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SERVICE QUALITY AND CUSTOMER SATISFACTION EXPERIENCE AMONG SOUTH AFRICAN MOBILE TELECOMMUNICATIONS CONSUMERS

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Abstract

Mobile networks have become the most utilized pathway of communication but very little information is available on customers' experiences with respect to service quality and satisfaction. Through a survey, data was gathered from 1451 participants to examine customers' experiences of service quality and satisfaction. The study investigated whether service quality and customer satisfaction experiences were different in respect of the mobile network operator used by the customer. This study is cross sectional by design and quantitative in nature. A self-administered questionnaire was used to gather primary data from mobile network users. Descriptive and inferential statistics were used to analyze the data. For inferential statistics, the multivariate analysis of variance (MANOVA) was used. The results revealed that the mobile network operator used by the customer, had a significant impact on service quality and customer satisfaction levels. This study contributes academically by indicating how South African consumers perceive mobile network service providers. Furthermore, the study identifies shortcomings and areas of strengths of South African mobile network operators with regards to service quality and customer satisfaction.

Keywords: Mobile Network, Service Quality, Customer Satisfaction, MTN, Vodacom, Telkom, Cell C

1. Introduction

The mobile network telecommunications sector in South Africa (SA) continues to grow in terms of customers and mobile network operators (Oxford Business Group, 2021). The majority of mobile network users are shared between MTN, Vodacom, Cell C and Telkom who are currently the big players in the industry (Statista, 2019). According to BusinessTech (2019), Vodacom is the leading market share holder with 43.2 million subscribers, followed by MTN's 31.2 million subscribers, making them the two giants in SA's mobile network telecommunications sector. Khan (2016) reported that Vodacom had 37.7% of the market share followed by MTN's 35.9%.

The SA mobile network telecommunications market is evolving from being a duopolistic market to a four firm race as far as customer service delivery and satisfaction is concerned (Khumalo, 2019). By the end of the year 2019, Telkom, the newcomer in the industry had a total of 5.2 million subscribers while Cell C took its tally to 17.2 million subscribers. Other players do

exist (FNB Connect, Pick n Pay, MRP Mobile, Me & You Mobile) but operate under the Cell C network with at least 1.8 million subscribers (BusinessTech, 2019).

The SA mobile network telecommunications service industry is a highly competitive environment characterized by tight profit margins. SA mobile services firms compete vigorously to gain customer loyalty (Chair, 2016). This is evident in the introduction of various promotions packages such as free night calls for mobile users who share the same mobile network operator, discounted rates and sometimes free calls are offered to customers for a limited number of minutes during day time (Chair, 2016; ResearchICTAfrica, 2018). Faced with intense competition in the market, some South African mobile network operators provide prepaid airtime on a credit basis to selected customers to boost their revenues (Chair, 2016). Given that customers have a wide choice, mobile network operators have begun widening their offerings in an attempt to lure new customers and keep existing ones (Khumalo, 2019).

SA mobile operators are going all out to try attract new customers, satisfy, delight and keep existing subscribers loyal. Despite all these efforts, South African consumers were found to be highly dissatisfied with their mobile network service providers, generating at least five times more negative conversation about their service providers as opposed to positive (BrandsEye, 2019). On the contrary, making use of the Minnesota Customer-satisfaction Index (MnCSI), Mpwanya (2019) found that customer satisfaction levels with service delivery by SA network mobile operators were high. Interestingly, Mpwanya (2019) also found that the proportion of dissatisfied customers with service delivery of SA mobile network operators was also high and this was negatively impacting on the reputation of these operators. Further, these South African mobile network operators are all facing a similar challenge, which is how to retain existing customers and recruit new ones. This study argues that by providing superior service quality and satisfaction experience to customers, there is a better chance that customers may be loyal to their chosen mobile network service provider and refer new potential users. This study seeks to investigate mobile network customers' experiences with regard to service quality and satisfaction. The study further investigates whether service quality and customer satisfaction experiences are different in respect of the mobile network operator used by the customer.

Santouridis and Trivellas (2010) found that satisfied Greek mobile customers were also loyal to their mobile network operators. They found that customer service, pricing and billing strategies were key dimensions that predicted customer satisfaction. Mpwanya (2019) found high levels of satisfied customers with regards to customer service received from mobile network operators and also a significant number of dissatisfied customer on the same subject. Ngwenya (2017) investigated mobile network customer expectations in relation to service quality. Making use of the SERVQUAL tool to measure service quality, Ngwenya (2017) provided evidence showing that South African customers consider assurance and responsiveness as key dimensions of service quality. Ngwenya's (2017) findings almost confirm the findings of a South African study undertaken 15 years before by Van der Wal *et al.* (2002), who undertook a study to validate the SERVQUAL measurement tool making use mobile network customers. They found that tangibles and reliability factors loaded separately but factors for assurance, responsiveness and empathy loaded as a single factor. This implied that South African mobile network customers saw no real difference in these dimensions.

Similar to other South African studies that relied on the SERVQUAL tool to measure service quality, this study adopts the SERVQUAL tool to measure service quality of mobile network operators from a customer's perspective. SA's mobile network industry is growing at a faster rate with many players joining in the field yet research on customer satisfaction devoted to this sector is lagging behind (Mpwanya, 2019). Only a handful studies have investigated a related issue (Mpwanya and Van Herden, 2017; Ngwenya, 2017; Mpwanya 2019; Mpwanya and Letsoalo, 2019; Van der Wal *et al.* 2002). SA customers' satisfaction levels as influenced by service delivery of network mobile operators is still a complex issue that requires further examination and this study seeks to contribute to this debate. The findings of this research will aid South African mobile network operators in their efforts to protect their brands, attracting new customers, and keep the existing customers satisfied with the service they offer. The next section provides the research context, followed by literature review, and the study's methodology. Thereafter, results are presented and they are followed by a discussion section which is also

followed by an acknowledgement of the study's limitations leading to future research suggestions and the conclusion of the study.

2. Research context

The main challenge faced by consumers in the South African mobile network telecommunications sector is that of high data prices and Internet connectivity speed when compared to developed markets (Gillwald *et al.* 2012; Densmore *et al.* 2016; ResearchICTAfrica, 2017, 2018). The downside to the cost of data is that customers find it very difficult to be loyal to a single mobile service provider. As a result, customers have multiple SIM cards, that is, they use more affordable networks for data and then switch to more affordable networks for calling (ResearchICTAfrica, 2017). This customer behavior is in response to different billing strategies for different services pursued by SA mobile network operators.

Due to the high cost of data, the Independent Communications Authority South Africa (ICASA) introduced the data roll over regulation in 2019. Before the implementation of the ICASA regulations in April 2019, customers would see their airtime being utilized for Internet connectivity without their consent. Although the data rollover rules were implemented, not all mobile network providers welcomed this regulation (BrandsEye, 2019). According to the BrandsEye's (2019), Vodacom was on the main receiving end, after consumers had vented their anger over its implementation of the data regulations. According to de Villiers (2019), consumers criticized Vodacom for finding loopholes in the ICASA regulations with the goal of avoiding compliance. BrandsEye (2019) weighed in and pointed out that Vodacom's behavior influenced many of its subscribers to consider withdrawing their subscription. It is understood that South African mobile network operators were benefiting highly from this practice, hence the perceived unwillingness to comply with the new Data Bundle Rollover rules.

Telkom, however, received favorable responses from consumers, for being proactive in the implementation of ICASA rules (BrandsEye, 2019; de Villiers, 2019). By doing so, customers' satisfaction with Telkom services enhanced, while customer confidence in Vodacom was low. South African mobile networks are also blamed for bleeding customers on social media connectivity with over 120.000 online consumers indicating their displeasure with this subject (BrandsEye, 2019). Given this background, we can insinuate that, SA mobile network customers are yet to be convinced about some mobile network operators' sincerity as far as lowering the cost of data is concerned. For example, MTN customers have observed that their airtime is automatically utilized for Internet connectivity unless they change certain settings.

The danger with MTN's approach is that not all customers possess such knowledge. This could be attributed to little efforts being undertaken by South African mobile network operators to educate their customers on how they can save money. BrandsEye (2019) weighed in and lamented that South African networks are profiteering through social media at the expense of the customers they claim to serve. The majority of customers learned the hard way, after they realized that they ran out of airtime without any warning. With such costly practices being perpetuated, to customers, it appears as if mobile network operators are happy to continue profiteering at the expense of the consumer who is realizing little value from the highly priced data. On this notion, Gillwald *et al.* (2012) pointed out that data has become the dominant revenue stream for mobile network operators in South Africa. However, South African mobile network operators can change this narrative by being proactive as far as educating customers on how they can get value for the money they spend when calling or surfing the Internet.

However, the pricing of data somehow stands as a barrier to growth desired for South Africa if the country is to catch up with the rest of world (BrandsEye, 2019; Mpwanya and Van Heerden, 2016). High cost of data and call per minute influence customers to switch mobile network operators in search for the affordable one. Melody (2001) mentioned that in a competitive market, service providers are expected to compete on both price and quality of service. More importantly, service providers should strive to meet customer expectations with regards to price and quality of service if their brands are to emerge as winners. Jere and Mukupa (2018) investigated customer satisfaction and loyalty drivers among Zambian mobile network users and found no relationship between price and customer satisfaction. A Nigerian study found that pricing

or billing practices of mobile network operators influenced subscribers buying decisions such that when prices are high, customers would switch to an affordable operator (Adebiyi *et al.* 2016). BrandsEye (2019) reported that 10% of the respondents in South Africa were willing to part ways with their network provider as they are unhappy with the pricing and poor customer service. Given this evidence, it could mean that the South African market for mobile networks is highly price sensitive compared to other mobile network markets in the region.

Further findings by BrandsEye (2019) revealed that customer service practices by mobile network operators required urgent attention as 47.2% of the complaints raised were directed specifically at the quality of customer service. Approximately 37% complained about the mobile network provider's turnaround time, and 44.4% of the respondents complained about the network provider's failure to attend to queries posted on social media. But in cases where the network provider did respond, 61% of the consumers ended up being dissatisfied with the quality of service rendered. According to Khumalo (2019), Vodacom seemed to be doing better as it responded to customer complaints posted on social media 2.25 times faster than the industry's average response time.

Given the important role that mobile network services play in consumers' lives, there is increased interaction between mobile network operators and their consumers (Venkatesh *et al.* 2010; Xueming *et al.* 2014). As a result, there is also increased spending by mobile service providers on technological infrastructure with the goal of acquiring competitive advantage. Mobile network operators are investing more as they try to reach out to their customers as is evident in the opening of customer walk-in shops, as opposed to the common use of call centers (Ngwenya, 2017). In South Africa, both in small towns and cities, retail outlets owned by mobile network operators are highly visible. This practice of opening customer walk-in shops by mobile network operators is critical for increased brand visibility, and it enables mobile network operators to interact face-to-face with their customers as opposed to contact with call centers.

The use of call centers could be an affordable approach as far as operational costs are concerned. On the one hand, the use of call centers deprives customers of face-to-face contact experience with the mobile network provider. On the other hand, the mobile network operator is also deprived the opportunity to impress the customer through body language, and other customer service acts, associated with face-to-face contact. Given the South African marketing environment, the majority of customers still prefer and depend highly on face-to-face customer service experience. In most cases, the choice of contact the customer will choose to have with the service provider is also influenced by the customer's social class.

It is widely acknowledged that service quality and customer satisfaction are important factors as they set services companies apart. In South Africa, mobile service customers switch service providers at a much faster pace than ever before as they seek for better deals. This is easier for customers given that above 90% do not pay monthly subscriptions (Maharaj, 2012). Could this be attributed to service quality and customer satisfaction experience? Given this background, this study sought to answer the following questions:

- Does services quality and customer satisfaction experience differ significantly between mobile network operators in South Africa?
- Which mobile network operator in South Africa do customers rate better on service quality and customer satisfaction experience?

The investigation of customers' experience of service quality and satisfaction is critical to service providers for enhancing service delivery, brand protection, market share analysis and crafting future-oriented expansion strategies in the competition intense mobile telecommunications sector (Arsal and Yatera, 2014; Selelo and Lekobane, 2017). From these strategies, customers stand to benefit by receiving additional value on money spent.

3. Literature review

3.1. Service quality

South African studies have examined customer service in the mobile telecommunications sector and they measured service quality making use of the SERVQUAL tool (Ngwenya, 2017; Van Der Wal, 2002). The SERVQUAL tool outlines that service quality can be assessed through tangibility, reliability, responsiveness, assurance and empathy (Parasuraman *et al.* 1985). The element of tangibility speaks to how the physical environment of the environment appeals to the customer, including the employees, communication material and equipment. Several studies particularly in the hospitality sector provide evidence suggesting that employee dress code, for example, uniforms give customers an idea of the service to expect (Nelson and Bowen, 2000). Thusyanthy and Senthilnathan (2011) found evidence that layout of physical facilities also determined the service that commercial banks can provide as they seek to satisfy their clients. Overall, they found that tangibles lead to high customer interaction leading to higher levels of customer satisfaction.

With regard to reliability, this is the ability of the entity's employees to deliver the service on demand when needed and with little margin of error. Responsiveness speaks to the willingness of the employees to immediately solve customer related queries from time to time. The fourth element of SERVQUAL is assurance which speaks to the ability of employees to deliver their duties with courtesy, their ability to make customers trust and have confidence in them that they possess the required knowledge to successfully address customer concerns. The final element is empathy which refers to the ability of employees to provide care and attention which is customer's desire.

The SA mobile network operators conduct business in a challenging and ever-changing market environment (Mpwanya and Van Heerden, 2017). Challenges affecting the mobile telecommunications network in South Africa, include low disposable income of customers, poor network quality and high services costs (Mpwanya and Van Heerden, 2017; Mpwanya and Letsoalo, 2019). Therefore, to succeed, service quality becomes a critical factor as measured by the SERVQUAL. The situation is exacerbated by the observation that the mobile telecommunications sector, especially in South Africa, is becoming an increasingly saturated environment (Morgan and Govender, 2017). As a result, firms in this sector must devise innovative strategies to enhance service quality (Mpwanya, 2019).

By focusing on tangibility, responsiveness, reliability, empathy and assurance, SA mobile network operators may be able to increase customer value and in turn enhance customer satisfaction. When customers gain value from their continued use of a particular service provider, it will make them feel good about their choices. Service providers desperately need this kind of customer evaluation as it leads to lower customer acquisition costs through practices such as word of mouth and/or referrals. In agreement, Izogo (2015) pointed out that service quality is widely acknowledged in marketing literature as a key predictor of customer loyalty.

Research indicates that in competitive sectors, such as the mobile telecommunications industry, service quality becomes the tool which consumers rely on to categorize and rank firms (Ofori *et al.* 2018). Srivastava and Sharma (2013) concurred and pointed out that when firms are competing in the same sector, and they need to be able to outmaneuver competition, it is critical to offer superior service quality. Ladhari and Leclerc (2013) agreed and further emphasized that if mobile network operators would want to differentiate themselves from competition, they should focus on service quality.

The importance of service quality cannot be underestimated as it also plays a critical role in building the entity's image and reputation (Lai *et al.* 2009). On the same notion, Bennett (2017) argued that an entity can only build a superior brand or image when the entity's products are perceived to be of superior quality compared to the competition's offerings.

3.2. Customer satisfaction

Customer satisfaction is better explained by making use of the disconfirmation paradigm (Smith and Houston, 1983). The disconfirmation paradigm explains that in a situation where the product or service performance is equal to the customer's expectations, the customer is said to be

satisfied. Similarly, when the product or service performance exceeds a customer's expectations, the customer will be satisfied. The situation is, however, different when the product or service is below the customer's expectations, in which case the customer becomes dissatisfied (Lamb *et al.* 2015). Oliver (1999) emphasized the importance of satisfaction by pointing out that it is the critical factor that subsequently influences human behavior, for example repeated sales and loyalty which result in high profitability. In the mobile telecommunications sector, this could mean that the customer will continue to subscribe to one service provider. Satisfied customers do wonders for the firm, for example they spread the word, informing others about their good experience with the entity in question (Saghier and Nathan, 2013). Some satisfied customers go further to paying price premiums with ease (Lamb *et al.* 2015). Word of mouth, and the willingness of customers to pay price premiums are critical factors to the firm's profitability, growth and sustainability and only satisfied customers can provide such. Conversely, unsatisfied customers often complain to other sources, for example, pro-consumer organizations or activists. Furthermore, unsatisfied customers can choose to buy less from the entity in question, and some customers may cease doing business with entity completely (Mazibuko, 2016).

4. Methodology

The study was quantitative in nature and descriptive by design. Data was gathered by means of a survey and the study can be classified as a cross-sectional study. In other words, conclusions reached in this study are limited to one period of time (the time at which the study was undertaken), and are subject to further tests based on data gathered at other different time intervals. Self-administered questionnaires was used to collect data from 1544 mobile network customers. The Eastern Cape province of South Africa was the targeted geographical area for this research. The Eastern Cape Province is the third largest province in terms of population size in South Africa, after Gauteng and KwaZulu-Natal provinces. Convenience sampling was undertaken as there was no sampling frame available from which to select the respondents. To ensure bias, errors were minimized, a large sample size was used. Participants were approached at random and selected on the basis that they own and make use of a mobile phone. Respondents were approached at different areas that provided access to a large number of individuals at a given time. Thus, shopping malls and institutions of higher learning (universities and colleges) were targeted. From the completed questionnaires received, 1,451 had sufficient data to proceed to the analysis stage, giving a 94% response rate.

4.1. Research procedure

Hundred and fifty-six trained field workers assisted in the data collection. Participants were informed upfront that data obtained was to be used for teaching and learning as well as for research purposes. Possible harm resulting from participating in the study was explained to participants. Further, participants were advised that they had the right to refuse and/or terminate participation at any time. Having informed the participants of their rights, informed consent to participate in the study and utilize the data as explained was sought and obtained. To maintain confidentiality, participants were further informed not to endorse their names, signatures or any symbol that could give away their identities.

4.2. Research instrument

The research instrument was subdivided into three sections. Section one of the questionnaire had four items focusing on the demographic distribution of the respondents (age, home language, education level and mobile network operator used by the participant). Section two of the questionnaire focused on SERVQUAL dimensions. To measure service quality, this study followed the approach taken by different authors in different countries who also investigated service quality and customer satisfaction in the mobile network telecommunications sector (Ngwenya, 2017; Van der Wal, 2002). Such studies adopted while others modified the SERVQUAL scale developed by Parasuraman *et al.* (1985), (Agyapong, 2011; Loke *et al.* 2011;

Selelo and Lekobane, 2017). The SERVQUAL model is based on the principle that for a customer to remain satisfied, an individual organization ought to realize that the service quality it offers is within the expected range. South African mobile customers have access to call center facilities and in store assistance. Therefore, tangibility, reliability, responsiveness, empathy and assurance that forms part of the dimensions of SERVQUAL were considered relevant to this study. These dimensions were used to investigate service quality and customer satisfaction experiences among SA mobile network customers.

Tangibility was measured by four items and the reliability score was found to be 0.774; reliability was measured by five items and the reliability score was found to be 0.802; responsiveness was measured by four items and the reliability score was found to be 0.764; empathy was measured by five items and the reliability score was found to be 0.805; while assurance was measured by four items and the reliability score was found to be 0.785. This means that the SERVQUAL tool has an internal consistency that is acceptable given the benchmark score of 0.7.

The SERVQUAL items were measured on a 7-point Likert scale anchored by 1 = strongly disagree and 7 = strongly agree, being the highest score. Section three of the questionnaire focused on customer satisfaction. The customer satisfaction scale was subdivided into two parts. The first part had four items and the reliability score was found to be 0.858. The four items in Part A were measured on a 7-point Likert scale anchored by 1 = very dissatisfied and 7 = very satisfied, as the top score. The second part of the customer satisfaction scale had two items and the reliability score was found to be 0.821. The two items were also measured on a 7-point Likert scale anchored by 1 = very poor and 7 = exceptional. The Cronbach alpha coefficient was used to assess the reliability of the scales. Similarly, the customer satisfaction scale is reliable given that it has a Cronbach coefficient greater than 0.7.

4.3 Demographic distribution of the participants

Approximately 61% of the respondents were aged 25 and below, making them the dominant group, followed by the 26 – 30 age category (25%), 31-35 years (8%), 36-40 years (4%), 41-45 years (1%) and lastly, the 46 years and above category also represented by 1%. The distribution of respondents by gender was 53% female participants and 47% representing male participants. Regarding the education level of the participants, matric certificate holders were 22%, diploma holders 7%, first degree holders 48%, Honors or postgraduate diploma holders 13%, Master's degree holders 7% and PhD holders 3% respectively. The distribution of respondents by home language was Xhosa 67%, isiZulu 14%, Sotho 7%, Tswana 3%, English 4%, Afrikaans 2%, and 3% representing other languages. In relation to mobile network operator used by the participants, the distribution was as follows: MTN (41%), Vodacom (23%), Cell C (22%), and Telkom (15%).

4.4 Data analysis

To make meaning of the data, the Statistical Package of Social Sciences (SPSS), version 25 was used as a data analysis tool. Descriptive statistics were performed from which frequencies were derived, reported and interpreted. Making use of multivariate analysis of variance (MANOVA), significant differences in service quality and customer satisfaction experience by mobile network operator used were established.

5. Results

Descriptive statistics were undertaken to compare mobile network customer experience of tangibility, reliability, responsiveness, empathy, assurance and satisfaction scale items. MTN, Vodacom, Cell C and Telkom customer responses to each item on the tangibility scale were examined. Approximately 76% of MTN and 78.6% of Vodacom customers agreed with the statement that their service providers had *up-to-date equipment*. Although Cell C customers agreed with the statement that *the mobile network operator had up-to-date equipment*, this item

received the lowest rating on the scale represented by 62.1% but ranked second by Telkom customers represented by 71.5%.

Cell C and Telkom customers unanimously agreed and rated item four of the tangibility scale by stating that *the physical appearance of the facilities of the service providers was in keeping with the type of telecommunication services*, represented by 70.3% and 77.6% respectively. Also important to note was that Telkom customers gave the lowest ranking to the second item of the tangibility scale stating that *the service providers' physicals are visually appealing*. This item was rated third by MTN, Vodacom and Cell C customers.

Mobile network customer experience focusing on reliability of the service providers was examined. Item three of the reliability scale stating that *the network provider provided service correctly* was rated first by three mobile network providers' customers represented by MTN (81.3%), Vodacom (83.6%), and Telkom (84.2%) respectively. The same item was rated third by Cell C users, represented by 72.4%. Conversely, Cell C users rated their service provider highly on item two pointing out that when they have problems, Cell C *always shows a sincere interest in solving such problems*. The same item was ranked second by MTN users, and third by both Telkom users and Vodacom users. Although MTN customers agreed with the first item stating that *"when the network provider promised to do something at a certain time, it does so"*, it actually received a low agree percentage rate of 75 but better than the 68.8% for Cell C. Conversely, Telkom customers rated the first item as the second highest with an 81.3% agree response rate.

SA Mobile network user experience with respect to responsiveness scale items was examined. On the one hand, of the four scale items, MTN and Telkom users rated the third item highly stating that *"my network provider is always willing to help"*, as represented by 82.9% and 83.4% respectively. However, Cell C and Vodacom customers rated the same item second and third as represented by 77.6% and 82.5% respectively. On the other hand, Vodacom and Cell C users gave a high rating to the second item of the scale stating that *"my network provider provides prompt services to customers"*, as represented by 82.9% and 78.1% respectively. Although all customers were in agreement as opposed to disagreeing, the same item was rated third by Telkom customers represented by 77.7% and rated fourth by MTN users represented by 78.1%. On the responsiveness scale, Cell C and Telkom users rated fourth the first scale item stating that *"the network provider informs clients when the services will be performed"*. This is contrary to Vodacom users who rated it second and MTN customers who rated it third.

The empathy scale had five items and of the five items, Vodacom, Cell C and Telkom customers gave a high rating to the second item stating that *"my network provider's employees deals with clients with care"*, as represented by 84.3%, 77.5% and 81.6% respectively. MTN users rated the same item as third highest, receiving an agree score of 79.5%. MTN customers, however, rated their service provider highly on item five of the scale stating that *"my network provider has convenient operating hours"*. This item was rated third by Vodacom users, second by Cell C users and fourth by Telkom users. Cell C and Telkom users rated the first item of the scale as fifth, stating that *"my network provider gives you individual attention"* while the same item was rated second by Vodacom users and fourth by MTN users. MTN and Vodacom customers rated fifth the third item of the scale stating that *"my network provider has the client's best interest at heart"* while Telkom users rated it third and Cell C users rated it fourth.

The assurance scale had four items where MTN and Vodacom users rated the fourth item high which stated that *"employees of my network provider have enough knowledge to deal with clients requests"*. However, a similar case was not evident with Cell C users who rated it second and with Telkom users who rated it fourth. Cell C and Telkom users gave a high rating to the third item on the assurance scale stating that *"employees of my network provider are very professional when executing their duties"*, while Vodacom users rated it second highest, and MTN users rating it third highest. Further, MTN and Telkom users rated the first item of the assurance scale as second, stating that *"I feel safe when I am dealing with my network provider"*. However, Vodacom and Cell C users rated the same item as third.

Mobile network customer satisfaction experience was also investigated making use of the customer satisfaction scale made up of part A with four items and part B with two items. MTN, Cell C and Telkom users gave a high rating to the fourth item stating that *"overall I am satisfied with the offerings of my network provider"*. However, the same item was ranked fourth by

Vodacom customers. Vodacom customers instead gave a high rating to the second item of the customer satisfaction scale stating that “Are you satisfied with the services of your network provider?” Approximately 82% of Vodacom users indicated that they were satisfied with the service of the network provider. With respect to Part B of the customer satisfaction scale, a similar trend was observed from all customers across mobile network operators. The trend is that for the very poor to fair response categories, there are very low ratings of not more than 12% but customer rating fairly improved from the good to exceptional category across all mobile network operators. This generally indicates that customers were somehow satisfied with their mobile network operator services although ratings differ quite significantly.

Descriptive statistics suggest that mobile network customer service and satisfaction experience differ across all four mobile network operators examined in this study. However, to determine if service quality and customer satisfaction experience differences are significant, given their distinct mobile network providers, MANOVA was performed. MANOVA is designed to perform many functions but key to this study was its ability to detect whether groups (MTN users, Vodacom Users, Cell C users and Telkom users) differ along a combination of variables, that is customer satisfaction and service quality dimensions (tangibility, reliability, responsiveness, empathy and assurance). Results of the MANOVA are displayed in Table 1 and Table 2 respectively.

From Table 1, making use of Wilk’s Lambda, it can be observed that there was a significant effect of the mobile network operator used by the customer on services quality experience as measured by SERVQUAL dimensions (tangibility, reliability, responsiveness, empathy and assurance), and customer satisfaction experience $\lambda = 0.96$, $F(18, 4079) = 3.68$, $p = 0.000$. From this result, the conclusion is that the type of mobile network operator used by the customer has a significant effect on service quality and customer satisfaction experience. The separate univariate ANOVAs on the outcome variables also confirm this relationship as they reveal a significant mobile network operator effect on tangibility $F(3, 1447) = 13.842$, $p = 0.000$; reliability, $F(3, 1447) = 9.834$, $p = 0.000$; responsiveness, $F(3, 1447) = 4.242$, $p = 0.000$; empathy, $F(3, 1447) = 6.866$, $p = 0.000$; assurance, $F(3, 1447) = 6.645$, $p = 0.000$; and customer satisfaction, $F(3, 1447) = 11.265$, $p = 0.000$.

Table 1. MANOVA output – Multivariate tests

Multivariate tests ^a							
	Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	0.973	8593.475 ^b	6.000	1442.000	0.000	0.973
	Wilks' Lambda	0.027	8593.475 ^b	6.000	1442.000	0.000	0.973
	Hotelling's Trace	35.756	8593.475 ^b	6.000	1442.000	0.000	0.973
	Roy's Largest Root	35.756	8593.475 ^b	6.000	1442.000	0.000	0.973
Mobile network	Pillai's Trace	0.045	3.658	18.000	4332.000	0.000	0.015
	Wilks' Lambda	0.955	3.678	18.000	4079.077	0.000	0.015
	Hotelling's Trace	0.046	3.695	18.000	4322.000	0.000	0.015
	Roy's Largest Root	0.035	8.358 ^c	6.000	1444.000	0.000	0.034

Note: a. Design: Intercept + Mobile network. b. Exact statistic. c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Source: Author’s own preparation.

Table 1 provides evidence suggesting that the mobile network used by the customer has a significant effect on service quality and customer satisfaction experience. However, the nature of this effect is not yet clear from the multivariate statistic, that is, which group (mobile network operator) differed from which, or whether the effect of the mobile network operator used is on service quality and customer satisfaction experience or a combination of both. To establish the effect, the MANOVA was followed up with a discriminant analysis and the results are displayed in Table 2.

Table 2. Output from the discriminant analysis (Eigenvalues, Wilk’s lambda and structure matrix)

Eigenvalues				
Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	0.035 ^a	75.2	75.2	0.183
2	0.009 ^a	18.7	93.9	0.093
3	0.003 ^a	6.1	100.0	0.053
Wilks' Lambda				
Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 3	0.955	65.797	18	0.000
2 through 3	0.989	16.467	10	0.087
3	0.997	4.037	4	0.401
Structure matrix				
	Function			
	1	2	3	
Tangibility	0.902*	-0.031	-0.395	
Customer Satisfaction	0.804*	-0.085	0.549	
Reliability	0.712*	0.564	0.102	
Empathy	0.608*	0.385	0.203	
Assurance	0.564*	0.545	0.244	
Responsiveness	0.489*	0.239	0.047	

Note: a. First 3 canonical discriminant functions were used in the analysis. Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions. Variables ordered by absolute size of correlation within function. *. Largest absolute correlation between each variable and any discriminant function

Source: Author’s own preparation

Results outlined in Table 2 combine three key mini-tables from the discriminant analysis output, namely the eigenvalues, Wilk’s Lambda and the structure matrix. The first discriminant function explained 75.2% of the variance, canonical $R^2 = 0.033$. The second discriminant function explained 18.7% of the variance, canonical $R^2 = 0.009$ and the third explained 6.1% of the variance, canonical $R^2 = 0.003$. In combination, these discriminant functions significantly differentiated the mobile network operators $\lambda = 0.96$, $X^2(18) = 65.80$, $p = 0.000$, but removing the second and third functions did not significantly differentiate mobile network operators $\lambda = 0.99$, $X^2(10) = 16.45$, $p = 0.087$; and $\lambda = 0.997$, $X^2(4) = 4.04$, $p = 0.401$. The correlations between outcomes and the discriminant functions revealed that tangibility loaded highly onto the first function ($r = 0.902$) compared to the second ($r = -0.031$) and the third function ($r = -0.395$). Customer satisfaction loaded highly onto the first function ($r = 0.804$) and poorly on the second function ($r = -0.085$) but reasonably higher on the third function ($r = 0.549$). Other outcome variables, that is reliability, empathy, assurance and responsiveness behaved similarly, the correlations loaded highly on the first function, fairly high on the second function and marginally high on the third function.

6. Discussion

6.1. Contribution to literature on service quality in the mobile network telecommunications sector

The findings in this study indicate that the performance of South African mobile network operators varies significantly. With respect to tangibility, Vodacom received the highest average positive rating of 75.34%, followed by Telkom’s 72.43%, MTN’s 68.23% and Cell C anchored the list with an average positive rating of 64.28%. Vodacom further topped the list on service reliability ratings with an average positive rating of 81.92% followed by Telkom’s 80.04%, MTN’s 77.86% and Cell C further anchored the list with an average positive rating of 72.22%. A similar trend was also observed with respect to responsiveness ratings. Vodacom topped the list with an average positive rating of 82.63%, followed by Telkom’s 79.78%, MTN’s 79.73% and Cell C’s 76.28%.

With respect to empathy, Vodacom also came top with an average positive rating of 82.44%, followed by Telkom's 79.9%, MTN's 78.72% and Cell C's 74.48%. Vodacom further topped the list on assurance with an average positive rating of 79.7% followed by MTN's 77.98%, Telkom's 77.15% and Cell C's 72.68%.

Overall, given the customer ratings of their mobile network operators with respect to service quality, Vodacom came out top with an average rating of 80.41% followed by Telkom's 77.86%, MTN's 76.50% and Cell C's 71.99%. This finding is a significant contribution to theory and literature on service quality experience of mobile network users in South Africa. More interesting is the finding that the new player in the industry, namely Telkom, is ranked second on service quality after Vodacom. Although MTN is second in terms of market share, the response from its customers indicate that there are service quality factors that MTN should address to enhance the service quality experience of customers. BrandsEye (2019) indicated that Vodacom customers were not happy with its pricing strategies. This, however, did not negatively affect the customer service quality experience as it came out top compared to all other players in the industry.

6.2. Contribution to practice on service quality in the mobile network telecommunication sector

Service quality experience of mobile network customers could be enhanced in South Africa if players in the sector pay special attention to items with low ratings. A brief highlight of these items will be discussed in this section. Fifty per cent of the mobile network operators had a positive low rating on item three of the tangibility scale which focused on staff dressing and neatness. The appearance of staff plays a critical role as far as service quality is concerned. Poorly dressed staff members taint the image of the service provider and customers are more likely to develop a negative attitude towards the firm. Mobile network operators could resolve this challenge by establishing a dress code for employees and educating them on the value of neatness and appearance in the services sector. Research in the hospitality sector found that employee dress code, for example, uniforms aid in making the service more tangible by giving customers the idea of the service to expect such as limited service, formal or relaxed (Nelson and Bowen, 2000). In addition, evidence in the banking sector suggest that good tangibles lead to increased customer-employee interaction resulting in higher levels of customer satisfaction (Thusyanthy and Senthilnathan, 2011). Given the mentioned positive results in the hospitality and banking sectors, the mobile network providers may learn and customize such practices to their own benefit.

The study's findings also revealed that 50% of the mobile network operators received a low reliability rating on item one of the reliability scale, stating that '*when my network provider promises to do something at a certain time, it does so*'. The remaining 50% of the mobile network operators received a low rating on item four of the reliability scale, stating that '*my network provider delivers services timely*'. This means that 50% of the network providers were not able to keep some of the promises they made and this negatively affected their reliability ratings. The findings further reveal that although the other 50% of mobile network operators would keep their promise, they were failing to deliver the required service on time. Service quality experience of mobile network users could be enhanced if mobile network operators evaluate customer complaints and identify the causes of underperformance (Haider *et al.* 2016). This would enable them to come up with a strategic plan that focuses on human, technical and financial resources for improving their reliability issues. This will enable mobile telecommunication network providers to align what they can deliver (promises) to customer expectations. As a matter of principle, customers would like to receive the service when it still has value to them not later.

Fifty per cent of the mobile network operators also received a low rating from customers on item one of the responsiveness scale, stating that '*my network provider informs clients when the services will be performed*'. This means that 50% of mobile network operators do not always take the initiative to inform their clients of the actual date when certain service(s) will be performed and the estimated time it will take to perform the service(s). Some of the services performed by mobile network operators have seen network connectivity becoming a major problem for several hours. This is a critical issue as customers would appreciate just a text from the service provider

informing them if they are likely to experience normal service disruptions. Sadly, some mobile network operators have a tendency of issuing an apology when the damage is already done, that is poor network connectivity resulting in loss of communication. Such behavior could be interpreted to mean that mobile network operators have little appreciation of the value of communication, and information sharing among customers. Access to information plays a critical role in the decision-making process for both firms and individuals. Therefore, untimely disruptions in network connectivity could result in economic loss amounting to millions of Rands for firms and individuals whose daily operations require a stable network connectivity.

Informing customers in advance would allow them to find other alternatives or schedule their tasks that would require better network connectivity accordingly. Thus, service quality experience of customers could be enhanced if mobile network operators commit themselves to timely release of information about scheduled maintenance, and other upgrade or downgrade activities they will perform in future that could disrupt normal network connectivity.

Customers in the mobile network sector further gave 50% of the mobile network operators a low rating on item one of the empathy scale, stating that '*my network provider gives you individual attention*'. Customers further gave a low to item three of the empathy scale, stating that '*my network provider has the client's best interest at heart*'. The low ratings received on the stated empathy scale items mean that as much as mobile network operators are doing a good job on these items, some of their customers are of the opinion that they still have to do more to enhance their service quality experience. In this regard, network mobile operators need to further invest in training their staff on the importance of service quality. Highly skilled employees may not completely address all mobile network customer needs and wants but they are capable of efficiently handling diverse customers and their personal needs. Customers often give credit where it is due and reward effort with loyalty.

On the last dimension of service quality, that is assurance, 75% of the mobile network operators received a low rating on item two of the assurance scale, stating that '*the behavior of my network provider is one that makes you grow in confidence*'. This means that mobile network operators still have to do more to help customers grow in confidence regarding the services they claim to render. Customer confidence can be enhanced by being transparent, asking for feedback and accepting mistakes when they have been made. Informing customers on how the service they expect from the network mobile provider is rendered will enable customers to learn a great deal about the entity and begin to appreciate what it stands for. Some entities provide a guided tour on regular basis to ensure that customers get first-hand experience of what the entity does and how it carries out such activities.

6.3. Contributions to literature on customer satisfaction in the mobile network telecommunications sector

A subdivided scale (Part A and B) was used to collect customer responses regarding their satisfaction experience with mobile network operators. Average satisfaction scores from customers focusing on Part A of the satisfaction scale indicate that Vodacom customers are on average 80.95% satisfied with its services, followed by Telkom's 80%, MTN's 76.98% and Cell C's 71.38%. This finding makes a significant contribution towards literature on customer satisfaction experience in the mobile network sector. As observed earlier, Vodacom and MTN command the greatest market share. However, although MTN's large market share exists, MTN customers on average are less satisfied than Telkom's customers. Telkom is considered the youngest player in the sector when compared to the other three players identified in this study; yet it is doing significantly better in satisfying its customers than two other players (MTN and Cell C) who have been in the sector for a significant number of years more than Telkom. Part A of the customer satisfaction scale was preferred in making this conclusion as it has twice more scale items than part B of the customer satisfaction scale. South African mobile network operators can enhance customer satisfaction if they address issues related to quality of reception, signal strength and cost related to data and normal calls. Mobile network operators in the United Kingdom largely focused on these attributes and their customers are highly satisfied with the

service they are receiving from their network operators with an overall average customer satisfaction rate of 93% (Choose, 2020).

7. Conclusion

This study concludes that service quality and customer satisfaction experience significantly differ depending on the mobile network operator the customer is using. The study provides evidence that in South Africa, Vodacom, a leader in market share, delivers superior service quality and customer satisfaction experience to its customers compared to MTN, Cell C and Telkom. The results also reveal that although MTN is the second largest in terms of market share, it is outperformed by Telkom, the youngest player in the industry, in delivering superior service quality and customer satisfaction experience. Cell C customers rated their service provider poorly when compared to Vodacom, MTN and Telkom customers as far as service quality and customer satisfaction experience are concerned. The study further concludes that service quality and customer satisfaction experience could be enhanced if mobile network operators pay attention to individual items which were poorly rated by customers across the scales used in the study.

Data was collected from the Eastern Cape Province of South Africa and eight other provinces were not represented. Generally, the Eastern Cape Province is regarded as lagging behind in terms of developmental aspects compared to other South African provinces. The researcher, owing to time and cost limitations, could not determine whether service quality and customer satisfaction experiences are similar across all the provinces. However, a large sample was used. In addition, data was collected from various towns and cities of the Eastern Cape Province, whereby people from all walks of life had an equal chance to participate as long as they were in the Eastern Cape Province during the field work period. In other words, the study sought to exploit the advantages of individual mobility. Further, this study is cross-sectional and issues related to service quality and customer satisfaction experience vary significantly with time. Data obtained only represented four major players in the industry, and although some other minor players do exist, the conclusion of the study only reflects the views of customers towards the major players. Finally, as a result of sectorial differences, the study's findings may not be applicable to some sectors of the economy as this study focused on the mobile network telecommunications sector. Given the above limitations, it is therefore critical for the reader to approach and interpret the study's findings with caution as generalizing these findings to other sector could be misleading.

A longitudinal study could be undertaken to determine whether service quality and customer satisfaction experiences of mobile network users vary significantly with time depending on the mobile network operator used. Such a study will provide evidence showing whether network providers are on the right path towards enhancing service quality and customer satisfaction or otherwise. More importantly, the study will highlight whether current challenges being faced by customers will continue to exist given the advancements in technology across the globe. Qualitatively, research can be undertaken to investigate how such experiences influence long-term relationships between customers and mobile network operators.

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