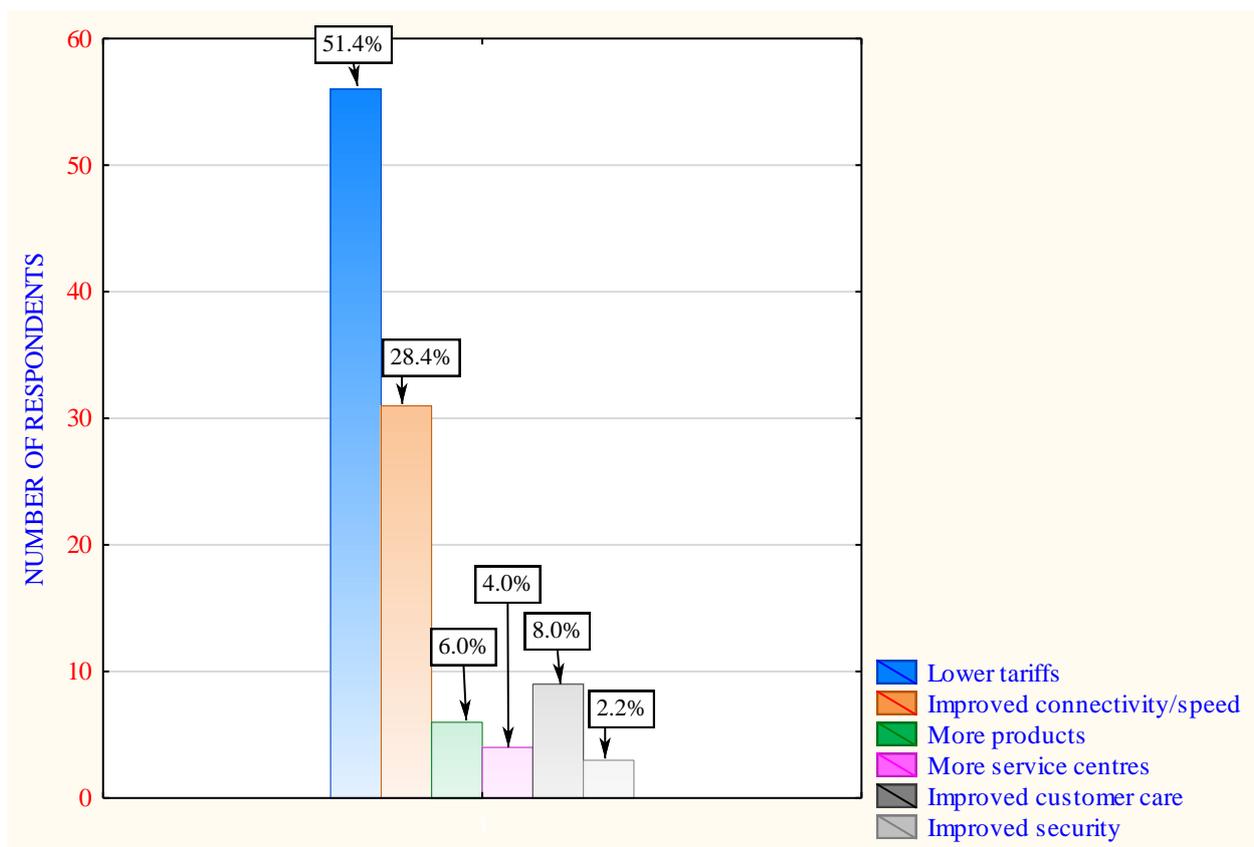
Figure 4.8 shows that the highest number of complaints pertained to the costs of using a cell phone network provider’s services and purchasing its products. 49.6% of the respondents felt that the tariffs charged were disproportionate to the level of service rendered and the types of products offered. The second highest complaint related to the network coverage and speed. 33.3% of the respondents were of the feeling that their cell phone network provider was

offering poor network quality. Customer care and security complaints were tied in third place at 5.5% of the number of respondents apiece. These complaints were made in respect of the attitudes of cell phone network provider consultants and the exposure of sensitive information to unauthorised parties. The lowest complaints were made in respect of systemic issues as well as the product knowledge of service personnel at 5.1% and 0.9% respectively. 5.1% of the respondents felt that it was difficult to access or process crucial services such as sim-swaps, network registration and price plan changes among others. The lowest complaints were reported at 0.9% from respondents who questioned the competence of the customer care employees of the cell phone network providers.

4.8.2 Recommendations

The histogram below indicates the recommendations made by respondents in respect of their cell phone network providers.

Figure 4.9: Recommendations on the service quality of cell phone network providers



Note: A respondent may make a recommendation in more than one subcategory. The subcategories are not mutually exclusive.

Figure 4.9 shows that the highest number of recommendations reported (51.4%) were that cell phone network providers should lower their tariffs. This is because most respondents felt that lower tariffs would improve the service quality perceptions of their cell phone network providers. This is consistent with the findings of Hawthorne and Grzybowski (2019:2) who state that the tariffs of South African cell phone network providers are higher than those of their counterparts in other African countries. 28.4% of the respondents stated that the service quality of their cell phone network providers could be improved by increasing the connectivity or the speed of their network. Respondents stated that one of the means of achieving this is through the upgrade of infrastructure towards the 5G network. 8% of the respondents recommended an improvement in the customer care services of their cell phone network providers. This is because respondents felt that they were not receiving adequate assistance from the service personnel. More products and services were recommended by 6% of the respondents. These respondents felt that their cell phone network providers could improve their service quality if they increased their offerings. 4% of the recommendations were made in respect of the need to establish more service centres. Respondents felt that they were unable to make direct face-to-face enquiries due to the absence of service centres in their communities. The least number of recommendations (2.2%) were reported for the need to improve the security of users. These respondents felt that the service quality could be improved through the prevention of unauthorised parties from accessing their online information.

4.9 HYPOTHESES TESTING

This study made use of four independent variables to test the service quality perceptions of young adults at Nelson Mandela Bay on their cell phone network providers. After a revision of the hypothesised model and a reformulation of operational definitions, one of the four variables (intent for continued use) was excluded from further testing. The three variables used to test for the service quality perceptions were perceived security, customer satisfaction and perceived connectedness. The multiple regression analysis reported that two of the three variables (customer satisfaction and perceived connectedness) have a positive relationship with the dependent variable (service quality). One variable (perceived security) had no statistical relationship with service quality. The following hypotheses are therefore, deemed acceptable:

H¹: There is a positive relationship between customer satisfaction and service quality.

H²: There is a positive relationship between perceived connectedness and service quality.

4.10 SUMMARY

The primary purpose of this study was to determine the influence of the predetermined variables on the service quality perceptions of young adults in Nelson Mandela Bay on their cell phone network providers. In this chapter the researchers presented the empirical findings of the study. A report on the demographic details of the respondents was first presented and summarised. The validity and reliability of the measuring instrument were determined on Statistica using exploratory factor analysis and reliability analysis respectively. Descriptive statistics on the study were also presented using the basic statistics and tables function on Statistica. The researchers then determined the correlation between the independent variables and the dependent variable using Pearson's product correlation coefficient. Subsequently, multiple regression analysis was used to determine the significant relationships between the independent variables and the dependent variable. The researchers then explicated the comments of the respondents to obtain further insight into their perceptions regarding the service quality of their cell phone network providers. The complaints and recommendations of the respondents on the service quality of cell phone network providers were identified and presented. The results of the empirical analysis were compared to literature in order to draw similarities or differences.

In Chapter 6 a summary of the results of the study will be presented. Recommendations based on the empirical analysis will also be put forward to the firms in the cell phone network provider industry with a view to improving their service quality. The contributions and limitations of the study will thereafter be given, following which a conclusion will be drawn from the study.

CHAPTER 5: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

In Chapter 4 a presentation of the empirical results of the study was given. The primary data was obtained from respondents between the ages of 18 and 25 who reside in the Nelson Mandela Bay Municipality. The data was analysed using Statistica 13.0 to determine its validity and reliability. Exploratory factor analysis (EFA) was conducted to determine the validity of the primary data while Cronbach's alpha was used to determine the reliability of the primary data. Both tests yielded positive results. Moreover, descriptive statistics were used to assess the data through the determination of means, standard deviations and frequency distributions. Pearson's product correlation was used to evaluate the correlation between the predetermined variables. In addition, the researchers assessed the degree of influence of the independent variables on the dependent variable by making use of multiple regression analysis.

This chapter will present the main findings from literature as well as the empirical results. Thereafter, an outline of how the research objectives in Chapter 1 were achieved will follow. The researchers will also propose recommendations to cell phone network providers, based on the findings of the study. Limitations of the study will be identified, and possible future research suggested, following which a reflection from the researchers and a conclusion will be given.

5.2 RESEARCH OBJECTIVES

In Chapter 1, the primary objective of the study was given. The primary objective of the study was to investigate the influence of predetermined variables on the service quality perceptions of young adults in the Nelson Mandela Bay Municipality. From this primary objective, the following secondary objectives were drawn:

- To investigate the relationship between perceived security and service quality of cell phone network providers;
- To investigate the relationship between customer satisfaction and service quality of cell phone network providers;

- To determine whether intent for continued use is an indicator of good service quality of cell phone network providers;
- To investigate how perceived connectedness influences the perceptions of young adults on cell phone network providers; and
- To provide conclusions and recommendations based on the results to managers of companies in the cell phone network provider industry on how to improve the quality of their service for young adults.

In order to achieve the abovementioned primary and secondary objectives, the following methodological objectives were identified:

- To conduct a literature review on the importance of service quality in the cell phone network provider industry and to contextualise it to young adults;
- To develop a hypothesised model that reflects the relationship between the independent (perceived security, customer satisfaction, intent for continued use and perceived connectedness) variables and the dependent (service quality) variable, from which hypotheses will be suggested;
- To determine the appropriate research methodology to be used in conducting this study;
- To develop an appropriate measuring instrument that will be used to empirically test the influence of the independent variables on the dependent variable;
- To source primary data from a predetermined sample of young adults between the ages of 18 and 25 in Nelson Mandela Bay, and to statistically analyse the data, as well as test the proposed hypotheses; and
- To provide conclusions and recommendations based on the findings of this research, which could assist management of cell phone network providers to ultimately improve their service quality by adopting appropriate service quality practices.

5.3 RESEARCH DESIGN AND METHODOLOGY

As pointed out in Chapter 4, a positivistic research paradigm was used to conduct the study. This necessitated the use of quantitative research methods in order to meet the objectives set out for the study. A positivistic research paradigm makes use of statistical measures to generate and analyse data and seeks to produce facts that are non-subjective and non-biased. The researchers consulted various literature sources from previous studies in order to develop a

clearer understanding of the study. Primary data was then collected from respondents using a Likert-scale questionnaire as the research instrument.

To evaluate the validity of the research instrument, the researchers made use of EFA techniques. This ensured that the questions correctly measured the subject under investigation. The reliability of the data was then determined using Cronbach's alpha coefficient using a cut-off point of 0.5. To summarise the data, the researchers employed the use of descriptive statistics by determining means, standard deviations and frequency distributions. In addition, the researchers determined the correlation between the variables of the study by calculating Pearson's product correlation coefficient. The relationship between the dependent variable and each of the dependent variables was further tested using multiple regression analysis.

5.4 MAIN FINDINGS FROM THE LITERATURE REVIEW

Chapter 2 presented a detailed overview of the cell phone network provider industry by expositing the four major cell phone network companies in South Africa, namely, Vodacom, Cell C, MTN and Telkom. The historical background of these companies was given in depth. Additionally, the individual and collective roles of the companies were highlighted, their products and services identified, and their corporate citizenship initiatives detailed. The importance of the perceptions of young adults on the service quality of cell phone network providers was also presented, along with definitions of the key technical terms of the study.

In the literature review, it was determined that young adults are very sensitive to the service quality of their cell phone network providers. Moreover, cell phone network providers are heavily invested in ensuring the provision of good quality services in order to remain their young adult customer niche. The various challenges experienced by cell phone network providers in their quest to provide good service quality were pointed out. Some of them included litigation matters about possible non-compliance with statutory provisions, the rapid pace of technological development which necessitates frequent costly upgrades to infrastructure and regulation in certain markets which prevents innovation and growth.

The researchers also expositied the meaning of service quality and applied it to the context of South Africa's cell phone network providers. The views of scholars such as Sharma *et al.* (2016:265) and Hemsley-Brown and Alnawas (2016:2774) were considered in arriving at a satisfactory understanding of the concept of service quality. Adaptations of service quality

models such as the adapted SERVQUAL and Nordic models by Teeroovengadum *et al.* (2016:246) and Grönroos (1984:37) respectively were considered in order to determine further aspects of service quality. This included identifying their limitations and their points of strength.

Ultimately, most literature sources identified four main variables that influence service quality perceptions in the context of the cell phone network provider industry, namely, customer satisfaction, perceived connectedness, perceived security and intent for continued use. The researchers used these variables to construct the Likert-scale questionnaire items, which were consequently examined under empirical analysis.

5.5 MAIN FINDINGS FROM THE EMPIRICAL ANALYSIS

The main findings from the empirical analysis are summarised below.

5.5.1 Service quality factors and biographical details

The study revealed that most of the respondents were MTN subscribers (44.67%), while Cell C, Vodacom and Telkom subscribers comprised 23.33%, 17.33% and 14.67% of respondents respectively. The demographic distribution of the respondents along the lines of ethnicity was African (92.00%), Coloured (6.67%), White (0.67%) and Indian (0.67). The majority of the respondents of the study were male (58.00%) while the female respondents constituted (42.00%) of the sample. The distribution of the respondents along their age revealed that most of them fell in the 24-25 years range (41.22%). The ages decreased steadily at 29.73% (22-23 years), 21.62% (20-21 years) and 7.43% (18-19).

Further demographic findings of the study revealed that most respondents (36.49%) were in possession of a matric certificate, while 17.57% were holders of an undergraduate degree, 14.68% an undergraduate diploma, 13.51% a certificate, 8.11% a postgraduate degree and 7.43% a postgraduate diploma. 2.03% of the respondents held no formal qualification. Moreover, the overwhelming majority (78.23%) of respondents were unemployed, while 13.61% were employed part-time, 4.67% were self-employed and 3.40% were employed full-time.

In the EFA, only items that loaded were used to conduct further empirical analysis. The researchers used a 0.5 threshold on the EFA to determine the validity of the items in the

research instrument. The items loaded successfully into the following variables: customer satisfaction, perceived security and perceived connectedness. The item intent for continued use did not load successfully into the EFA and was removed from further empirical testing. This necessitated the need for a revision of the hypotheses of the study and a reformulation of definitions. Apart from item PS5, all the items used in the remaining three independent variables surpassed the 0.5 threshold for the EFA factor loadings. All items from the three independent variables surpassed the Cronbach's alpha coefficient cut-off point of 0.7 and were therefore determined to be reliable. This means that the study can be replicated and consistently produce reliable results with a different set of respondents.

Pearson's product correlation coefficient was used to assess the strength of the relationships between each of the independent variables and the dependent variable. Two of the three independent variables [customer satisfaction ($p = 0.6572$) and perceived connectedness ($p = 0.6070$)] showed a strong correlation with service quality, while perceived security ($p = 0.3948$) showed a moderate correlation. According to Hall (2015:3), the closer the Pearson product correlation is to 1, the stronger the correlation between two variables. All three variables were determined to correlate with service quality.

The resulting hypotheses were either accepted or rejected on the basis of multiple regression analysis. Multiple regression analysis is used to determine the influence independent variables on a dependent variable. This analysis showed that two of the three variables, namely customer satisfaction ($b^* = 0.4227$) and perceived connectedness ($b^* = 0.3065$) had a positive linear relationship with service quality. However, perceived security ($b^* = 0.1219$) did not yield any significant or positive statistical relationship with service quality.

5.5.2 Complaints and recommendations

The primary data obtained from the comments section of the questionnaire was categorised into two broad classes, namely, complaints and recommendations. This section was used to corroborate the evidence obtained from the items in Section A of the questionnaire. The two broad categories of responses were further subcategorised depending on the nature of the comments recorded. The complaints reported were in respect of the cost of cell phone network provider tariffs (49.6%), network coverage and speed (33.3%), customer care (5.5%), security (5.5%), system related issues (5.1%) and the product knowledge of service consultants (0.9%). The recommendations made by the respondents with a view to improve the service quality were in respect of lower tariffs (51.4%), improved network speed and connectivity (28.4%),

improved customer care (8.0%), increased products and services (6.0%), increased service centres and access points (4.0%) as well as improved security (2.2%).

The evidence obtained from the comments and recommendations corresponds with the findings from the statistical analysis insofar as perceived connectedness is concerned, as most comments pertained to the costs of connectivity (49.6%) and network speed and coverage (33.3%). Moreover, 51.4% of the recommendations pertained to decreased tariffs while 28.4% pertained to improvement in connectivity. These are factors that directly affect the perceived connectedness of users. The findings, therefore, confirm the results of the multiple regression analysis, which showed that there is a positive relationship between perceived connectedness and service quality. This also shows consistency in the respondents' responses.

Conversely, only 5.5% of complaints pertained to security related issues and 2.2% of the recommendations made by the respondents pertained to the improvement of security measures. The multiple regression analysis showed that there is little or no statistical relationship between perceived security and service quality. The comments, therefore, corroborate the statistical analysis of the questionnaire items and confirm the consistency in the respondents' responses.

The other categories of complaints and recommendations made in respect of customer care, increased service centres, increased products and services, better product and knowledge experience of service consultants and systems related issues all constituted 11.5% of the complaints and 18.0% of the recommendations. Although not as influential as perceived connectedness, these are factors which when considered collectively, seem to influence customer satisfaction. The comments, therefore, substantiate the results of the statistical analysis, which showed that there is a positive relationship between customer satisfaction and service quality and a confirm the consistency of the respondents' responses.

5.5.3 Hypotheses and methodological objectives after empirical testing

Having conducted an empirical analysis of the primary data, the researchers present the findings with regard to the hypotheses and the methodological objectives stated in the proposal of the study. Table 5.1 presents the hypotheses of the study as set out after the empirical analysis.

Table 5.1: Summary of hypotheses after empirical analysis.

Hypotheses	Decision
There is a significant relationship between perceived security and service quality.	Reject
There is a significant relationship between intent for continued use and service quality.	Reject
There is a positive relationship between perceived connectedness and service quality.	Accept
There is a positive relationship between customer satisfaction and service quality.	Accept

Table 5.1 reveals that two of the four hypotheses of the study were accepted and two were rejected. The study revealed that there is no significant relationship between both perceived security and intent for continued use with service quality. Moreover, there is a positive relationship with both perceived connectedness and customer satisfaction with service quality. Table 5.2 below reveals the achievement of the secondary and methodological objectives and at what stage of the study they were achieved.

Table 5.2: Secondary and methodological objectives achieved

Secondary objectives		Achieved
SO ¹	To investigate the relationship between perceived security and service quality of cell phone network providers.	Chapter 2 and 4
SO ²	To investigate the relationship between customer satisfaction and service quality of cell phone network providers.	Chapter 2 and 4
SO ³	To determine whether intent for continued use is an indicator of good service quality of cell phone network providers.	Chapter 2 and 4
SO ⁴	To investigate how perceived connectedness influences the perceptions of young adults on cell phone network providers.	Chapter 2 and 4
SO ⁵	To provide conclusions and recommendations based on the results to managers of companies in the cell phone network	Chapter 5

Table 5.2: Secondary and methodological objectives achieved (ctd)

	provider industry on how to improve the quality of their service for young adults.	
Methodological objectives		Achieved
MO ¹	To conduct a literature review on the importance of service quality in the cell phone network provider industry and to contextualise it to young adults.	Chapter 2
MO ²	To develop a hypothesised model that reflects the relationship between the independent (perceived security, customer satisfaction, intent for continued use and perceived connectedness) variables and the dependent (service quality) variable, from which hypotheses will be suggested.	Chapter 1 and 4
MO ³	To determine the appropriate research methodology to be used in conducting this study.	Chapter 1
MO ⁴	To develop an appropriate measuring instrument that will be used to empirically test the influence of the independent variables on the dependent variable.	Chapter 3
MO ⁵	To source primary data from a predetermined sample of young adults between the ages of 18 and 25 in Nelson Mandela Bay, and to statistically analyse the data, as well as test the proposed hypotheses.	Chapter 3 and 4
MO ⁶	To provide conclusions and recommendations based on the findings of this research, which could assist management of cell phone network providers to ultimately improve their service quality by adopting appropriate service quality practices.	Chapter 5

Table 5.2 presents all the secondary and methodological objectives as set out at the beginning of the study and reveals in which chapter they have been achieved. All the secondary and methodological objectives have been duly achieved.

5.6 RECOMMENDATIONS TO ROLE PLAYERS IN THE CELL PHONE NETWORK PROVIDER INDUSTRY

Based on the findings of the incumbent study, the researchers will provide several recommendations to managers of firms in the cell phone network provider industry in order to improve the service quality of the firms. The recommendations proposed are based on statistical evidence obtained from the empirical analysis of the predetermined variables affecting service quality perceptions. The researchers pose the following recommendations in order to improve the service quality perceptions of young adults in Nelson Mandela Bay on their cell phone network providers:

5.6.1 Lower tariffs

South African cell phone network providers will be better perceived if they lower the cost of their products and services. Mothobi *et al.* (2018:1) observe that South African mobile tariffs rank 35th out of 49 in Africa on the RAMP Index's cheapest data bundles. Of concern is that a gigabyte of data in South Africa costs approximately seven times more than a gigabyte in Egypt and three times more than a gigabyte in Ghana, Kenya and Nigeria. As a result, Mothobi *et al.* (2018:1) point out that up to 47% of the South African population does not use the internet. In light of these revelations, the researchers assert that young adults in Nelson Mandela Bay will perceive cell phone network providers in a more positive light if they reduce the rates of their tariffs to levels that match those of other African countries.

5.6.2 Improved network coverage and speed

As pointed out in the empirical results, there is a positive relationship between perceived connectedness and service quality. Perceived connectedness is influenced by the network quality offered by the cell phone network provider. This enables users to be able to readily access the cell phone network provider when making enquires as well as access other users. It must be noted, however, that some respondents acknowledged the excellent network coverage and speed of their own cell phone network providers but pointed out the poor network quality of other cell phone network providers as the reason for poor connectedness. This was cited as the reason for poor perceived connectedness with other users.

Currently, Vodacom has the highest coverage and network speeds within the 4G network in South Africa (Mothobi *et al.* 2018:6). However, it is only able to reach approximately 78% of the population. While this is a relatively high measure, it still leaves a significant number of

subscribers, particularly in the rural areas, unconnected. This problem is not unique to Vodacom only, as it affects other cell phone network providers as well. The researchers recommend that South African cell phone network providers consider ways of improving coverage and network speed across the country. This involves the investment in digital and physical infrastructure that will keep pace with a growing population of mobile device users. This includes users in remote areas of the country. Not only is this essential for personal communication among subscribers, it facilitates the development of more regions due to efficient communication networks.

5.6.3 Improved customer satisfaction

A concern singled out by respondents was the inadequacy of the customer care centres, incompetence of service consultants as well as system related issues pertaining to interaction with cell phone network providers. These are issues that affect customer satisfaction. A suggestion is made to use facilities such as ATMs for instance, as access points for enquiries with service consultants. Service consultants must be regularly trained to be both friendly and knowledgeable about their products and services. This consideration must be considered when screening new consultants during the recruitment process. Additionally, cell phone network providers must improve the efficiency of their interaction with users. This can be achieved through the provision of regular software updates as well as interactive applications that are compatible with a wide range of mobile devices.

The researchers suggest the establishment of stations in remote areas as well as in urban metros, where customers may be able to access services without the hassle of visiting and queuing in a conventional service centre. The concept is envisioned to work in a similar manner to an ATM except that it would provide specialised services for a cell phone network provider that users are not ordinarily able to address on their own. Such a revolutionary concept could also go a long way in cutting down costs for cell phone network providers, as they may no longer need to open numerous branches, recruit excessive staff and train service consultants.

5.6.4 More products and services

Respondents complained that their cell phone network providers had a limited range of products and services. Telkom, in particular, was singled out as being limited in its product offering and lacking in innovative products that create a loyal customer base of young adults. On this note, the researchers are of the view that cell phone network providers should work towards creating a product and service portfolio that caters for the widest possible spectrum of

customer needs, specifically in the young adult niche. This involves enquiry from young adults about the specific needs and wants that they wish to have addressed when using mobile networks, after which the necessary adjustments or additions should be made to product and service offerings. This will attract and create loyal young adult customers.

The researchers recommend that cell phone network providers work towards diversification of their products and services range. This involves the introduction of new products and services as well as the modification of existing ones. Respondents recommended that more bundle packages be introduced and that such bundles should have varying mixes of voice, text and data services. This will be key in catering to a broad range of customer preferences. As such, the researchers suggest the adoption of this recommendation to reach a wider base of customers.

5.7 LIMITATIONS OF THE STUDY AND SUGGESTIONS FOR FUTURE RESEARCH

The main limitations of the study were experienced during the data collection process. The researchers acknowledge that the data collected was skewed heavily towards African respondents. The chosen sample was, therefore, not representative of the demographic distribution of young adults in Nelson Mandela Bay along the lines of ethnicity. This was because a convenience sampling method was elected for the study and African respondents were easily reachable for distribution of the research instrument. This may have contributed significantly to the outcome of the investigation. Future studies should cater for a sample that is balanced in along ethnic lines in order to eliminate any factors that could result in a possible bias of data.

Another major limitation was the difference in the level of understanding of the questionnaire items by respondents. Some respondents required explanations of the purpose of the investigation as well as some of the statements in the questionnaire. Although this was useful in ensuring that as many respondents were able to participate, it also took time that could have been used in distributing questionnaires to other possible respondents, thereby reducing the sample size. It would be helpful to have the research instruments presented in alternative languages to allow the opportunity for respondents who may not be proficient in English to take part in the study.

The aspect of time was also a key limiting factor, as the time designated to collect, capture and analyse the data was contingent upon a fixed programme of study. This may have led the researchers to overlook certain important matters in the investigation. Much of the data from Section B of the research instrument was categorised or summed up using the discretion of the researchers, which may have resulted in the loss of the richness of the data as the researchers worked towards reporting deadlines. The loss of this data may have significantly affected the outcomes and conclusive elements of the study.

Further limitations of the study pertained to the responses given by the respondents. It is not possible to ascertain whether the respondents were genuine in their completion of the questionnaire. This is because often the respondents were not prepared to answer the questionnaire but were requested while they were in pursuit of other interests. Some responses, therefore, may have been given without much thought and with a desire to complete the questionnaire in haste. This also pertained to some of the questionnaires that were partially completed and ultimately not considered for analysis. These limitations resulted in the loss of the richness of data that was used for analysis as the researchers deemed incomplete questionnaires unfit for analysis.

Despite the above-mentioned limitations, which included the researchers' commitments to other areas of study, the incumbent investigation did find statistical relationships between some of the independent variables and the dependent variable.

5.8 REFLECTION BY THE RESEARCHERS

The researchers have gained an in-depth understanding of the nature of cell phone network provider industry in South Africa. Further insight was gained on the attitudes of young adults on cell phone network providers, specifically as it pertains to the services that cell phone network providers offer them. The researchers learnt that service quality is multifaceted and includes numerous aspects that cell phone network providers often overlook such as aftersales services. The various experiences of young adults and the sentiments towards their cell phone network providers were also learnt as reported through the recommendations and complaints that they made in the research instrument.

The results of the study were a key lesson for the researchers, as they disproved any pre-existing assumptions that were held about some cell phone network providers. A general assumption

was that a random sample of respondents would consist of a very high number of Vodacom subscribers. The study found this to be inaccurate. Moreover, some of the variables that the researchers anticipated to have a significant influence on the dependent variable were found to be of little statistical consequence. These comprised of intent for continued use and perceived security. Statistically, customer satisfaction, as expected, was found to have the largest singular influence on service quality.

The study assisted the researchers in honing a crucial set of skills required for conducting a research. This set a good precedent for conducting future studies. These skills include the use of academic writing to express ideas and the use of literature sources for inference without compromising the intentions of the original author. As the research progressed, the researchers improved in this respect. Additionally, the researchers became better equipped to design a research instrument and to empirically analyse and interpret primary data collected from a scientific study. A key aspect was the importance of teamwork, which was seen in the researchers' use of their different attributes to ensure the success of the study. These lessons were learnt notwithstanding the limitations of the study.

5.9 CONCLUDING REMARKS

The study added value to the cell phone network provider industry through the identification of factors that influence the service quality perceptions of young adults. The recommendations given in the study are useful for strategic decision-making among management of cell phone network providers as they give an accurate description of the preferences of young adults. The study revealed that the factors that have a positive influence of service quality are customer satisfaction and perceived connectedness. Intent for continued use and perceived security were found not to have any significant or positive statistical relationship with service quality.

Several measures can be taken by South African cell phone network providers to enhance the user experience of their young adult subscribers. One way of achieving this is through the provision of services that are low-priced, in keeping with the comparative costs of other African countries. Another is by the establishment of more accessible points of access and mini-service centres, particularly in remote areas of the country. A further measure that should be considered is the employment of friendly consultants who are also well knowledgeable about products and services. In addition, there must be a wide selection of products and services to choose from. This gives young adults the ability to select products and services that best suit their personal

preferences. If these recommendations are appropriately implemented, South Africa's cell phone network providers will be viewed in a much better light and create a good service quality perception.

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ANNEXURE A: QUESTIONNAIRE



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June 2019

Dear Sir/Madam

The Business Management Honours students at the Nelson Mandela University are required to conduct a research study.

Topic: Investigating the perceptions of young adults on the service quality of cell phone network providers.

The aim of the study is to investigate the relationship between the service quality of cell phone network providers and the perceptions of young adults in Nelson Mandela Bay.

It would be appreciated if you could assist the students by responding to the questionnaire presented. Please note that participation in this study is **voluntary** and identity is **anonymous**. You are **able to withdraw at any moment with no penalty**. The information provided will be **treated as strictly confidential** and will be used for research purposes only. No individual results will be published. To participate in this study, you must be between the ages of 18 and 25 and a resident of Nelson Mandela Bay. The questionnaire should take approximately 8 minutes to complete. Please place an X where applicable and fill in the empty fields as per the instructions given.

We trust that you will find this in order. Thank you for your time and effort in completing this questionnaire. If you have any queries, please do not hesitate to contact us.

Kind regards

Mrs A Deliwe

Supervisor

Mr T Ngwenya

Researcher

Ms A Gxotiwe

Researcher

SECTION A: FACTORS INFLUENCING SERVICE QUALITY PERCEPTION

Please indicate your agreement with the following statements by placing a cross (X) in the appropriate box. Please note that there are no right or wrong answers. The responses only relate to your perceptions.		<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly Agree</i>
<i>PERCEIVED SECURITY</i>						
PS1	I am certain that the privacy of my information on my mobile network is guaranteed.					
PS2	I am confident that no unauthorised parties can view my data stored in mobile networks without my consent.					
PS3	I am certain that my data will not be altered online by unauthorised persons.					
PS4	I am confident that I will always be able to access my information stored on my mobile network.					
PS5	I am confident that the data stored on my mobile network will not be lost.					
PS6	My location information and whereabouts remain privy to myself, my mobile network operator and authorised persons only.					
PS7	I am confident that upon losing my mobile device, my mobile network operator is able to track it.					
PS8	I am satisfied with the security provided by my mobile network operator.					
<i>CUSTOMER SATISFACTION</i>						
CS1	My cell phone network provider meets my expectations.					
CS2	I would recommend my cell phone network provider to others who wish to use it.					
CS3	My cell phone network provider helps me perform tasks on my device more efficiently.					
CS4	My cell phone network provider understands my user needs.					
CS5	I enjoy spending time on my mobile device because of my cell phone network provider.					
CS6	I am content with the pricing structure and tariffs of my cell phone network provider.					
CS7	I find it easy to access the products and services that I require from my cell phone network provider.					
CS8	My cell phone network provider fits in well with my lifestyle needs.					
<i>INTENT FOR CONTINUED USE</i>						
CU1	I plan to continue using my cell phone network provider's services for the foreseeable future.					
CU2	Satisfaction with my cell phone network provider keeps me using its products and services.					

CU3	I continue using my cell phone network provider because its products and services are user-friendly.					
CU4	I continue using my cell phone network provider's products and services because of societal expectations.					
CU5	I continue using my cell phone network provider's products and services because I find no better alternative.					
CU6	I continue using my cell phone network provider's products and services because it regularly upgrades its technology.					
CU7	I continue using my cell phone network provider's products and services because of the high costs of switching to other providers.					
CU8	I intend to continue using my cell phone network provider because it is an enjoyable experience.					
PERCEIVED CONNECTEDNESS						
PC1	I feel connected to the outside world because I can access any information online through my mobile network provider.					
PC2	I feel connected to online spaces because my mobile network supports the applications that I use.					
PC3	I feel at ease knowing that my cell phone network provider gives me access to services that interest me at any time.					
PC4	I have a sense of belonging through the use of my cell phone network provider's services.					
PC5	I am confident of broadband connectivity through my cell phone network provider wherever I am.					
PC6	I can connect easily to people using different cell phone network providers.					
PC7	My cell phone network provider satisfies my inherent need to feel connected to others.					
PC8	My cell phone network provider enhances the connectedness in my relationships.					
SERVICE QUALITY						
SQ1	I am content with the network coverage provided by my cell phone network provider.					
SQ2	My cell phone network provider's support services meet my expectations.					
SQ3	My cell phone network provider provides a broad range of useful products and services.					
SQ4	I have not experienced any service limitations while using my cell phone network.					
SQ5	I receive good after-sales service from my cell phone network provider.					
SQ6	My cell phone network provider addresses complaints in a timely manner.					
SQ7	My cell phone network provider employs competent staff to attend to customer service complaints.					
SQ8	My cell phone network provider uses the latest technology to identify my personal customer preferences.					

SECTION B

Please kindly comment in the provided space below about your perceptions on the service quality of your cell phone network provider as well as how the service may be improved.

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SECTION C: BIOGRAPHICAL DETAILS

Please mark your selection with a cross (X) or by filling the correct details in the appropriate box. Responses to these questions will be used for statistical purposes only.

1. CELL PHONE NETWORK PROVIDER

Please indicate which cell phone network provider you use (select one option)

Vodacom	MTN	Cell C	Telkom

2. GENDER

Male	Female	Not willing to disclose

3. AGE

Please select the option relevant to you.

18-19 years	20-21 years	22-23 years	24-25 years

4. EDUCATION

Please indicate the highest level of education you have attained.

No matric	
Matric (Grade 12) or equivalent	
Certificate	
Undergraduate diploma	
Undergraduate degree	
Postgraduate diploma	
Postgraduate degree	
Other qualification, please specify:	
Currently studying, please indicate your qualification	

5. EMPLOYMENT STATUS

Please select the option that best describes your situation.

Employed full-time	
Employed part-time	
Self-employed	
Unemployed	

THANK YOU FOR YOUR PARTICIPATION

ANNEXURE B: FACTOR LOADINGS

a) Independent variables

	Factor 1	Factor 2	Factor 3
CS8	0,760693	-0,002979	0,292160
CS4	0,695483	0,094692	0,258822
CS2	0,681613	0,195815	0,191433
CS6	0,667869	0,263458	-0,102870
CS5	0,633970	0,203352	0,210016
CS3	0,629317	0,016919	0,261795
CS1	0,610559	0,219339	0,330535
CS7	0,610002	-0,034613	0,198590
PS2	0,027512	0,787754	0,103615
PS1	0,102526	0,751255	0,162686
PS4	0,242279	0,636020	0,220189
PS3	0,093364	0,631001	0,104660
PS8	0,278013	0,582825	0,161041
PS6	0,093455	0,546240	0,156298
PS7	-0,020279	0,543213	-0,215411
PC3	0,270714	0,089622	0,745852
PC6	0,164751	0,067840	0,700187
PC7	0,180562	0,142502	0,683046
PC4	0,107940	0,202846	0,665813
PC2	0,339867	0,129900	0,603188
PC8	0,148822	0,102939	0,577343
PC1	0,294153	0,175958	0,571219
PC5	0,427195	0,006451	0,494227
PS5	0,257385	0,403215	0,056096
Expl. Var	4.298568	3.423585	3.881585
Prp. Totl	0.179108	0.142649	0.161733

b) Dependent variable

	Factor
SQ4	-0,535935
SQ8	-0,584064
SQ7	-0,602680
SQ5	-0,611507
SQ1	-0,624915
SQ3	-0,640400
SQ6	-0,678551
SQ2	-0,703877

ANNEXURE C: PROFORMA ETHICS FORM

ANNEXURE A – ETHICS FORM TO COMPLETE

NELSON MANDELA
UNIVERSITY

FACULTY OF BUSINESS AND ECONOMIC SCIENCES

ETHICS CLEARANCE FOR TREATISES / DISSERTATIONS / THESES

Instructions:

- Should be completed by study leader and student
- Must be signed off by student, study leader and HoD
- Submit completed form to Ms Lindie van Rensburg
- Please ensure that the research methodology section from the proposal is attached to this form
- *Please note that by following this Proforma ethics route, the study will NOT be allocated an ethics clearance number*

FACULTY: BUSINESS AND ECONOMIC SCIENCES

SCHOOL / DEPARTMENT: BUSINESS MANAGEMENT

I, (surname and initials of study leader) Delive A.P.

the study leader for (surname and initials of candidate) T. NGWENYA and A. GXOTIWE

215138325 (student number) 214253090

a candidate for the degree of BCOM HONOURS BUSINESS MANAGEMENT

with a treatise/dissertation/thesis entitled (full title of treatise/dissertation/thesis):

INVESTIGATING YOUNG ADULTS' PERCEPTIONS ON SERVICE QUALITY OF CELL PHONE NETWORK PROVIDERS.

ANNEXURE A – ETHICS FORM TO COMPLETE

considered the following ethics criteria (please tick the appropriate block):

		YES	NO
1.	Is there any risk of harm, embarrassment of offence, however slight or temporary, to the participant, third parties or to the communities at large?		✓
2.	Is the study based on a research population defined as 'vulnerable' in terms of age, physical characteristics and/or disease status?		✓
2.1	Are subjects/participants/respondents of your study:		✓
2.1.1	Children under the age of 18?		✓
2.1.2	NMMU staff?		✓
2.1.3	NMMU students?		✓
2.1.4	The elderly/persons over the age of 60?		✓
2.1.5	A sample from an institution (e.g. hospital/school)?		✓
2.1.6	Handicapped (e.g. mentally or physically)?		✓
3.	Does the data that will be collected require consent of an institutional authority for this study? (An institutional authority refers to an organisation that is established by government to protect vulnerable people)		✓
3.1	Are you intending to access participant data from an existing, stored repository (e.g. school, institutional or university records)?		✓
4.	Will the participant's privacy, anonymity or confidentiality be compromised?		✓
4.1	Are you administering a questionnaire/survey that:		
4.1.1	Collects sensitive/identifiable data from participants?		✓
4.1.2	Does not guarantee the anonymity of the participant?		✓
4.1.3	Does not guarantee the confidentiality of the participant and the data?		✓
4.1.4	Will offer an incentive to respondents to participate, i.e. a lucky draw or any other prize?		✓
4.1.5	Will create doubt whether sample control measures are in place?		✓
4.1.5	Will be distributed electronically via email (and requesting an email response)?		
	<p>Note:</p> <ul style="list-style-type: none"> • If your questionnaire DOES NOT request respondents' identification, is distributed electronically and you request respondents to return it <i>manually</i> (print out and deliver/mail); AND respondent anonymity can be guaranteed, your answer will be NO. • If your questionnaire DOES NOT request respondents' identification, is <i>distributed via an email link and works through a web response system (e.g. the university survey system)</i>; AND respondent anonymity can be guaranteed, your answer will be NO. 		✓

ANNEXURE A – ETHICS FORM TO COMPLETE

5.	Do you wish to publish an article from this study and submit to an accredited Journal?		✓
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Please note that if ANY of the questions above have been answered in the affirmative (YES) the student will need to complete the full ethics clearance form (REC-H application) and submit it with the relevant documentation to the Faculty RECH (Ethics) representative.

and hereby certify that the student has given his/her research ethical consideration and full ethics approval is not required.


STUDY LEADER(S)

12/04/2019
DATE

 M. J. E.
HEAD OF DEPARTMENT

15/04/2019
DATE

T. NGWENJA
STUDENT

10.4.2019
DATE

A. GIXOTIWE
STUDENT

10.4.2019
DATE