

An Investigation into the factors influencing the Purchasing Behaviour of Smartphones among University Students in South Africa

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Abstract

The purpose of this research was to investigate whether certain factors can influence the purchasing behaviour of smartphones among university students in South Africa. This was done by collecting data from Rhodes University students through web-based (online) surveys, yielding a final of 81 respondents, using convenience and probability sampling. It was found that although certain factors can be more significant than others, there was no exceptional relationship between purchasing behaviour and demographics, perceived smartphone attributes nor technological communication factors.

Keywords: Marketing, Consumer Behavior, Smartphones.

JEL classification: M3, M31.

1. Introduction

In the 21st century, mobile phones have become an essential and indispensable part of our everyday life (North, Johnston and Ophoff, 2014, pp. 115-116; Suki, 2013, pp. 236-237). South Africa has seen a dramatic increase in the number of mobile phone users within the last decade (Writer, 2016). In particular, smartphone penetration has increased to over one third of the South African population; and it is estimated that Sub-Saharan Africa will have an additional 400 million new smartphone connections by 2020 (Writer, 2016).

This study aims to understand and determine the factors that influence Rhodes University students in their purchasing behaviour of smartphones. Due the popularity of technology in general and previous research undertaken, it can be assumed that the majority of smartphone purchasers, both current and new, will comprise of a large portion of consumers aged between 18 and 25 years old (Heinonen and Strandvik, 2007 cited in Arif, Aslam and Ali, 2011, p. 286). University students fall into this age group category (North, Johnston and Ophoff, 2014, pp. 115-118).

Both manufacturers and marketers of smartphones must be aware of this constantly changing market segment and its associated purchasing behaviours (North, Johnston and Ophoff, 2014, pp. 115-118). Evidence has shown that the majority of failed product offerings can be directly linked to businesses not fully conducting marketing research (Lee, 2014, pp. 309-311). Many businesses assume a “cut and paste” solution with regards to entering into new market segments and markets (Arif, Aslam and Ali, 2011, pp. 286-288; Lee, 2014, pp. 310-312).

Many studies have examined the factors that influence the purchasing behaviour of smartphones among university students, however these have focused on the European,

American and Asian markets. Thereby, there is very limited research from the African and more importantly the South African perspective (North, Johnston and Ophoff, 2014, pp. 115-116; Elogie, 2015, pp. 1-3; Arif, Aslam and Ali, 2016, p. 285; Suki, 2013, pp. 236; Malviya, Saluja and Thakur, 2013; Lee, 2014, p. 308; Rahim, Safin, Kheng, Abas and Ali, 2016, p. 245). It must be noted that a study investigating the factors influencing the purchasing behaviour of smartphones among university students was conducted at Ambrose Alli University in Nigeria. Elogie (2015, pp. 1-14) discerned that a variety of factors had no significant relationships on the factors influencing the purchasing behaviour of smartphones among university students. Considering that this study was undertaken within the African context, it has formed the starting point for this research. What remains to be seen is whether the results will bear any resemblance within the unique context of South Africa.

The results gathered in this research could potentially give guidance to smartphone manufacturers and marketers concerning the development of their marketing strategies and product offerings (Arif, Aslam and Ali, 2016, p. 287).

2. Literature Review

It must be noted that purchasing behaviour falls under the umbrella term of marketing (Kotler and Armstrong, 1999, pp. 3-4). Traditionally, marketing has been thought of an activity that is purely limited selling and advertising; however, its primary function is to understand how to satisfy consumer needs (Kotler and Armstrong, 1999, pp. 3-4). In order to satisfy consumer needs, companies need to develop a product that provides value for the right price as well as having an effective distribution system and the correct promotional activities (Ogbeide, 2015, pp. 336-337; Walters and Helman, 2020). Therefore taking the above information into account, it can be stated that marketing is both a social and managerial process (Leelakulthanit and Hongcharu, 2012, p. 623; Dewnarain, Haywantee, and Mavondo ;2019).

It is vital that businesses master marketing and its subsequent activities in order to ensure that product offerings are correctly tailored to customer expectations (Kotler and Armstrong, 1999, pp. 3-4). By doing so, business can remain competitive within the market and become sustainable over the long-term (LaMancha, 2013). Correctly tailoring product offerings to suit customer expectations can only be achieved if businesses understand the influencing factors behind purchasing behaviours (Khan, Kulkami and Bharathi, 2014, p. 609).

2.1 Consumer Behaviour and the Influences of Purchasing Behaviour

Consumer behaviour examines the individual perceptions, lifestyle, demographic characteristics, culture, environmental effects, reference groups and family influences of a consumer that impact on their unique purchasing behaviour (Ogbeide, 2015, pp. 335-336). The consumer engages with all of the above mentioned variables to some degree before making a purchase (Ogbeide, 2015, pp. 335-336; iResearch, 2018; University of Minnesota, 2010; Rahim, et al., 2016, pp. 247-248). Therefore, consumer behaviour begins before a product is purchased and continues after purchase (Ogbeide, 2015, p. 336; Paine, 2017).

These purchasing behaviours are done subconsciously or consciously by the individual. It must be noted that the degree of influence that these variables have change based on whether the purchase is deemed to be simple or complex by the consumer (Miller, 2012, pp. 221-222). A simple purchase is usually something routine such as buying milk and bread (Miller, 2012, pp. 221-222). In comparison, a complex purchase generally occurs when a consumer wishes to purchase a product that is either expensive or will relate to a long-term decision, such as a smartphone (Kotler and Armstrong, 2010 cited in Ogbeide, 2015, p. 336; Miller, 2012, pp. 221-222).

Therefore, purchasing behaviour refers to the factors that influence the decision process made in relation to purchasing a product (Kotler and Armstrong, 1999, pp. 132-133). Models are key in understanding the relationship and interactions between the different factors that influence purchasing behaviour (Arif, Aslam and Ali, 2016, p. 287; Paine; 2017). Organisations should engage with them regularly to ensure that proper market targeting is completed (Paine, 2017). Whilst there are numerous different models and frameworks that describe this purchasing behaviour, for the purpose of this investigation a general framework, see Figure 1 below, has been adapted from the literature.

Factors are different aspects that play a role in influencing a buyer in making their final purchasing decision (Nagarkoti, 2009). Factors include aspects such as anything that can have an informational input, internal prejudices concerning the person or product, effects of risk and uncertainty, personal habits, socio-cultural influences and cognitive constraints (Kotler and Armstrong, 1999, pp. 132-133). In this study, factors that influence the purchasing process of smartphones can be described as the various elements that contribute to a student choosing one brand of a smartphone over another and their reasoning behind doing so (Ding, Suet, Tanusina, Ca and Gay, 2011, pp. 193-194; Rahim, et al., 2016, pp. 247-248).

Figure 1: Generic Framework: Influences on Purchasing Behaviour adapted from Kotler and Armstrong (1999, pp. 132-140); Ogbeide (2015, p. 337); Ding, et al., (2011, pp. 193-194); Grier and Deshpandé (2001, pp. 216-218); Malviya, Saluja and Thakur (2013, pp. 14-17) and Leelakulthanit and Hongcharu (2012, pp. 624-626).

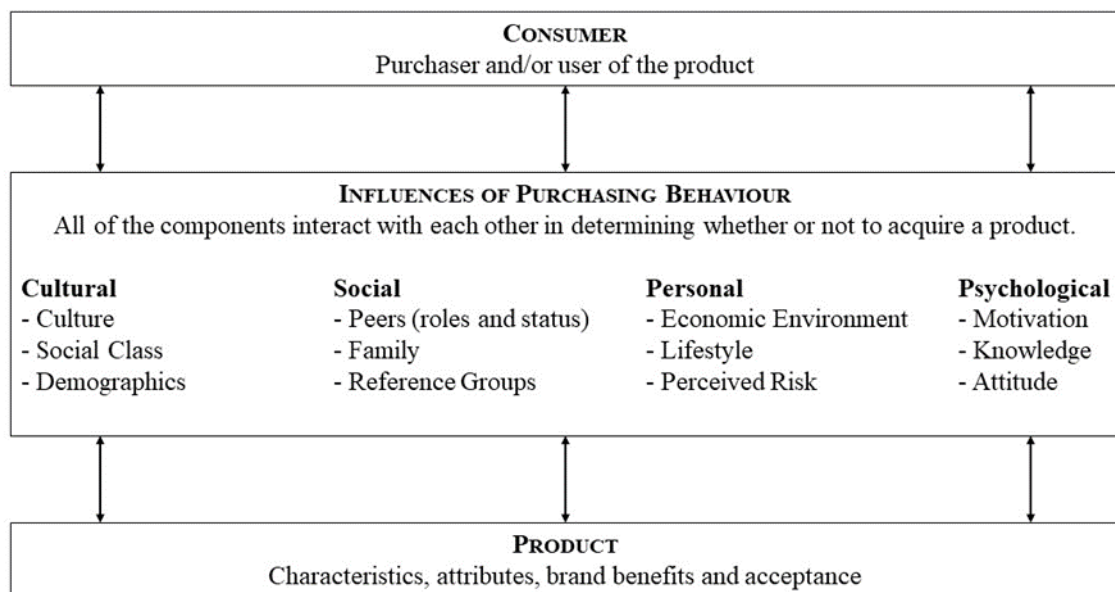


Figure 1: Generic Framework: Influences on Purchasing Behaviour

The reason for the adaption of the above framework, see Figure 1, is that current literature frameworks did not fully address all of the influences of purchasing behaviour. In addition to this, many focused solely on the consumer decision making process. Kotler and Armstrong (1999, p. 132-140) formed the base for the Generic Framework of Figure 1 and then additional literature and research informed the more detailed aspects and filled in any gaps in theory (Ogbeide, 2015, p. 337; Ding, et al., 2011, pp. 193-194; Grier and Deshpandé, 2001, pp. 216-218; Malviya, Saluja and Thakur, 2013, pp. 14-17; Leelakulthanit and Hongcharu, 2012, pp. 624-626); Oe, H and Yamaoka, Y 2020.

Research undertaken by Ding, et al., (2011, pp. 193-196) highlighted that there is limited knowledge relating to the consumer behaviour of university students, especially within the South African context. The reason for this statement, is that the majority of research typically examines different age groupings and focuses on international contexts such as the Americas, Europe and Asia (Ding, et al., 2011, pp. 193-196; Elogie, 2015, pp. 1-3).

University students present a unique market segment whereby they are embracing the shift from more traditional marketing mediums to digital and online marketing platforms (Van der Westhuizen, 2018). North, Johnston and Ophoff (2014, pp. 115-116) further highlighted that university students experience stronger peer and social status influences in comparison to older or younger market segments. Another attribute that differentiates this market segment as consumers is the multiple demographic characteristics that are present among students (North, Johnston and Ophoff, 2014, pp. 115-116). An example of this is the differences in funding sources and how this factor will impact a purchasing decision (Elogie, 2015, p. 2). Ultimately, the unique context of the Rhodes University student must be examined in order to determine what factors influence their purchasing behaviours in relation to smartphones.

Over the last few years the mobile phone has evolved from a piece of technology that was only capable of slight interpersonal interactions into a technological device which holds more computing power than the first rocket that landed on the moon (Puiu, 2017). At the mobile phone's initial launch, it had limited functionality and came at a price (Puiu, 2017; Pothitos, 2016). It allowed its users to be connected to the world through calling and messaging, however it initially lacked any other capabilities which then resulted in extensive research being conducted in order to explore potential customer requirements (Dennison, Morrison, Conway and Yardley, 2013, p. 75).

The increased use of the mobile phone worldwide has directly been correlated to the addition of technological functions and capabilities within the device (Lee, 2014, p. 309). While mobile phones are still offered to consumers within the market, smartphones have taken the popularity prize. They are especially popular with the youth, even though business people were initially the target market for this piece of technology (Pothitos, 2016).

Kotler and Armstrong (1999, p. 36) discuss examining products from both a product-oriented and market-orientated definition in order to fully examine the importance of the product to a consumer. From a product-oriented perspective, a smartphone is a multimedia platform capable of being programmed by the user and offers a variety of capabilities and features in order to aid the user in their daily life (Ding, et al., 2011, pp. 193-194; Suki, 2013, pp. 236-237). It contains features such as: downloading applications, instant messaging, use of the internet, social media services and entertainment (Lui and Lang, 2014, pp. 338-340; Miller, 2012, pp. 223-227; Ding, et al., 2011, p. 193). From a marketing-oriented perspective, consumers view smartphones as a device that provides them with a companion who makes their life easier, allows them to be in contact with virtually anyone in the world and improves their overall lifestyle and status (Shin, 2012 cited in Suki, 2013, p. 237; Malviya, Sulja and Thakur, 2013, pp. 16-19).

The increase in smartphone usage on the African continent further emphasises the important role that these devices play in everyday life (Writer, 2016; Statistica, 2017). Sub-Saharan Africa has low levels of infrastructure development; however, it is estimated that over 60% of the population has smartphone coverage (ITU, 2009 cited in Aker and Mbiti, 2010, pp. 207-208). A question must be raised as to how smartphone devices have made this shift? North, Johnston and Ophoff (2014, pp. 113-115) conducted an investigation at the University of Cape Town where they identified that South African students use their smartphones for social inclusion, security and safety, gaming and also to engage with their hobbies such as photography. In essence, smartphones allow students to be connected to the world through

instant messaging services and furthermore allow access to gain any desired information through the use of internet (Malviya, Saluja and Thakur, 2013, p. 18).

There is a simultaneous relationship between a student's smartphone adoption and the attributes of the smartphone (Lee, 2014). These attributes can be described as a combination of features of a smartphone perceived at different levels of importance by each individual, for example; camera quality, operating software, battery life, and many more (Singh, 2011). Smartphones have started being perceived as a need (Ding, et al., 2011, p. 198; Miller, 2012, pp. 234-236; Yu-Kang, Chun-Tuan, You and Zhao-Hong, 2014, pp. 374-378). The previous statement is supported by results from a study conducted by Kreutzer (2009) that found that South Africans who did not own a smartphone considered themselves economically and socially deprived.

Another aspect of smartphone attributes examines the aesthetics of a smartphone and how it could influence purchasing behaviours. That being said, research conducted by Toufani (2015) found that there was a significantly low relationship between emotional value perceived by a consumer and smartphone aesthetics. Therefore, although it appears aesthetics that do not have a direct effect on the sale of a smartphone in terms of emotional connection, it is still important to consider as the South African context may yield different results (Toufani, 2015).

The last attribute to examine is the extent to which the operating system of a smartphone has any influence over purchasing behaviour (North, Johnston and Ophoff, 2014, pp. 116-118). An operating system refers to the type of technology that is used to run all of the smartphone's various functions such as Apple IOS or Android (Liu and Liang, 2014, pp. 339-341). Research conducted by Nanji (2013) questioned the above statement and found that the influencing factors lie rather in the efficiency and operational capacity of a smartphone device rather than the "Apple IOS vs Android" debate.

It appears that there is continuous debate between individuals on why their smartphone from a particular brand, such as Apple, Samsung, Huawei or Nokia, is deemed superior to all other smartphone brands (Nagararkoti, 2009; Nanji, 2013). This generally goes hand-in-hand with the individual demonstrating a strong degree of stubbornness and brand loyalty when asked if they would change to another smartphone brand (Liu and Lang, 2014, p. 339; Leelakulthanit and Hongcharu, 2012, pp. 625-627).

These discussions often showcase the degree to which students are brand loyal which typically ties into the consumer decision making theory (Liu and Lang, 2014, p. 339; Ogbeide, 2015, pp. 332-335). While smartphone branding can potentially have a strong influence on purchasing behaviours, it must be considered that individuals are also affected by numerous other marketing stimuli whether they are exposed consciously or subconsciously to it (Leelakulthanit and Hongcharu, 2012, p. 626).

In addition to the physical capabilities of a product there is an aspect of emotional appeal and to a certain degree an emotional attachment to the product (Ogbeide, 2015). Kotler and Armstrong (1999, p. 425) introduced information relating to the importance of brand portfolios and how brand loyalty usually has a strong connection to status perceptions. This revelation by Kotler and Armstrong in 1999 shifted many of the traditional models at the time in terms of decision making norms (Van der Westhuizen, 2018, p. 172). The reason for this is that strong brand loyalty can contradict traditional consumer behaviour theory. For example, an individual may not have the appropriate economic resources but will still purchase the brand in question (Yu-Kang, et al., 2014, p. 380; Lui and Lang, 2014, pp. 338-343; Van der Westhuizen, 2018, p. 172).

Previous brand loyalty studies have been conducted which showcase the extent to which an individual is willing to remain brand loyal, such as only purchasing Apple products (Khan, Kulkarni and Bharathi, 2014, p. 609; Lui and Lang, 2014, pp. 338-343; Nanji, 2013). It is has

also been found that the younger generations are strongly affected and influenced by technology brands (Kim, Chun and Lee, 2014, p. 611; Nanji, 2013; Lui and Lang, 2014, pp. 338-343; Van der Westhuizen, 2018, p. 172).

Other reasons for smartphone choice over a mobile phone may be linked to the more superficial aspect of a smartphone being a status symbol (Lui and Lang, 2014, pp. 340-341). Research has shown that university students view smartphones as not only a vital tool, but that it can be used to elevate their status around peers and within social contexts (North, Johnston and Ophoff, 2014, p. 118; Malviya, Saluja and Thakur, 2013). It is important to note that in many cases brand loyalty has an influence on status (Van der Westhuizen, 2018, p. 172).

Demographics examine various population factors such as age, gender, income level, occupation and so on (North, Johnston and Ophoff, 2014, pp. 115-122). These various factors can be used to categorize certain characteristics of the population which in turn can give valuable information on how and why a market segment behaves in a particular way (Nanji, 2013). For example, there may be a correlation between demographic factors and the purchasing behaviour of an individual in relation to their gender, cultural values or age (North, Johnston and Ophoff, 2014, pp. 115-122; Kim, Chun, and Lee, 2014, pp. 584-586).

Research by Nanji (2013) has detailed the correlation between smartphone ownership and demographic data. In this particular research, undertaken in the United States, it was determined that demographic variables such as age and gender correlated with the purchase of either an iPhone or Android smartphone (Nanji, 2013). Very little data exists describing these variables and their correlation to smartphone ownership for South African students (North, Johnston and Ophoff, 2014, pp. 122-126). A question must be raised as to whether demographic characteristics such as; living in rural or urban areas, age, gender and ethnicity have any influence over the purchasing process of smartphones for university students (North, Johnston and Ophoff, 2014, pp. 122-126).

Additionally, a university student's financial affordability on their smartphone decision is another important variable. This is due to the fact that many university students are still financially dependent on their parents (North, Johnston and Ophoff, 2014, pp. 122-126). For instance, if a student is on a smartphone contract it is likely that their parents are paying for it or at least sharing the costs of it (Lee, 2014, p. 310). In addition to this, many students can only afford university by applying for bursaries, government grants or aid and student loans (North, Johnston and Ophoff, 2014, pp. 122-125). Therefore, the degree of financial dependency of university students will have an influence over their purchasing behaviours.

An important question must be asked to what extent do social influences such as peer opinion, social media and advertising impact on the decision to purchase a particular smartphone (Lee, 2014, pp. 308-310; Kim, Chun and Lee, 2014, pp. 578-279). The reason for this is the sheer amount of information available to the consumer through various social media sites and advertising campaigns (Grier and Deshpandé, 2001, p. 217). Consumers can not only view advertisements for smartphones but can also receive product reviews and comments from a variety of online sources that influence their purchasing decisions (Rahim, et al., 2016; Salehudin, 2011, p. 43). Furthermore, it has been found that there is a strong correlation between the variables of peer influence, family influence and reference groups on university students and their choice of smartphone (Lee, 2014, pp. 308-310; Khan, Kukarni and Bharathi, 2014, pp. 611-613).

The "Personal" component of the influences of purchasing behaviour refers to the environmental influences of the consumer (Kotler and Armstrong, 1999, p. 425). It must be noted that this component does share similarities with the consumer's demographic influences. That being said, one of the primary influences in this component is the perceived risk of the decision - the economic environment and lifestyle of the individual will have a great influence

over the risk perception (Salehudin, 2011, p. 43). The purchases of technological devices are usually delayed or cancelled based on the level of risk and uncertainty attached to them (Salehudin, 2011, p. 43).

The external environment informs the knowledge and motivations behind purchasing behaviours, for instance the attitude a person will have towards a product or service (University of Minnesota, 2010; Yu-Kang, et al., 2014, pp. 379-381; Nagarkoti, 2009). Technological and communication factors inform the psychological aspect of advertising activities and have a great ability to influence decision making thereby affecting purchases (Elogie, 2015, pp. 3-7). Past experiences with a product can negatively or positively affect consumer decision making especially if the encounter resulted in a significantly memorable outcome (Dietrich, 2010, p. 3). Purely product observations are insufficient to persuade and motivate customers to purchase a good. This is why marketing activities are conducted in order to further coerce consumers and influence their motivations (Dietrich, 2010, p. 3).

Auter (2007, as cited in North, Johnston and Ophoff, 2014, p. 117; Arif, Aslam and Ali, 2016, pp. 286-288) states that the primary importance of smartphones to university students, and their subsequent dependance on them is that these devices fulfill three needs namely: the need for inclusion, the need to maintain control over others or be controlled and the need of affection through instant gratification. Dependence on smartphones can be separated into two classifications which are the convenience of smartphones and the fulfilment of social needs (Ding, et al., 2011, pp. 193-195; North, Johnston and Ophoff, 2014, pp. 118-126). This information illustrates that a student can potentially view their smartphone device as another one of their physiological needs (Kuhlmeier and Knight, 2005, as cited in Arif, Aslam and Ali, 2016, pp. 289-290; Miller, 2012, pp. 221-223).

The above literature review as well as two previous research studies has formed the basis for this research. The first being research conducted at Ambrose Alli University in Nigeria and the second being conducted at the University of Cape Town.

In a previously conducted research done in Nigeria it was found that there were no connections between the variables and purchasing decisions made in relation to smartphones (Elogie, 2015, pp. 1-14). This forms the baseline of this investigation considering that it forms part of the African context. Within this research, similar objectives have been adapted in order to see whether student responses will be similar across African countries.

North, Johnston and Ophoff (2015, pp. 115-138) conducted a study at the University of Cape Town which explored the role and usage of both mobile phones and smartphones among students. This research can be useful as it provides a base from a South African perspective on mobile and smartphone uses. Using research from the past may also be challenging as some findings contradict the other research with regards to demographic variables (North, Johnston and Ophoff, 2014, pp. 115-138). However, this will help the study in the interpretation and analysis of research as there will be data supporting both arguments.

3. Aims and Objectives of the Research

The aims of the research included the following objectives:

1. Identify demographic characteristics and whether they have an impact on the purchasing behaviour of Rhodes University students.
2. To determine whether smartphone attributes have an influence over purchasing behaviour.
3. Describe any potential link between technological/communication factors and the purchasing behavior concerning smartphones among Rhodes University students.

4. Research Methodology

This research adopted a survey approach using deductive methods and quantitative analysis. These methods were chosen as they best suited the investigated hypotheses and any potential correlations. Surveys, used as the methodological approach allowed the researchers to generate a fairly large sample size of primary data collection, in a limited amount of time (Dudovskiy, 2017). Other advantages of this chosen approach included being cheap and gave way to an easier analysis of the data (Dudovskiy, 2017). On the other hand, the survey was limited in terms of the extent to which the depth of any relationships could be explored and was limited to the degree of generalizability (Dudovskiy, 2016). In continuation, the positivistic quantitative research paradigm was selected in order for the research to have a focus on the scientific method of gathering numerical data to perform Chi-Square testing (Antwi and Kasim, 2015, p. 220). This deductive approach assisted in describing and explaining the behaviours of the sample concerning their method of purchasing smartphones (Soiferman, 2010, p. 2).

Furthermore, the population of the study as mentioned in the title was Rhodes University students, from which the sample consisted of 81 students at all levels of study. The sampling method used included both convenience and probability sampling which was done using web-based surveys based in Limesurvey in August 2018. To go about doing this, a link to the surveys was sent by email to certain University student emailing lists. The main strengths of using this data collection technique is its time-effectiveness and convenience (Dudovskiy, 2016). Given the time constraints of the research the mailing lists being used enabled the sample to be stratified therefore targeting participants at different levels of study. Therefore, this consequently positively impacted the study's generalizability. However, chances of identifying potential bias and sampling variability estimation is limited (Dudovskiy, 2016).

Notwithstanding, most survey questions were scored on a 5-point Likert scale in an ordinal data format for data analysis. This was done with the intention to establish the various beliefs and opinions that the participants had on smartphones and their various characteristics (LaMarca, 2011). The Likert scale in this instance had no measurement between categories (i.e. Strongly agree and Agree) which allowed the participant to decide on their own level of agreement to the questions being asked. This was arguably a suitable method when analysing customer perception and product quality (LaMarca, 2011).

Measuring instruments included inferential and descriptive statistics, as these showcase the most accurate analysis. The quality of the research design has been addressed by taking into account factors affecting face validity and content validity such as any potential subjective judgements and unclear question structures (Trochim, 2006). The quality of the instrument had already met the standards required as the survey questions were based on a previous questionnaire, namely Elogie (2015) in Ambrose Alli University Nigeria. Methods of data analysis consisted of using a p-value of 0.05 where a relationship was classified as significant if $p < 0.05$. In order to achieve this, the Chi-squared (X^2) testing method was used as it is appropriate for frequency problems. Furthermore, its appropriateness has been assessed as Chi-squared is used when dealing with categorical data and particularly in large scale surveys where data is in the form of counts.

The reliability and validity of our tests must also be taken into account. Reliability refers to whether the results of questionnaire are consistent overtime and can be reproduced should a similar or the same methodology be used again on the same group of candidates (Moerdyk, 2009). Validity is concerned with whether the results of the questionnaire will accurately measure what they were intended to measure (Cohen and Swerdlik, 2002). Content validity has been used as it involves the scrutiny as to whether the questionnaire actually measures the factors influencing purchasing behaviour of smartphones. The questionnaire was able to measure the behaviour that it was intended to measure (Davis, 2013). The concept of face

validity has been used as it asks the question of whether the specific items in the questionnaire appear to be appropriate for the purpose of the investigation (Moerdyk, 2009).

Lastly, during the process of conducting the study, ethical considerations were taken into account and complied with upon approval from the Department of Management's Human Research Ethics Committee. For instance; the participants were respected and were at no risk of any harm, the research was conducted honestly whereby the participant and the information they provided will remain anonymous (Council National Health and Medical Research, 2012). In addition, the participants were asked prior to joining the study for their consent, as well as being informed of their voluntary participation and choice of withdrawing from the researcher at any point (Council National Health and Medical Research, 2012). Furthermore, ethical clearance was received from the Office of the Registrar to approach departmental secretaries in e-mailing the questionnaire to their respective students.

5. Results

The achieved sample of 81 respondents, accurately portrayed the population demographics of Rhodes University. This consisted of 66.7% female respondents and 32.1% male respondents, between the ages of 18-29, further the data collected precisely portrayed the population ethnicities and academic years of study ranging from undergraduate to postgraduate students at Rhodes University.

Moreover, 23.5% of respondents qualify for NSFAS, alongside an additional 14.8% who qualified for the "missing middle" sector. This allowed us to distinguish different student categories and their purchasing behaviour based on demographic variables. Additionally, this aided in determining significant and non-significant relationships. It should be noted that according to the data collected, in relation to the perceived characteristics of a smartphone, the majority of respondents said that the level of technology, the price of the smartphone and its brand were significantly important factors that contributed to their decision-making process. Section C consisted of the technological communications factors deemed important to the questionnaire respondents. It was observed from the raw data collected that brand loyalty was not as significantly important in comparison to the smartphone's operating system. It was also found that most people change cell phone devices due to their previous one breaking, as well as upgrading on average between 2-3 years.

Based on demographic and perceived attribute variables, the Chi-Square test was conducted, and from the 64 tests done only the above were found to have a significant relationship. P value has been used to establish whether there is a level of significance. In this instance, a relationship is considered significant if the p value is less than 0.05. Based on the data collected from the sample size, it can be seen that the source of funds for university and funding qualifications played an important role in influencing the purchasing decisions of students at Rhodes University. For instance, students that require funding were significantly more sensitive to the perceived ease of use of a smartphone as well as the level of technology, and appearance of their electronic device. In continuation, the population group was found to have sensitivities towards the appearance of their device, the level of technology, brand and pricing structure. Based on this it can be said that when smartphone brands are targeting lower disposable income class the focus can be placed on the basic functionality and the appearance of the device. Given that most of our respondents were from Urban residential home addresses, there are significant relationships between appearance, price and brand, interpreted as an important aspect for companies to consider when designing and marketing their product.

Despite the amount of data collected and questions asked, this section of demographic variables and technological communication factors only 4 tests were shown to have a significant relationship. Students viewed that understanding features of their smartphone was

of great importance based on their residential address at Rhodes. Also, this was linked to their upgrade frequency of a p value of 0.028, which may be based on the assumption that students living off campus have higher disposable incomes than those living in residence on campus.

Notwithstanding, the strong relationship between funding qualification and brand loyalty ($p = 0.008$) can be attributed to high brand switching costs that students may not be able to afford given their need for funding at the University. Also, it can be assumed that the psychological switching costs with regards to switching brands can explain the relationship between brand loyalty and residential home address. This is highlighted by brand theory where the age demographic group of 18-29 year olds are more brand loyal to their technological products, in this case their smartphones.

It was also discovered that understanding features was based on the appearance and level of technology displayed by a smartphone device. In continuation, the sample showed that their use of the features of their smartphone was mainly attributed to conducting research prior to their purchase and the physical appearance of the electronic device. This can be interpreted as significantly meaningful due to the fact that the level of complexity smartphone device software has become increasingly difficult to understand and use. Hence, with research being conducted prior to the purchase of a smartphone students were able to better engage with the features available to them.

Furthermore, the significant relationship of $p = 0.004$ between the brand and the brand loyalty that students have is expected and can be said to be a precursor for the following relationship of status symbol and appearance at $p = 0.033$. Considering that status symbol is part of the intrinsic characteristics of brand, whereas appearance is an extrinsic characteristic of a brand, thus showcasing that students at Rhodes University do potentially view their smartphone as an indispensable device in their lives. This further supports the theory that smartphones have become increasingly important, to a point of being considered as a physiological need and psychological dependency (Ding, et al., 2011, pp. 193-195; North, Johnston and Ophoff, 2014, pp. 118-126; Auter, 2007, as cited in North, Johnston and Ophoff, 2014, p. 117; Arif, Aslam and Ali, 2016, pp. 286-288).

6. Discussion and Managerial Implications

Based on the findings and the interpretation of our analysis the following points have arisen as recommendations from the study:

1. If marketers are targeting lower disposable income groups, they should be aware of students disinterest in additional features as they prefer smartphones that are easier to use while being cost-sensitive. This may principally be relevant in terms of financial planning and costing conducted prior to the release of a new smartphone device depending on the targeted customer base.
2. Smartphone device manufacturers must be aware that students prefer smartphones that have a strong ease of use and are void of additional non-core features. Many smartphones are marketed as having more features than their competitors, however it appears that this detracts from the perceived consumer value of the product offering.
3. Due to the finding that students are incredibly brand loyal as seen for a variety of reasons, marketers need to know that in order to entice brand switching the product offerings of the brand needs to exceed the psychological switching costs. Marketers and smartphone manufacturers must also cater for students who view brand switching costs as being too high.
4. Focus should be placed on the ease of use of the user experience when analysing one's purchasing behaviour as understanding and using features on a smartphone device is strongly related to the marketing of the outer appearance and screen display. This notion can

be used to elicit a certain purchasing behaviour when initially promoting the smartphone device as a product for the first time to consumers.

7. Recommendations for future research

This study was limited due to the fact that only a sample size of 81 respondents were used of which the age demographic only ranged between 18-29, with the most occurring ages being between 18-22. Additionally from this sample, only the tertiary educational context was examined from the perspective of students which did not include academic or support staff members. What's more, the study was also limited to the small geographical location of Grahamstown, South Africa. Therefore, suggestions for further research include; using a larger sample size which may be more representative of the population. Conducting this study in other countries may also illustrate different findings, hence as is the case when comparing the findings of this study at Rhodes University to the study of Ambrose Alli University in Nigeria, which was used as a foundation for this research.

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