

**AN INVESTIGATION INTO THE ANTECEDENTS AND OUTCOMES
OF THE M-SHOPPING EXPERIENCE**

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Commerce in the Faculty of Economic and Management Sciences at Stellenbosch
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DECLARATION

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ABSTRACT

M-shopping is progressively becoming more popular among consumers and further growth in m-shopping has been projected for the foreseeable future. Against this background, firms are increasingly adopting m-shopping as a new retail platform, which permits them to sell products and communicate with the consumer on mobile devices, on an anywhere-anytime basis. However, the potential of m-shopping seems to be underrated and not fully comprehended by firms. For this reason, this study attempted to capture the behaviour and perceptions of m-shoppers in a model that comprises the antecedents and outcomes of m-shopping in a particular context, namely the use of mobile phones to shop on mobile reference websites. Structural equation modelling (SEM) was used to test the relationships between the antecedents and outcomes of m-shopping and conclusions were drawn from the results of the structural model. It was found that self-efficacy had a positive significant relationship with perceived ease of use and perceived usefulness; and perceived usefulness and confirmation had a positive significant relationship with customer satisfaction. Customer satisfaction, in turn, had a positive significant relationship with hedonic and utilitarian value; hedonic and utilitarian value had a positive significant relationship with trust; and finally, trust, subjective norm and innovativeness had a positive significant relationship with the continuance of m-shopping. Moreover, the structural model illustrates the synergy that is required between the antecedents and outcomes of m-shopping to ascertain the ultimate outcome of the continuance of m-shopping.

This study also investigated differences between specific demographic characteristics of m-shoppers, such as age, gender, number of times an individual had m-shopped and the amount of money spent when m-shopping. From the findings managerial implications are formulated, and suggestions are made for firms and marketers to enhance their m-shopping strategies.

OPSOMMING

M-inkope raak toenemend meer gewild onder verbruikers en verdere groei in m-inkope word verwag vir die afsienbare toekoms. Teen hierdie agtergrond, gebruik firmas al hoe meer die m-inkope as 'n nuwe kleinhandelplatform, wat hulle in staat stel om produkte te verkoop en met die verbruiker op sellulêre toestelle, op 'n enige-plek-enige-tyd grondslag te kommunikeer. Dit blyk egter dat die potensiaal van m-inkope onderskat word en nie ten volle deur firmas begryp word nie. In die lig hiervan, poog hierdie studie om die gedragswyse en persepsies van m-kopers in 'n model vas te vang wat uit die voorlopers en uitkomste van m-inkope in 'n bepaalde konteks bestaan; naamlik die gebruik van selfone om aankope te doen op sellulêre verwysingswebwerwe. Strukturele vergelykingsmodellering (SVM) is gebruik om die verwantskappe tussen die voorlopers en uitkomste van m-inkope te toets en gevolgtrekkings is gemaak uit die resultate van die strukturele model. Daar is bevind dat self-doeltreffendheid 'n beduidend positiewe verband het met waargenome gemak van gebruik en waargenome nut; en waargenome nut en bevestiging het 'n beduidend positiewe verband met kliënttevredenheid. Tevrede kliënte, op sy beurt, toon 'n beduidend positiewe verband met hedonistiese - en gebruikswaarde; hedonistiese - en gebruikswaarde het 'n beduidend positiewe verband met vertroue; en laastens, het vertroue, subjektiewe norm en vindingrykheid 'n beduidend positiewe verband met die voortsetting van m-inkope. Verder dui die strukturele model die sinergie aan wat nodig is tussen die voorlopers en uitkomste van m-inkope om uiteindelik die uitkoms van die voortsetting van m-inkope te bepaal.

Hierdie studie het ook die verskille tussen spesifieke demografiese kenmerke van m-kopers, soos ouderdom, geslag, aantal kere wat 'n individu m-inkopies gemaak het en die bedrag geld wat bestee is, ondersoek. Vanuit die bevindinge is bestuursimplikasies geformuleer, en voorstelle word gemaak vir maatskappye en bemarkers om hul strategieë ten opsigte van m-inkope te verbeter.

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CHAPTER 1

INTRODUCTION TO THE STUDY

“Information technology and business are becoming inextricably interwoven. I don’t think anybody can talk meaningfully about one without talking about the other.”

-Bill Gates

1.1 INTRODUCTION

The past decade has seen substantial growth in the use and application of the Internet (Vink, Toos, Beijsterveldt, Huppertz & Boomsma, 2016). With the Internet’s growth, market opportunities for mobile business have transpired, where many web service providers have started to expand their online operations from the traditional personal computer-based environment to the mobile-based environment (Yang, Wang & Wei, 2014; Groß, 2015a). Just as the Internet provided pre-conditions for the emergence of e-commerce (electronic commerce), so mobile devices have paved the way for m-commerce (mobile commerce) by means of wireless connections and portable handsets (Agrebi & Jallais, 2015). M-commerce can be conceptualised as a new type of e-commerce, enabling transactions to be conducted via mobile devices (Kim & Ryu, 2015). With the proliferation of m-commerce, mobile shopping (m-shopping) has become a significant successor, whereby consumers use their mobile phones in the shopping process to access retailers’ websites and conduct transactions and price comparisons (Holmes, Byrne & Rowley, 2013). M-shopping has become a popular approach for modern consumers to order or pay for goods (Hung, Yang & Hsieh, 2012).

Juniper Research (2014) envisages that by the end of 2018 annual retail payments on mobile handsets and Tablets are expected to reach 707 billion US Dollars globally (approximately 11 trillion South African Rand; 1 US Dollar to 15.69 South African Rand on 2016, February 26th), representing 30 per cent of all online retail by that time. Shankar, Venkatesh, Hofacker and Naik (2010) suggest that the deep penetration in mobile devices among the world’s population has opened up new opportunities to influence shoppers, in both their attitudes and behaviour in the retail environment.

1.2 BACKGROUND

Multi-channel retailing can be described as the synergy of various retail channels which consumers can shop from. Multi-channel retailing works by means of various channels acting together as each one fulfils a different purpose in the consumer's purchasing process or the choice through which a transaction is concluded. Essentially, multi-channel retailing enables the consumer to examine goods at one channel, buy them at another channel and pick them up at a third channel (Berman & Thelen, 2004).

Barlow, Siddiqui and Mannion (2004) explain that channels may be distinguished from one another with the distinction of online and offline characteristics. Offline channels are those structures that offer the product and/or service in its physical form such as direct selling and generic stores. Online channels include those channels that make products and services available through modern information and communication technology such as the Internet, mobile phones, personal computers and television.

Multi-channel retailing has become acceptable and popular as the Internet has continually reduced barriers to entry in retailing. The main advantage of Internet retailing is that firms can adjust their offerings and prices more rapidly, permitting firms to respond to the changes demanded by customers at a more efficient rate. Established retailers can use the Internet to enhance their offers to customers and thereby maintain leadership in markets (Dholakia, Zhao & Dholakia, 2005).

As illustrated by Statistics Korea (2014), the Korean cyber marketplace incurred an estimated 30 billion US Dollars in transactions in 2013. Other supporting evidence in the growth of e-commerce include Takealot.com's one billion Rand investment in South Africa and Sub-Saharan Africa, and the 5.6 billion Rand investment in e-commerce by Naspers, former owners of Kalahari.com (Holmes, 2014). In October 2014, Kalahari.com and Takealot.com announced a merger, which was said to assist in scaling up their operations, as well as to provide greater products and services for customers in the e-commerce domain (Van Zyl, 2015).

The use of the Internet as a retail channel has increased exponentially during the period 2002 to 2012, with a reported 15-25 per cent annual growth in e-commerce. Up to 150 million Americans made at least one online purchase in 2012, while 35 million

used the Internet as an information source for products (Jiang & Balasubramanian, 2013).

Given the proliferation of cyber marketplaces as online shopping portals, it seems almost imperative that a multi-channel strategy should include the use of the Internet to satisfy the growing need for instantaneous search, click, and purchase procedures. Cyber marketplaces have changed the way people shop, and have the potential to disrupt the structure of traditional well-established industries (Jiang & Balasubramanian, 2013).

One of the primary reasons why consumers go online is to search for information (Horrigan, 2008). The question that can then be asked is what separates the information search from the final purchase decision? Or stated otherwise, why do all information searches not turn into purchase decisions?

The benefits that may persuade consumers to fulfil the final purchase procedure online include convenience, saving time, less dependency on store visits, less travel costs, broader product range, improved customer service online and comparative shopping (Çelik, 2011; Horrigan, 2008). Furthermore, online buyers also make use of transactions in cyberspace because of instant purchases (immediate possession), 24/7 shopping (anytime shopping), sometimes no-cost delivery, better access points for information-seeking and social interactions with potential and previous buyers (Kumar & Maan, 2014).

Non-m-shoppers exhibit greater feelings of perceived risk when engaging with the online shopping experience (Horrigan, 2008; Bhatnagar, Misra & Rao, 2000). Perceived risk factors refer to financial risk, performance risk, psychological risk and source risk when it comes to consumers' unwillingness to buy online (Ibrahim, Suki & Harun, 2014). The tendency to trust has been found to moderate the relationship between perceived risk and overall satisfaction with online shopping (Chen, Yan, Fan & Gordon, 2015). It was established that trust in online shopping is very tenuous, and that there is limited trust in online retailers. This limited trust in online retailers can be attributed to poor website design, inadequate interfaces, and a lack of security in the online shopping environment (Ho & Chen, 2013).

The primary uncertainties regarding online shopping include the inability to test a product, the lack of feedback with regard to complaints, online retailers' procedures

with product returns, and the potential misuse of consumers' personal data (Kumar & Maan, 2014). Teo (2006) notes that most websites do not have clear exchange or refund policies, which leaves potential buyers feeling unsettled. In addition, Kumar and Maan (2014) explain that the lack of touch and feel of merchandise as well as the inability of close-quality examination contribute to non-buying behaviour. Furthermore, consumers cannot test-run products or try them on before they make a final commitment.

Research of particular relevance to this study is that of Lim (2015). Using an integrated Information Systems Consumer Behaviour (IS-CB) model, Lim (2015) examined antecedents and consequences of e-shopping. Lim confirms that several constructs identified in his study indeed significantly influenced the online shopping process. Lim (2015) further points out that perceived value, perceived ease of use, entertainment gratification and web atmospherics (interface/navigation process) all had significant influences on e-shopping.

Lim's (2015) study showed that web atmospherics had an important effect on users' beliefs of e-shopping. In particular, web atmospherics positively influenced enjoyment gratification, perceived ease of use, perceived usefulness and emotional state – and negatively influenced the extent to which users got irritated with using a website. The results indicated that e-shoppers perceived placement of graphics, visually appealing colours, interactive features, and the ability to find what they want in three clicks from the original page, facilitates ease of use on the e-shopping website. Navigation features, such as website maps and the ability to view shopping carts, were also part of an established set of atmospheric variables that e-shoppers perceived as useful, and these variables greatly contributed to the ease of use of online shopping websites.

Furthermore, Lim (2015) established that perceived ease of use, perceived usefulness and enjoyment gratification positively influenced e-shoppers' attitudes towards e-shopping. Perceived ease of use influenced e-shoppers' attitudes towards e-shopping indirectly through perceived usefulness. Enjoyment gratification had similar effects on e-shoppers' attitudes towards e-shopping indirectly through perceived ease of use and perceived usefulness. In addition, e-shoppers' attitudes towards e-shopping had a positive impact on their intentions to use online e-shopping websites, and their

intentions to e-shop, in turn, positively influenced actual e-shopping purchases (Lim, 2015).

A new, emerging online retail channel that is of particular interest to the current research is mobile commerce. Mobile phones have opened up a new arena of marketing known as m-commerce (Aoki & Downes, 2003). As previously described, m-commerce enables transactions through mobile devices, from which m-shopping is born (Kim & Ryu, 2015). The increase in the number of hand-held communication devices worldwide makes m-shopping an attractive business opportunity. M-shopping providers can offer a large number of advanced services to mobile users via these hand-held devices (Hung *et al.*, 2012). Mobile phones, and particularly Smartphones, have steadily become a part of consumers' everyday lifestyles and shopping activities. Given the ubiquity of the mobile phone, changes in consumer behaviour are being made which retail companies cannot disregard (Gonzalez, Picot-Coupey & Cliquet, 2012; Schmidmayr, Ebner & Kappe, 2008). The increased functionality and performance of a Smartphone offers a significant opportunity for marketers and retailers to utilise mobile channels. Consumers specifically value the convenience and ease of access that a mobile device offers (Holmes, Byrne & Rowley, 2013). Mobile phones, along with m-shopping, essentially allow the retailer to emit an anytime-anywhere shopping service, where the retailer offers an omnipresent experience (Yang & Kim, 2012). In addition, the increase in mobile phone purchases from 2011 to 2016 is predicted to grow by 39 per cent (Forrester Research Inc, 2011), which is promising for the mobile channel.

1.3 OVERVIEW OF M-SHOPPING

As previously mentioned, the mobile phone has become a ubiquitous device in that it is always with an individual, regardless of time and place (Schmidmayr *et al.*, 2008). Given this ubiquity, the mobile phone provides the marketer and the retailer more opportunities to communicate their offers by means of mobile channels.

To date, there has been varying research findings on what determines m-shopping from a customer-centric perspective. The following section provides an overview of m-shopping based on the most recent literature.

Many factors contribute to the use of m-shopping, which include acceptance of the mobile media itself (web content; personal content; interpersonal content and commercial content, all accessed through mobile platforms), trust, demographics, social influence, and delivery timing (Bigné, Ruiz & Sanz 2005; Kleijnen, de Ruyter & Wetzels 2007; Varnali & Toker 2009). Age, social class and experience of Internet shopping are understood to be the variables which best predict m-commerce behaviour (Bigne, Ruiz & Sanz, 2005). There are also various factors which may inhibit the adoption of m-shopping, such as consumer inertia to new technology, economic barriers, low levels of mobile literacy and a distrust in marketing and advertising practices (Shankar *et al.* 2010).

Mobile communication and mobile accessibility utilities may be key factors in predicting willingness to undertake m-shopping (Kang & Johnson, 2013). Kang and Johnson (2013) have demonstrated that more extraverted, more agreeable, and less neurotic mobile consumers are likely to positively perceive high levels of mobile communication utility. Wang, Malthouse and Krishnamurthi (2015) assert that mobile shopping is primarily used for its convenience, and ease of access. Furthermore, Wang *et al.* (2015) explain how order rate and order size in m-shopping increase when consumers make greater use of mobile shopping platforms, thus a better experience with m-shopping allows for more purchases on m-shopping platforms. In a similar vein, the duration of mobile use, consumer attitudes towards m-commerce, affinity, and previous m-commerce experience are the most relevant factors influencing future m-commerce intention (Bigné, Ruiz, Sanz, 2007). In a study that used the Flow Theory, Swilley and Cohort (2014) found that the conscious state of consumers had a profound effect on their ability to become involved in m-shopping on mobile devices. Skilfulness was examined as an antecedent to flow, as skilfulness determined the ability of consumers to use a mobile device, and may contribute as a determinant to engage with m-shopping.

Furthermore, it has been proved that affinity to mobile phones has a direct positive influence on the intention to engage with m-shopping (Aldás-Manzano, Ruiz-Mafe & Sanz-Blas, 2009), confirming the findings of Bigne *et al.* (2007). Thus, the more important mobile phones are in the lives of the consumer, the higher the probability of consumers making use of services by means of mobile phones, which means a higher probability of purchases through mobile phones. Furthermore, research by Aldás-

Manzano *et al.* (2009) and Yang (2005) confirm that a consumer that has previously shopped over the Internet is more likely to make a purchase via a mobile phone in the future.

Using the Technology Acceptance Model (TAM), in addition to traditional factors such as perceived usefulness, perceived ease of use, perceived enjoyment, and trust in the online retailer, Groß (2015b) found that the aforementioned factors influenced the consumer's intention to engage in m-shopping, which subsequently determined m-shopper's behavior in general. In a further expansion of these findings, it was ascertained that the perceived usefulness and perceived enjoyment of mobile device attributes do in fact influence m-shopping (Al Dmour, Alshurideh & Shishan, 2014). User-perceived mobile application quality also affects the continued intention of m-shopping which in turn, is mediated by perceived usefulness and trust. Huang and Yeh (2014) explain that trust and satisfaction are the key determinants of an m-shopper's behaviour.

The TAM has also been tested in conjunction with compatibility, perceived enjoyment and perceived cost. Experience was introduced as a control variable, where it was found that the TAM and compatibility have a positive and significant impact on the intention to adopt m-shopping. However, perceived enjoyment, perceived cost and experience were found to be insignificant (Wong, Tan, Ooi & Lin, 2014).

A study conducted by Yang (2015) shows that transfer-based cues including trust in online shopping, and performance-based cues including information quality and service quality of m-shopping, significantly affect initial trust in m-shopping services. When a consumer has a low level of self-efficacy, information quality will have a stronger impact, and service quality a weaker impact.

Chen (2013) conducted a similar study as Yang (2015) but used the Information Systems Success Model (IS Success Model) to assess m-shopping. The results found that system quality, information quality and service quality are the major determinants of m-shopping use. Customer satisfaction which is an antecedent of purchase intention was also found to be an important determinant of m-shopping use.

Chen and Yang (2012) explain that Quick Response (QR) codes and voice guidance, which are unique to mobile phones have been identified as reasons why people will make use of m-shopping. Furthermore, Chen and Yang (2012) assert that attitude,

expertise, problem-solving, information, situation and entertainment have been regarded as strong antecedents of e-services. However, Holmes, Byrne and Rowley (2013) note that the use of mobile phones in the information-search process, and consideration of alternative products, is much higher than using mobile phones for actual purchase transactions. They further explain that the extent of using mobile phones in the decision-making process is higher with higher-involvement products, in relation to all stages of the decision-making process, and that m-shopping occurs most frequently at home. Charlton (2011) believes that consumers' use of their mobile phones in the shopping process is not restricted to merely purchases, but that there are other activities conducted such as price-checking, comparing products, gathering product information, and reading reviews.

Hedonic and utilitarian factors should also be noted as key considerations in m-shopping. Hedonic factors can have a positive effect on the consumption experience of consumers (Li, Dong & Chen, 2012). This could mean that consumers make use of m-shopping for purposes of fun, fantasy and pleasure as opposed to the more functional benefits m-shopping offers. This point may be perpetuated by the findings of Yang and Kim (2012), that ideas, efficiency, adventure, and gratification are key motivations for m-shoppers.

Using the Unified Theory of Acceptance and Use of Technology (UTUAT) model to predict m-shopping behaviour, it was found that utilitarian and hedonic performance expectancies were stronger when consumers had a low level of technology anxiety than when consumers had a high level of technology anxiety (Yang & Forney, 2013). Thus, individuals who are more confident in the use of technology will have higher hedonic and utilitarian expectations with regard to the m-shopping experience, whereas less confident individuals will have lower hedonic and utilitarian expectations. The extent to which an individual is anxious towards technology may also determine the extent to which that individual will make use of m-shopping based on preceding expectations.

In order to encourage consumers to use mobile devices more for m-shopping, it is necessary to increase the satisfaction experienced when purchasing. The satisfaction experienced may improve the perception of the usefulness of the purchase, which may emphasise the benefits of m-shopping and highlight both the hedonic and utilitarian

aspects of m-shopping. Satisfaction may also improve the perception of the enjoyment of m-shopping (Agrebi & Jallais, 2015).

In their study on m-shopping and customer satisfaction, Agrebi and Jallais (2015) found that when mobile purchasing is seen as useful, easy to use and enjoyable, the greater a consumer's customer satisfaction will be. Furthermore, the positive impact of customer satisfaction on the intention to continue using m-shopping is significant only among purchasers. This finding is important as satisfaction may not significantly affect non-purchasers intention to re-use m-shopping. Customers' innovativeness with new technology does not directly generate satisfaction with m-shopping, however, it has the potential to generate satisfaction by indirectly encouraging involvement with the channel as demonstrated by San-Martín, López-Catalán and Ramon-Jeronimo (2012). Thus, it can be concluded that involvement positively affects satisfaction from m-shopping (San-Martín & López-Catalán, 2013). Lastly, it has also been found that the entertaining aspect of m-shopping, as well as customers' subjective norms are believed to enhance the satisfaction derived from m-shopping (San-Martín, Prodanova & Jiménez, 2015).

As stated by Babin, Darden and Griffin (1994), values that motivate consumers to engage in shopping include both utilitarian and hedonic factors. It has become of great concern for consumers to search for products and services that provide value. Value is normally perceived as utilitarian and/or hedonic in nature, and can be perceived as an amalgam of rational and emotional factors (Terblanche & Boshoff, 2010).

Drawing upon service-dominant logic, the mobile phone can be seen as a resource that consumers use to create value, to capitalise on attractive offers that are available through m-shopping (Liljander, Gummerus, Pihlström & Kiehelä, 2013).

It has been found that consumers' attitudes towards m-shopping are largely dictated by hedonic, and sometimes to a lesser extent, utilitarian values (Bauer, Barnes, Reichardt & Neumann, 2005; Kleijnen, De Ruyter & Wetzels, 2007). Consumer behavior can often be seen as goal-orientated (Pieters, Baumgartner & Allen, 1995), where obtaining value (hedonic and utilitarian value) is a primary goal (Chiu, Wang, Fang & Hiung, 2014).

1.4 PROBLEM STATEMENT

The current research focused on why consumers choose to use a mobile phone to transact in cyberspace on mobile reference websites. The present study benefited from the insights offered by the Theory of Reasoned Action (TRA), the Theory of Planned Behaviour (TPB), the Technology Acceptance Model (TAM), the Technology Transfer Theory, the Diffusion of Innovations Theory, the Technology Readiness Index (TRI), the Social Exchange Theory (SET), the Utility Maximisation Theory (UMT), and Status Quo Bias, providing a better understanding as to why consumers make purchases on mobile phones. No published research could be found that combined these theories to create a greater conceptual understanding of the motives behind m-shopping behaviour. Based on the aforementioned theories and literature study, the following antecedents of m-shopping were identified as the most significant contributors in answering the research question, and served as explanations why consumers engage in m-shopping:

- Perceived usefulness
- Perceived ease of use
- Confirmation
- Self-efficacy
- Subjective norm
- Innovativeness

These antecedents were used to measure why consumers make use of m-shopping to conclude transactions. Furthermore, the relationships between these antecedents and the outcomes listed below were investigated:

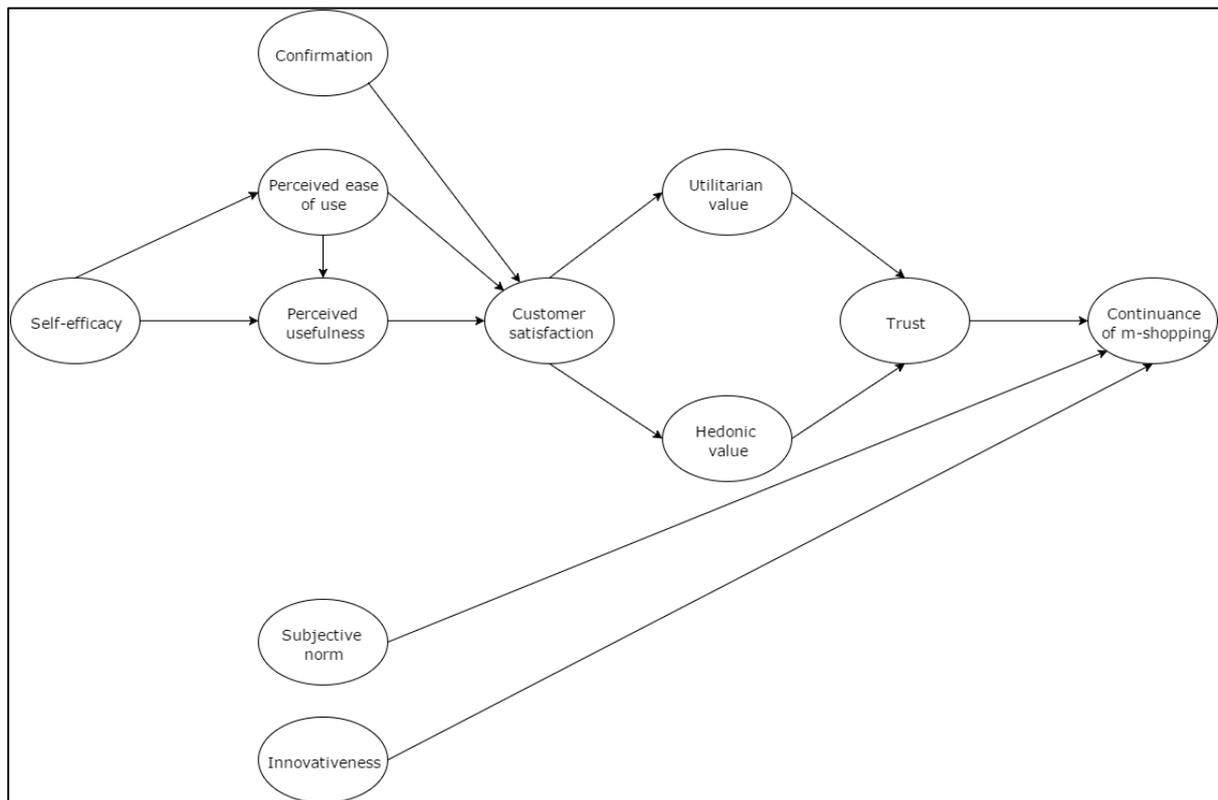
- Customer satisfaction derived from m-shopping
- Hedonic value obtained from m-shopping
- Utilitarian value obtained from m-shopping
- Trust in m-shopping
- Continuance of m-shopping

The proposed model for this study is shown in Figure 1.1. This model illustrates how perceived usefulness, perceived ease of use, confirmation and self-efficacy were expected to influence customer satisfaction. Customer satisfaction, in turn, was

expected to influence utilitarian and hedonic value for m-shoppers. Utilitarian and hedonic value was expected to influence trust in m-shopping, while trust in m-shopping was expected to influence the customer's continuance of m-shopping. Finally, subjective norm and innovativeness were also expected to influence the customer's continuance of m-shopping.

If marketing managers fully understood these relationships, it will enable them to market more effectively to m-shoppers. Furthermore, it will make researchers and firms more aware of the extent to which the outcomes of m-shopping, namely customer satisfaction, value and trust, can play in consumers' continuance of m-shopping.

Figure 1.1
Proposed model



As far as could be ascertained, no research has been published in which the relationships between the aforementioned antecedents of m-shopping, and their outcomes, have been addressed. The present study therefore attempts to make an incremental contribution to the understanding of m-shopping.

Further justification for this study includes m-shopping as a more recent activity in marketing. Several researchers have reported on the limited research conducted in m-shopping (Yang & Kim, 2012; Groß, 2015a), particularly with regard to Smartphone and Tablet devices (Groß, 2015a). As recommended by Agrebi and Jallais (2015), the antecedents studied in the present research extend beyond the Technology Acceptance Model and as such are in line with other recent research.

Against this background, the following research question was formulated: which antecedents drive the m-shopping experience and what is the relationship of such antecedents with customer satisfaction, value, trust and the continuance of m-shopping?

1.5 RESEARCH OBJECTIVES

The research objectives are consequences of the research question which in turn is derived from the problem statement (Zikmund & Babin, 2010).

1.5.1 Primary objective

The primary objective of this study was to investigate what influenced the customer to continue m-shopping based on the m-shopping experience, where the m-shopping experience consisted of the antecedents and outcomes of m-shopping.

1.5.2 Secondary objectives

The secondary objectives that were addressed were to determine the following:

- What may cause customer satisfaction in m-shopping
- What may cause value in m-shopping
- What may cause trust in m-shopping
- What may cause the continuance of m-shopping
- The influence between the number of times a customer makes use of m-shopping and the continuance of m-shopping
- The influence between differences in demographics in m-shoppers and the continuance of m-shopping

1.6 RESEARCH METHODOLOGY

The following section introduces the research design, and the secondary and primary research methods that were used for the purpose of this study. It also explains the population, sampling method and sample size, the measuring instrument, and the data processing methods that were used.

1.6.1 Research design

The current study can be classified as an *ex post facto* design. *Ex post facto* designs are known as an 'after-the-fact' research design in which the investigation starts after the facts have occurred without interference from the researcher (Salkind, 2010). *Ex post facto* designs are made to explain a consequence based on antecedent conditions, to determine the influence of a variable on another variable, and to determine a claim using statistical hypotheses (Simon & Goes, 2013). The study is cross-sectional as it was carried out at a specific point in time. The researcher addressed the research question by means of Internet communication, using self-administered and self-reported instruments. An online questionnaire was used to collect the data about the beliefs and attitudes of m-shoppers with regard to their m-shopping experience.

1.6.2 Secondary research

Secondary sources of data were consulted to gain a better understanding of m-shopping. The background of m-commerce and m-shopping environments was studied, which included typical m-shopping behaviour and the rationale in purchasing behaviour in online shopping environments. Research on the antecedents of m-shopping was undertaken to gain insight into the roles that antecedents may play in m-shopping. Each antecedent was defined and contextualised to justify its applicability to the study as well as how it will be used to obtain a better understanding of the m-shopping experience. Research on the envisaged outcomes of the study (satisfaction, value, trust and the continuance of m-shopping) were also studied in-depth. Typical secondary sources included: articles published in research journals, conference papers, newspaper articles, and academic books. For the literature study the following databases were consulted: EBSCOHost, Emerald, JSTOR, ProQuest, SAGE Journals

Online, ScienceDirect, Scopus, Springerlink, SUNLibrary, Taylor & Francis Journals, Wiley, WorldCat and Google Scholar.

1.6.3 Primary research

For the purposes of this study, primary research was used as secondary research was not sufficient to address the research objectives at hand (Churchill, 1999). Primary research refers to data that originate from the researcher for the purposes of the study at hand (Churchill, 1999). This study included an online survey that was sent to members of the sample and that were answered via email. The primary research was of a quantitative nature.

The online questionnaire was administered by means of SurveyMonkey, a web-based company that provides online questionnaires. SurveyMonkey was selected because the respondents had to respond to all questions that required an answer, thereby omitting blank answers and obtaining a higher rate of valid responses. Moreover, SurveyMonkey uses Internet Protocol (IP) tracking, where the database stores the IP address of all respondents. Thus, SurveyMonkey's IP detection ensured that the response of each respondent who completed the survey was unique and not duplicated.

1.6.4 Target population

The population of a study denotes all the objects that possess a common set of characteristics with respect to a marketing problem (Kumar, Aaker & Day, 2002). The target population of the current study was classified as any individual who owned a mobile phone that could access the Internet, and who had already used the mobile phone to purchase goods or services on a mobile reference website. It is important to note that the present study excluded the use of Tablet devices, and the purchasing of goods and services using mobile applications on mobile phones. Thus, the target population only accounted for individuals who used mobile phones to buy items through mobile reference websites.

1.6.5 Sampling method and sample size

For the purpose of this study, the data was collected by recruiting respondents through referral (Arnold & Reynolds, 2003; Brocato, Voorhees & Baker, 2012). Individuals were

asked to provide contact information of other potential participants who qualify for the target population of this study and who would be willing to complete a questionnaire. Referral guidelines were given to the recruiters, and they were instructed to only select those individuals who met the criteria of the target population and to provide the individuals' names, email addresses and/or phone numbers so that the researcher could contact them. However, the list of potential respondents was not determined through probability, and a non-probability sample was thus deemed appropriate. Convenience sampling was selected based on time and budget constraints. Judgement sampling was used to assert judicious decisions with regard to how the online questionnaire was sent out, re-collected, and to most accurately determine those individuals who complied with the target population.

The sample size consisted of 486 respondents. Given the number of latent variables present in the structural model, the minimum recommended number of respondents was 440 (Nunnally, 1967; Wolf, Harrington, Clark and Miller's, 2013; Sideridis, Simos, Papanicolaou & Fletcher, 2014). Thus, the 486 respondents were deemed sufficient to gather data from and to yield valid conclusions.

1.6.6 Measurement instrument

For each construct in the conceptual model a conceptual definition was formulated. These definitions were compiled from previous research in which similar constructs were used. The objective of the conceptual definitions was to provide a theoretical basis for the measuring instrument that was used. The antecedents and outcomes identified in the literature were used as the constructs to measure the m-shopping experience. Components of the following theories were considered to obtain a better understanding as to why consumers choose to buy on m-shopping portals: The TRA, the TPB, the TAM, the Technology Transfer Theory, the Diffusion of Innovations Theory, the TRI, the SET, the UMT, and Status Quo Bias. Furthermore, previously developed measurement scales were also used in the design of the present study's measurement instrument, namely:

- Babin, Dardin and Griffin's (1994) scale of hedonic and utilitarian shopping value.
- Parasuraman's (2000) Technology Readiness Index (TRI).
- Bhattacharjee's (2001a) Expectation-Confirmation scale.

- Nysveen, Pedersen and Thorbjørnsen's (2005) scale to explain the intention to use mobile services.
- Kim, Ferrin and Rao's (2009) scale on trust and satisfaction in e-commerce.
- Al-Maghrabi and Dennis's (2011) scale of the antecedents of the continuance of e-shopping.
- Hernández, Jiménez and Martín's (2011) scale of factors moderating online shopping behaviour.
- Gao, Rohm, Sultan and Huang's (2012) scale of consumer attitudes towards mobile marketing.
- Ratchford and Barnhart's (2012) 14-item index of technology adoption.
- Zarpou, Saprikis, Markos and Vlachopoulou's (2012) scale of users' acceptance of mobile services.
- San-Martín and Lopez-Catalan's (2013) scale of mobile customer satisfaction.

A preliminary measuring instrument was created using the aforementioned literature, theories and measurement scales, where the constructs and their items were subject to pilot testing. Pilot testing of the questionnaire was carried out by consulting individuals involved in research in the field of m-commerce, e-commerce, and senior academics, which allowed the researcher to ensure face validity and construct validity of the measuring instrument beforehand. The constructs that were subject to pilot testing and the items to measure them were used to compile a final measurement instrument for the m-shopping experience. The final measurement instrument was used to collect data from consumers so as to better understand the relationships between the antecedents of m-shopping, satisfaction, value, trust and the continuance of m-shopping.

To test the conceptual model, an online questionnaire was constructed and directly emailed to potential respondents to collect the data. A Likert scale was used as the appropriate measurement scale for responses on the online questionnaire as the purpose was to gauge m-shoppers' evaluative judgements which could affect their final purchase decision. A Likert scale is an appropriate measurement tool to measure cognitive, affective and behavioural-based attitudes (Cooper & Schindler, 2006) such as beliefs about m-shopping.

The questionnaire also collected respondents' demographic and purchasing characteristics such as age, gender, the number of times an individual had made a m-shopping purchase, the single largest amount of money spent on an individual mobile transaction, as well as the typical items that they had purchased through m-shopping portals. This was included in the study as it provided a further understanding of the types of consumers involved in m-shopping, as well as how frequently they used m-shopping.

1.6.7 Data processing

The primary data was processed using Excel, the statistical computer program SPSS, and the structural modelling program LISREL 8.8. Appropriate reliability and validity tests were performed to assess the measurement quality of the questionnaire, namely the analysis of composite reliability, the Average Variance Extracted (AVE), the Paired Constructs Test, and Cronbach's coefficient alpha. Descriptive statistics were performed in the preliminary analysis of the data, where frequency tables and cross-tabulations were used, while inferential statistics were employed to account for simultaneous relationships among two or more phenomena, and to focus on the degree of those relationships (Malhotra, 2004). The analysis of variance (ANOVA) tests were used to assess differences in demographic data and the continuance of m-shopping.

The conceptual model was analysed by using structural equation modelling (SEM) which consisted of the measurement model and the structural model. SEM is a multivariate regression modelling technique where variables can influence one another reciprocally, either directly or through intermediaries (Fox, 2002). SEM stipulates causal relations among multiple variables (Lei & Wu, 2007). General SEM methods include confirmatory factor analysis, path analysis, and latent growth modelling (Kline & Santor, 1999). SEM is a largely confirmatory, rather than an exploratory, technique. That is, a researcher is more likely to use SEM to determine whether a certain model is valid. With SEM the interest focuses on latent constructs which are abstract variables such as the antecedents and outcomes of m-shopping as identified in Figure 1.1. SEM seeks to derive unbiased estimates for the relations between latent constructs (Hair, Black, Babin, Anderson & Tatham, 2006). To this end,

one of the primary advantages of SEM is that it allows multiple measures to be associated with a single latent construct (Lei & Wu, 2007).

1.7 DEMARCATION OF THE CHAPTERS

This section outlines and briefly describes each of the chapters that are included in the study.

CHAPTER 1: INTRODUCTION TO THE STUDY

Chapter 1 contains a broad overview of the study. The chapter defines the research problem, and justifies why the research was conducted. The chapter includes an overview of the research domain, research objectives, and the research methodology.

CHAPTER 2: AN OVERVIEW OF THE DEVELOPMENT AND TRANSFORMATION OF ONLINE RETAILING

Chapter 2 discusses the Internet, e-commerce, and m-commerce. The chapter illustrates the history of electronic transactions and how it has transformed over time, where the Internet has become the catalyst for e-commerce, and e-commerce in turn, has naturally transitioned to mobile platforms to pave the way for m-commerce. The chapter also considers how mobile phones are being used in the retail environment to conduct transactions and to facilitate purchasing processes. This chapter lays the foundation for a more comprehensive understanding of m-shopping.

CHAPTER 3: THEORIES THAT ARE HELPFUL TO GUIDE OUR UNDERSTANDING OF M-SHOPPING

Chapter 3 discusses the theories that are relevant to m-shopping. The chapter makes use of theories that are specific to the use and domain of information technology. These theories assisted the researcher to establish the underlying reasons for consumers' behaviour, intentions, attitudes, and beliefs in respect of m-shopping. The theories also made a vital contribution to the study in identifying the antecedents and outcomes of the m-shopping experience.

CHAPTER 4: THE ANTECEDENTS OF M-SHOPPING

Chapter 4 outlines the antecedents of m-shopping, namely perceived usefulness, perceived ease of use, confirmation, subjective norm, self-efficacy and

innovativeness. The purpose of this chapter is to provide a better understanding of the use of mobile phones in retail activities and set a platform for measuring the m-shopping experience. This chapter examines each antecedent from its origin to its current application.

CHAPTER 5: THE OUTCOMES OF M-SHOPPING

This chapter discusses the outcomes of m-shopping, namely satisfaction, value, trust and the continuance of m-shopping. The outcomes were studied from its original use in marketing to its current application in the m-shopping environment. The purpose of this chapter is to fully explain the outcomes of m-shopping and their relationships in consumers' experiences and future m-shopping behaviour.

CHAPTER 6: RESEARCH METHODOLOGY

This chapter addresses the research process, which includes the research design, target population, sampling frame, sampling method, sampling size, data collection, measurement, pilot testing, and data analysis. The chapter also covers the steps that were taken to conduct structural equation modelling (SEM), which includes the measurement model, structural model and model fit indices.

CHAPTER 7: EMPIRICAL RESEARCH AND FINDINGS

Chapter 7 discusses the results of the study. It explains the use of statistical inferential analysis, such as SEM, that enabled the researcher to draw conclusions reported in Chapter 8. SEM tested the latent variables (the antecedents and outcomes of m-shopping) in an effort to uncover the primary drivers for the m-shopping experience, as well as to better understand the interacting relationships between these latent variables in the m-shopping experience.

CHAPTER 8: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In Chapter 8 conclusions are drawn on the research conducted. Recommendations are made based on the results discussed in Chapter 7. The limitations of the research are outlined and suggestions for future research are provided.

1.8 CONTRIBUTION OF THE STUDY TO THE UNDERSTANDING OF M-SHOPPING

This study makes a contribution because it offers the first reported structural model in which the antecedents and outcomes of m-shopping have all been considered in one comprehensive model. The findings will hopefully help marketers and academics to better understand m-shopping.

It is further hoped that this study will be seen as valuable because of the number of latent constructs and the various relationships studied. The model can assist both researchers and firms to gain insight into the m-shopping experience, where paths between antecedents and outcomes illustrate important synergy in that each relationship is beneficial to the next. Moreover, the model developed in this study helps to clarify the behaviour of m-shoppers, and illustrates the causal relationships between constructs, indicating the reasons why m-shoppers would continue m-shopping.

Demographics played a key role in this study and contributed towards the further understanding of relationships with regard to m-shopping. Moreover, the demographic results not only revealed the different types of consumers that use m-shopping, but also their specific buying behaviour.

CHAPTER 2

AN OVERVIEW OF THE DEVELOPMENT AND TRANSFORMATION OF ONLINE RETAILING

2.1 INTRODUCTION

According to Mahatanakoon, Wen and Lim (2005), many experts classify the 1980s as the decade of the personal computer, followed by the 1990s, an era which introduced the world to the Internet, paving the way for the emergence of e-commerce and online retailing. Finally, the 21st century has seen the introduction of mobile computing and mobile commerce (m-commerce). The proliferation of mobile Internet devices has created a platform for e-commerce to leverage the benefits of mobility, and shape m-commerce into a vital facilitator of online transactions (Clarke, 2008). M-commerce has the potential to be one of the main driving forces for next-generation computing and a major revenue-generating platform for many commercial entities (Mahatanakoon *et al.*, 2005).

This chapter contains a discussion of the use of the Internet as a mechanism to access online retail channels. This chapter also attends to the fact that the Internet and other technology that can be linked to the Internet, have developed substantially in recent years, and will most likely continue to grow in the future (Vink *et al.*, 2016; Erbenich & Freundt, 2008). With this growth, new ways of conducting business between parties have emerged, and both producer and consumer have been empowered with greater capacity to demand and supply goods at an exponential rate (Gupta & Sharma, 2012). The chapter begins with a discussion of e-commerce and how it has formed a platform for both firms and consumers to conduct online shopping. Following this, a discussion on m-commerce is presented, where the different facets of m-commerce are delineated, such as m-payments and m-shopping. The chapter concludes with possible scenarios of where m-shopping could lead to in the future.

2.2 ELECTRONIC COMMERCE (E-COMMERCE)

E-commerce has been defined by Mesenbourg (2001) as any form of buying or selling over the Internet by which transactions are conducted involving the ownership or rights to use goods or services by means of a computer-mediated network. Moreover, e-

commerce refers to any form of business activity that involves interacting electronically rather than using physical modes of exchange. Global information infrastructures have formed a new foundation for different modes of personal interactions and business transactions in a collection of activities known as e-commerce (Rahman, 1999). Rahman (1999) defines e-commerce as the variety of market transactions that are enabled through information technologies. However, more comprehensive definitions have been suggested by Lallana *et al.* (2000), who describe e-commerce as the use of electronic communications and digital information processing technology in business transactions to create, transform, and redefine relationships for value creation between or among organisations, and between organisations and individuals. E-commerce can represent a variety of forms including electronic data interchange (EDI), the Internet, intranet, extranet, direct links with suppliers, electronic catalogue ordering and e-mail (Quayle, 2002).

The concepts e-commerce and e-business should not be assumed to be synonymous, as they are two very distinct concepts. E-commerce makes use of information technology to engage with inter-business- and inter-organisational transactions, whereas e-business uses information technology to enhance processes or deliver additional value with the application of technology. E-business is thus concerned with production processes, customer-focused processes and internal processes (Alter, 2001).

Zwass (1996) asserts that the Internet has become the primary driver of e-commerce. Zwass (1996) and Rahman (1999) note that there are certain requisites in the formation of e-commerce that should be used as a general framework in its understanding. This framework recognises that e-commerce consists of three meta-levels as shown in Table 2.1, and serves as a means of illustrating a complex set of inter-related technological factors. The framework is hierarchical in that the factors which are ranked lower, support the factors that are ranked higher. The factors demonstrated in Table 2.1, all have an impact on the development of e-commerce. Firstly, infrastructure being on the lowest meta-level includes all hardware, software, databases and telecommunications that together deliver electronic data interchange (EDI). The second meta-level refers to services, which include those aspects that enable information delivery, negotiation, transaction and settlement. Thirdly, products

and structures, which are the direct provision of commercial services to consumers, business partners, and intra-organisational information-sharing and collaboration.

Table 2.1
Hierarchical framework of e-commerce

Meta-level	Level	Function	Examples
Products and services	7	Electronic marketplaces and electronic hierarchies	Electronic auctions; brokerages; dealerships; and direct search markets. Inter-organisational supply-chain management
	6	Products and systems	Remote consumer services (retailing, banking, stock brokerage); Infotainment-on-demand (fee-based content websites, educational offerings); Online marketing; Electronic benefit systems; Intranet- and extranet-based collaboration
Services	5	Enabling services	Electronic catalogues/directories; smart agents; E-money, smart-card systems; Digital authentication services; Digital libraries, copyright-protection services; Traffic auditing
	4	Secure messaging	EDI, E-mail, EFT
	3	Hypermedia/Multimedia object management	World Wide Web with Java
Infrastructure	2	Public and private communication utilities	Internet and value-added networks (VANS)
	1	Wide-area telecommunications infrastructure	Guided- and wireless-media networks

Source: Zwass (1996)

The Internet is interactive, globally connected, and relatively inexpensive (Rahman, 1999), thus e-commerce is a platform that firms would like to leverage in their own commercial interactions. Furthermore, it is synonymous with innovation, growth and cost reduction (Rahman, 1999). The different types of e-commerce are discussed in the following sections.

2.2.1 B2B (business-to-business) e-commerce

B2B (business-to-business) e-commerce can be defined as the online interaction and transactions hosted by and between firms (Andam, 2014). B2B e-commerce typically consists of closer buyer-seller relationships, better use of technology, and a greater volume of information exchange compared with that of the B2C (business-to-

consumer) market (Pires & Aisbett, 2003). B2B e-commerce consists of firms that own an online infrastructure and market places that assist in conducting business transactions in the most effective and efficient manner. The most important part of B2B e-commerce is EDI, as this is the technology which enables inter-organisational computer-to-computer exchange of business documentation and information (Rahman, 1999). Typically, B2B infrastructure consists of logistic functions such as transportation and warehousing. An application service provider hosts and manages the software that the firms use to interact (EDI Interfaces). Apart from the server, the firm normally has web-hosting facilities, content management software, real-time auction houses as well as security and customer care solutions. Some of the more common B2B e-commerce EDI include IBM, Oracle, HP, Cisco and Dell's networks which offer firms a system from which they may run their operations and interact with other firms (Andam, 2014).

2.2.2 B2C (business-to-consumer) e-commerce / online retailing

B2C (business-to-consumer) e-commerce can be defined as transactions between firms and consumers, which involve customers' gathering information, purchasing physical goods through online portals, purchasing services through online portals, and ultimately receiving these goods or services through delivery (Qin, 2010). B2C includes electronic shopping, customer support and product delivery (Rahman, 1999). Online retailing can be seen as a typical application of B2C e-commerce, where direct sales to consumers by means of technological innovation has been recognised (To & Ngai, 2006).

Table 2.2 shows the differences between traditional and online retailing, and indicate the eight activities that differ between the two retailing approaches. Firstly, Table 2.2 shows that the inquiry activities consist of a product/service search, comparison shopping, product selection, and negotiation of terms. Secondly, the commitment activities consist of placement orders and the authorisation of payment. Lastly, Table 2.2 illustrates the fulfilment activities, which consist of receipt of the product as well as customer service and support. Table 2.2 also explains each of these activities in the traditional retailing process as well as the online retail world, to delineate how each differs from the other.

Table 2.2
Comparison of traditional retailing and online retailing

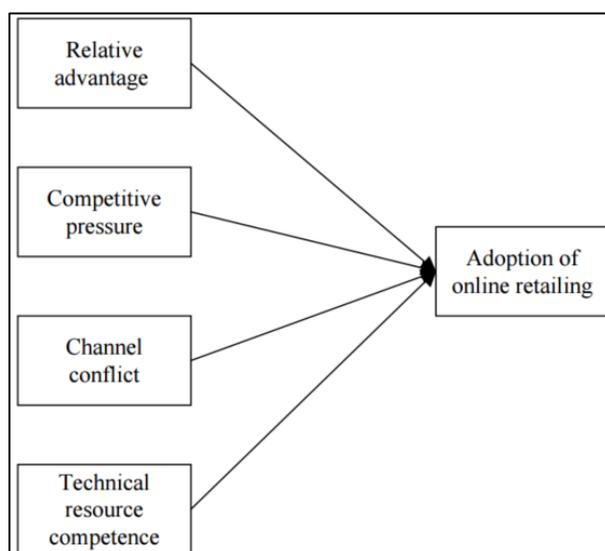
Activities	Information needs	Traditional retailing	Cyber (online) retailing
1. Product/service search	<ul style="list-style-type: none"> • Product /service attributes • Product /service sources 	<ul style="list-style-type: none"> • Physically inspect products • Physically search stores • Catalogues • Phone inquiries 	<ul style="list-style-type: none"> • Electronically review attributes • Electronically search stores • Online catalogues • Email/chat/phone inquiries
2. Comparison shopping	<ul style="list-style-type: none"> • Alternative products /services • Alternative sources 	<ul style="list-style-type: none"> • Inspect products • Physically search stores • Catalogues • Phone inquiries 	<ul style="list-style-type: none"> • Electronically review attributes • Electronically search stores • Online catalogues • Email/chat/phone inquiries
3. Product selection	<ul style="list-style-type: none"> • Process for comparing product attributes 	<ul style="list-style-type: none"> • Mentally compare products 	<ul style="list-style-type: none"> • Mentally compare products
4. Negotiation of terms	<ul style="list-style-type: none"> • Information on terms 	<ul style="list-style-type: none"> • Physically review terms of product • Discuss with store personnel 	<ul style="list-style-type: none"> • Electronically review terms • Email/chat/phone discussion with store personnel
5. Placement of order	<ul style="list-style-type: none"> • Transmit order information 	<ul style="list-style-type: none"> • Carry product to checkout 	<ul style="list-style-type: none"> • Enter order information online
6. Authorisation of payment	<ul style="list-style-type: none"> • Payment methods • Payment instrument information 	<ul style="list-style-type: none"> • Cash, credit card, check, debit card payment tendered and accepted at checkout; sign instrument 	<ul style="list-style-type: none"> • Credit card, digital cash tendered electronically, digital signature and certificate
7. Receipt of product	<ul style="list-style-type: none"> • Delivery methods and terms 	<ul style="list-style-type: none"> • Cash and carry 	<ul style="list-style-type: none"> • Post-delivery or download (information product)
8. Customer service and support	<ul style="list-style-type: none"> • Technical information • Repair information • Return information • Receipt 	<ul style="list-style-type: none"> • Phone or in-store support • Onsite repair • Return product to store 	<ul style="list-style-type: none"> • Phone or online support • Mail product to company

Source: Otto and Chung (2000)

Singh (2002) explains that online services are important in B2C e-commerce for managing customer relations and maintaining sales. This is because the customer and retailer do not meet face-to-face, and the customer has more options available to them through online portals. Moreover, because of e-commerce, customers have changed their expectations about service and support, as well as the way in which they buy items. Singh (2002) concludes that firms have accommodated this change, in that retailers who are actively engaged in e-commerce, have sought to provide online responses to queries, search support, online payments, online transaction records, online assurance by means of security features, and order-and-payment systems that are quicker than traditional purchase procedures.

To and Ngai (2006) investigated factors that are prevalent in the adoption of online retailing, which the authors deem as analogous with e-commerce. Figure 2.1 shows the model that was constructed and tested in To and Ngai's (2006) study for the adoption of online retailing.

Figure 2.1
Conceptual model for the adoption of online retailing



Source: To and Ngai (2006)

The testing of the model in Figure 2.1 concluded that relative advantage, competitive pressure and technical resource competence all have significant positive effects on the adoption of online retailing (To & Ngai, 2006). Organisations are thus reactive to

their competitors, where the intensity of competition may play an instrumental role in deciding how quickly to innovate their operations and online offers to customers. Technical resource competence showed that firms are more likely to adopt online retailing based on their ability to use and manipulate the technology available to them. This finding is in line with previous studies, including that of Frambach and Schillewaert (2002), who confirm that possessing the required technological resources is a leading facilitator, or barrier, of innovation adoption. Relative advantage takes into account the ability of a firm to demonstrate that it is superior to others in that it offers the latest technology to buy and sell from.

2.2.3 C2C (customer-to-customer) e-commerce

C2C (customer-to-customer) e-commerce includes interactions and transactions among private individuals, or stated otherwise, consumers who interchange goods and services among themselves (Andam, 2014). This type of e-commerce is normally hosted on a website that auctions individuals' items off, and allows users to negotiate among each other. Individuals can bid and compete with others for what they want in real time, monitor both the demand and supply of the item in question and negotiate through instant messaging facilities (Andam, 2014). Examples of C2C e-commerce include websites such as eBay in the global market space, and the South African derivative of it, Gumtree.

2.2.4 Advantages of e-commerce for both firm and consumer

Conducting business through electronic channels holds certain benefits. Firstly, e-commerce allows the consumer to indulge in a wider range of products, because the variety is not limited to geographic borders or stockholding constraints. E-commerce normally oversees global delivery operations and highly competitive online arenas which essentially forces the online retailer to offer as many products as possible (Mokhtarian, 2004).

Online retailing offers lower prices and lower search costs, as online sellers have lower operating costs and normally don't hold stock on hand, enabling them to offer products at lower prices than the conventional brick-and-mortar retailer (Brynjolfsson & Smith, 2000). Furthermore, by comparing prices on a broad geographical scale it is as easy as traversing from one website to the other, enabling consumers to find the best prices

at fast rates. However, it must be noted that trust in online retailers is as equally important as price, and that lower prices do not necessarily differentiate one firm from another from a consumer's perspective (Jarvenpaa, Tractinsky & Saarinen, 1999).

Another advantage of e-commerce is that it offers comprehensive information to consumers. Information is extensive on the Internet, offering detailed data on prices, websites, complementary products and supplementary products. Online stores have understood that this is indeed the case, and have web services that can automatically cross-compare products and categories in the online shopping experience (Mokhtarian, 2004).

Personalisation is a further advantage of online retailing, where consumers can customise the way information is presented to them. Information can be tailored to the demographics of that individual as well as their preferences, where their searches may be optimised based on previous searches that they have conducted, including databases that store previous transactions. Both these databases and previous transactions ultimately hold the capacity to predict a preference for future wants or needs (Mokhtarian, 2004).

Convenience and speed are advantages which entice consumers to engage in online retailing as it allows individuals to save time, energy and effort in the procurement process. Online retailing can be accessed anytime, anywhere from an Internet connection and is thus not constrained to the opening and closing times of a conventional brick-and-mortar store. As a result, consumers can choose when it suits them to shop, and actively do so. Because of this choice, consumers have more freedom and flexibility in their shopping efforts and decision-making (Mokhtarian, 2004). Moreover, with the use of online stores, information can be rapidly assembled and compared (Brynjolfsson & Smith, 2000).

2.2.5 Disadvantages of e-commerce for both firm and consumer

The disadvantages of e-commerce are twofold; one concerns the internal factors of a firm that may be hampered in the use of e-commerce, and the other considers the market factors (Pires & Aisbett, 2003).

Internal factors include the costs of maintaining information technology. This may refer to the running of the website, servers, online security and EDI systems for firms. These systems and technology need to be up to date and running at all times to ensure that consumers can shop 24 hours a day without interruption. Costs include regular maintenance, updating, consistent system check-ups, system clean-ups, and the most rigorous security to ensure anti-fraud and anti-theft activities (Strauss & Frost, 2001). Other internal processes may include ongoing training to ensure that the firm's systems are operated efficiently and used correctly by staff. Specific skills are needed to run an e-commerce firm, therefore continued reskilling of staff in new system operations is vital (Schneider & Perry, 2000). Moreover, consumers may show resistance to payment methods provided by the online retailer. The way in which money is transferred is important to both the consumer and the online retailer, as consumers may sometimes be wary to provide their credit card information to a system that may misuse or overcharge their bank account (Evans & King, 1999).

Disadvantages for e-commerce firms with regard to market factors include the potential inability of firms to accommodate global differences. The Internet is a global mechanism, thus displaying product and pricing options from all areas of the world. Therefore, firms in the e-commerce environment predispose themselves to competition on a global scale, making it a much more competitive arena (Evans & King, 1999). E-commerce shifts the advantage from seller to buyer (consumers now hold sovereignty), as online retailing takes the form of a 'pull' marketing strategy, where firms need to give consumers a reason why to visit their website over competitors, and why to purchase from their website rather than from competitors (Evans & King, 1999).

Udo (2001) argues that privacy and security concerns are the underlying causes for consumers to decide not to make a purchase on the Internet, and are a serious concern for buyers conducting transactions on online platforms. Udo (2001) conducted a study with 158 participants in which privacy, security and threats, impersonation, forged identity, email safety and censorship were examined. The results demonstrated that privacy and security concerns are in fact significant impediments to the online shopping process, and it was recommended that for e-commerce firms to thrive, it should implement resources to ensure both privacy and security. In addition, Babbar,

Prasad and Tata (2000) explain that the incoherent and anarchic nature of the Internet spur concerns about security and limit the confidence of traders.

Owing to the fact that customers are empowered with an instant click-and-order shopping system in the online world, it has created an expectation of instant delivery. E-commerce needs to be supported by extremely efficient just-in-time (JIT) delivery systems by suppliers in order to deliver goods on time and meet customers' demands. Thus, e-commerce has created a greater reliance on suppliers and logistics operations. The e-commerce firm needs to make use of a versatile supplier and/or supply system to accommodate the large quantities of sales that are being placed in the online world (Ageshin, 2001). This may prove to be costly and time-consuming for a firm.

2.2.6 Bitcoin

Bitcoin is a decentralised, peer-to-peer network that enables users to transact among each other, where they may transfer ownership without having to use a trusted mediator (for example a bank). The way in which Bitcoin maintains its decentralised status is that it makes use of distributed computing power to clear and authenticate transactions between counterparties. The units that are traded, and regarded as the currency on the Bitcoin network is known as BTC (with a small 'b' as the symbol). Launched in 2009, Bitcoin is fairly new to the online trading world, but it has gained widespread popularity with masses adopting this mode of payment in e-commerce transactions because of the nature of its confidentiality (Schneider & Borra, 2015).

To understand how a Bitcoin transaction works, a typical payment procedure between two parties serves as an example (Luther & Olson, 2014). Both parties in the transaction have a public and a private key. The payer uses his or her private key to verify that it is the rightful owner of a balance of Bitcoin. The payer identifies the payee or beneficiary by the latter's public key. The information is then submitted by Bitcoin software which requests that all other 'peers' on the network acknowledge that the transaction is valid. Once the transaction is authenticated all other peers are notified that the payee now holds the balance transferred from the payer. To spend these Bitcoins the new owner repeats the process explained above, becoming the payer to a payee identified only by its public key.

Bitcoin is based on complex algorithms, where obtaining Bitcoins is an open source. If you have the computational capacity to crack the algorithm, the individual earns themselves a set amount of Bitcoins. The catch however, is that the algorithm progressively becomes more complex the more Bitcoins that are farmed by the public. Moreover, a finite amount of Bitcoins can be farmed within a specific time period, meaning it is a race for whoever can crack the code first. Stabilising supply and maintaining the value of the currency have thus become a major challenge. Bitcoin is exchanged for goods and services, just like any other currency, and has been adopted by many online users to maintain anonymity in transactions and bypass additional transaction fees (Schneider & Borra, 2015). A Bitcoin was worth 0.30 US Dollars in 2011, where it was valued at around 600.00 US Dollars in 2013 (Lee, 2013).

2.3 MOBILE COMMERCE (M-COMMERCE)

Mobility has given new dimensions to the way in which commerce is generated as well as interactions with different parties (Sharma & Gutiérrez, 2010). M-commerce is sometimes referred to as mobile e-commerce because its transactions are fundamentally electronic transactions which are conducted over mobile terminals in conjunction with wireless networks. Mobile terminals are defined as any portable device, which include all devices that are transportable and have wireless networking capabilities that can perform m-commerce transactions. Thus, mobile commerce refers to any transaction involving the transfer of ownership or rights to use goods and services, which is initiated and/or completed by using mobile access to computer-mediated networks in conjunction with mobile electronic devices (Tiwari, Buse & Herstatt, 2006). Simply put, m-commerce means an exchange of goods and services over the Internet by the use of mobile phones (Agarwal & Bhatawal, 2015), and is described as the natural successor of e-commerce (Mahil, 2008). M-commerce primarily concerns the upsurge in applications, services and Internet-enabled mobile devices. Moreover, m-commerce involves the use of new technology and business models to meet consumer demands (Agarwal & Bhatawal, 2015).

The way in which goods and services are being consumed is changing as the world experiences vast advancement in technology and innovation (Tripathi & Singh, 2012). Consumers' use of mobile devices to access retail channels is on the rise and is often referred to as the new service frontier (Kleijnen, de Ruyter & Wetzels, 2007). The

proliferation of the Smartphone has fuelled the growth of m-commerce as these devices have integrated themselves seamlessly into the actions and transactions of consumers' daily routine (Faqih & Jaradat, 2015). Mobile phones have opened up a new arena for marketing and commerce as they have evolved from their original purpose into a multi-task orientated device that can traverse the Internet and make online payments (Aoki & Downes, 2003).

M-commerce has allowed for greater interplay between firm and consumer, where interactions are mediated through mobile devices. Mobile devices can be used as part of a marketing channel by which communication, sales and offers can be made simultaneously as well as instantaneously by and to the consumer (Maamer, 2003). The mobile channel has thus opened opportunities for new types of communication efforts that are dynamic, progressive and relative to consumer needs.

Agarwal and Bhatawal (2015) and Mahatanankoon *et al.* (2005) explain that m-commerce consists of two types of applications, one of content delivery, and the other of transactions. Content delivery includes the mobile device's ability to offer consultation, notification, order confirmation, feedback and tracking services. Examples of content delivery include sending instant coupons to near-by customers and notifying customers on their mobile devices when they have been outbid in an online auction. Transactions include purchases, making payments, checkouts, data entry and maintenance. Examples of transactions are using micro-payment technology in transactions, automating ubiquitous customer billing transaction services, and running real-time ubiquitous online auction transactions. Mobile applications that are available in the market include ticket sales, restaurant, mobile marketing, retail store, social and gaming, and banking applications (Tiwari *et al.*, 2006).

The rise of m-commerce has forced commercial entities to shift their strategies to accommodate mobile transactions and communications. Mobile devices have shown formidable growth in recent years, and are expected to continue growing in the foreseeable future (Shirvaikar, 2014). It is reported that connected devices in the world will increase from 500 million in 2013 to a staggering 50 billion devices in 2020 (Shirvaikar, 2014). Moreover, in the US, mobile retail rose by 63 per cent to 34 billion US Dollars from 2012 to 2013 (Shirvaikar, 2014). Estimated revenues in the mobile-

to-mobile market space will reach an amount as high as 1.2 trillion US Dollars by 2022 (Shirvaikar, 2014).

2.3.1 Advantages of m-commerce for both firm and consumer

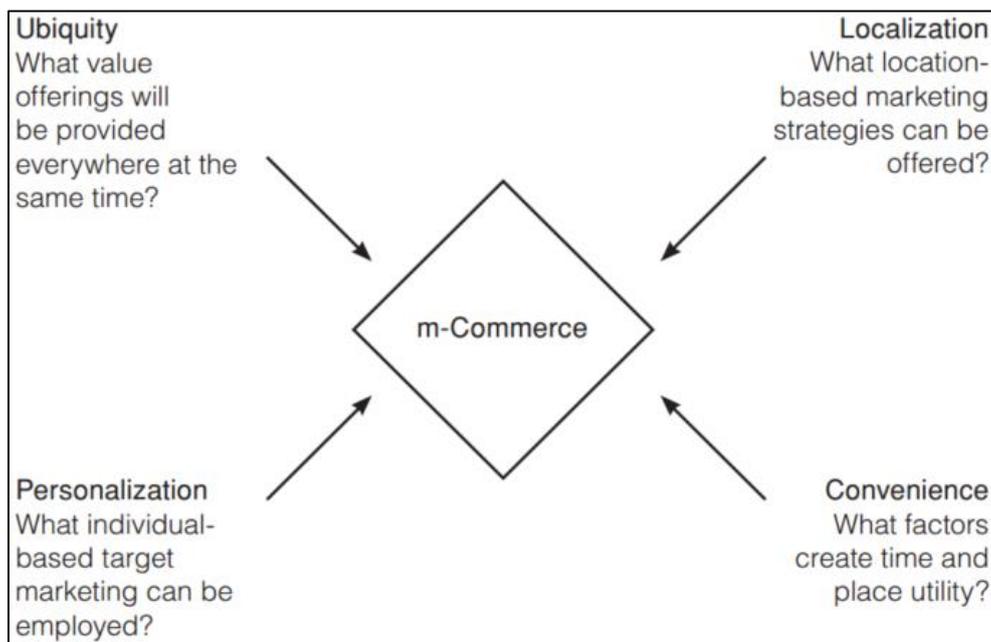
There are certain criteria which must be met for m-commerce to be authentic. Firstly, mobility is the key to access in m-commerce, therefore the extent to which devices are mobile, should be taken into account. For example, a laptop has been adopted as a primarily stationary device in consumers' day-to-day to lives, where individuals make use of laptops in static locations. Owing to the weight and size of a laptop, its true mobility is limited (Tiwari *et al.*, 2006). Thus, a device is only truly mobile when it has the ability to be dynamic in terms of both time and place, which in effect allows consumers to buy whenever and wherever they wish to do so, which is inherent in Smartphone and Tablet devices.

Some other unique beneficial features of m-commerce opposed to conventional forms of commercial transactions include ubiquity, immediacy, localisation, instant connectivity, pro-active functionality, simple authentication procedures and personalisation (Clarke, 2008; Tiwari *et al.*, 2006; San-Martín, Prodanova & Jiménez, 2015). Ubiquity refers to a user's ability to conduct transactions regardless of time and space, such as cross-checking product information whilst standing in a shopping centre. Consumers are empowered with convenience, in that they are able to command the shopping space as they deem fit through their mobile devices. The store does not have to be physically present or open, as an Internet connection and a mobile device are the only requirements to access online portals for purchases (Cook & Goette, 2015).

According to Tiwari *et al.* (2006), immediacy refers to a mobile device's ability to deliver instant feedback on critical or required information. Moreover, localisation includes the use of GPS in mobile devices to deliver offers relevant to a person's whereabouts. Instant connectivity has the Internet on call when it is required by the mobile device's user. This is closely linked to network coverage and the interplay between the device and connectivity type. Pro-active functionality refers to the ability of opt-in advertising that can be generated through mobile devices, such as SMS notifications (Tiwari *et al.*, 2006).

Clarke (2008) explains that the aforementioned advantages of m-commerce can be seen as value propositions. A value proposition can be defined as the relationship between supplier offerings and consumer purchases by identifying how the supplier fulfils customer needs across different consumer roles (Porter, 1998), thus specifying the interdependence between product performance and the fulfilment of consumer needs. The value proposition is explained by Clarke (2008) to further solidify the relationship between customer and the various dimensions of product value. Figure 2.2 illustrates the value propositions presented by m-commerce and highlight the questions marketers should ask themselves when trying to create these value propositions.

Figure 2.2
Value propositions of m-commerce



Source: Clarke (2008)

Clarke (2008) explains that with ubiquity marketers need to extrapolate what factors bring about omnipresence of information and continual access to commerce, as this is why consumers are making use of mobile devices to facilitate transactions in online environments. This value proposition is explained in a similar vein by Mahatanankoon *et al.* (2005) as being 'always on', where mobile phones are always accessible due to their transportability. Moreover, convenience harnesses the ability for consumers to shop where they are not physically located, thus offering opportunities to marketers to

expand their client base by reaching customers that would have otherwise not been reachable. Both Clarke (2008) and Mahatanankoon *et al.* (2005) concur that localisation assists marketers in identifying consumers' locations and that marketers use this information to make real-time offers based on the consumers' whereabouts. It is argued by Clarke (2008) and San-Martín *et al.* (2015) that mobile devices tend to be for personal use, making them perfect devices for individual-based target marketing. Mahatanankoon *et al.* (2005) describe personalisation as a way in which consumers are identifiable, where GPS technology can instantly identify and locate a user.

2.3.2 Disadvantages of m-commerce for both firm and consumer

Despite the advantages, there have been arguments against m-commerce which may affect its susceptibility among consumers and the rate at which it is adopted. Sharma *et al.* (2015) explain that factors that allude to feelings of distrust among consumers are based on the nature of m-commerce and the way in which transactions are conducted through online portals. Reliability, security, customer satisfaction and fraud are all candidates for the hampering of m-commerce and the perceptions held about it among consumers. Sharma *et al.* (2015) believe that networks need to be reliable in that frequent disconnection times increase communication time and the cost of communication for both parties. Security refers to the actual transactions among parties, and how individuals want to ensure a safe and orderly transaction process. Due to both a lack of reliability and security, customers feel dissatisfied and move away from m-commerce facilities. Sharma *et al.* (2015) conclude by noting that mobile systems need to reduce fraud and tighten security systems to put consumers at ease.

Khalifa and Shen (2008) conducted a study with 202 mobile device users who had not yet adopted m-commerce, and tested the use and adoption of m-commerce. The authors found that potential m-commerce adopters are highly sensitive about their privacy as well as the costs of mobile networks. More importantly, they suggest that m-commerce providers should reduce their costs, increase the flexibility of their pricing schemes and make an attempt to protect users' privacy.

Clarke (2008) recommends that m-commerce addresses uniform standards, ease of operation, security transactions, minimum screen sizes, display type and bandwidth,

billing services and how websites are displayed on mobile devices, as these are all factors which contribute to the proper use of mobile devices and m-commerce. Moreover, consumers are not willing to contribute hours of their time searching for information and products; they desire quick and easy delivery, as this is the primary reason why they use mobile devices. M-commerce firms should thus develop ways in which information can be presented simply and concisely without the fuzz.

2.3.3 The difference between using a mobile reference website and a mobile application

Both mobile reference websites and mobile applications are accessed with mobile devices such as Smartphones and Tablets. However, there are key differences that change the way in which consumers interact with retailers to purchase goods and services through online platforms with mobile devices.

A mobile reference website is similar to a normal website in that it consists of browser-based HTML (Hypertext Mark-up Language) pages that are linked together and accessed over the Internet, where mobile devices will typically make use of 3rd or 4th generation (3G and 4G) connections to enable their access (Summerfield, 2015). A mobile reference website can be accessed using a mobile device's web browser such as the Safari browser for Apple's iPhone and the Chrome browser for Android-based systems (Angeles, 2014). Users simply type in a URL (Uniform Resource Locator) into the aforementioned browser and the mobile reference website loads (Angeles, 2014). The main characteristic that distinguishes a mobile reference website from a normal website is that the mobile reference website is designed specifically to fit smaller handheld displays and touch-screen interfaces (Summerfield, 2015). Mobile reference websites can display text, data, images, and video just like normal websites. However, it must be noted that there are additional features added to mobile reference websites depending on the capabilities of the mobile device, such as a click-to-call button (to dial a number) and location-based mapping features (Summerfield, 2015).

Mobile applications are downloaded and installed on a mobile device rather than being rendered within a browser such as the mobile reference website (Summerfield, 2015). Mobile applications must be downloaded from a mobile applications market place, such as the Apple App Store or Android's Google Play Store (Angeles, 2014). Mobile applications are device-specific portals that allow users to access and even sometimes

manipulate content (Summerfield, 2015). Mobile applications have the ability to facilitate buying and selling through mobile devices. The underlying difference with a mobile application compared to a mobile reference website is that the mobile application has been developed for a specific purpose, such as buying or browsing goods, and is thus made with an interface that accommodates this specific purpose.

2.4 MOBILE MARKETING (M-MARKETING)

Mobile marketing or otherwise m-marketing can be defined as the application of marketing to the mobile environment of Smartphones, mobile phones, Tablets and personal digital assistants (PDAs), which is characterised by the interaction with the Internet and the location-specific context that enhances communication and delivery of information (Mort & Drennan, 2002). Other definitions by Shankar, Venkatesh, Hofacker and Naik (2010) conceptualise m-marketing as the two-way or multi-way communication and promotion of an offer between a firm and its customers using a mobile medium, device or technology. Moreover, communication to the audience can be delivered by means of text, audio or video. The emergence of high-speed wireless network technology and the increase in market penetration of mobile devices in the global landscape has made mobile marketing a communication method that is of particular interest to most firms (Varnali & Toker, 2010; Bauer *et al.*, 2005). The combination of the Internet, geographic freedom of mobile telephony in terms of receiving and sending data, and the emerging capacity to communicate with any individual, from any place, over any network, to any mobile device, has created enormous potential for marketers (Mort & Drennan, 2002). The increase in adoption of mobile devices indicates large opportunities for firms to engage in mobile electronic communication and promotion efforts, and a mass market for executing mobile-related transactions (Shankar *et al.*, 2010).

Bauer *et al.* (2005) explain that m-marketing allows firms to establish a direct and continual (if the marketing effort is successful) dialogue with a potential buyer in that mobile devices allow for a dyadic mode of communication that is interactive and immediate in nature. The recipient of the marketing effort receives the message almost instantly and can proactively engage with it on both intimate and immediate levels. Moreover, it is explained that GPS (global positioning systems) can enable marketers to be aware of consumers' current positions, and inform them of offers at the point-of-

sale, thereby inducing impulse purchases. Conversely, mobile users can provide service providers with their whereabouts and in return receive information about their current position, subsequently receiving offers about products that are relevant to their current time and location. Location-based services are predicted to become one of the biggest applications for marketers to communicate offers to and with consumers. Shankar *et al.* (2010) note that due to the time-sensitive and location-sensitive nature of the mobile medium, mobile marketing has the potential to change the paradigm of retailing, in that retailers can now enter the consumers' space by means of the mobile device without having to be physically present. Modes of mobile marketing include interactive voice responses, opt-in offers, ringtones and ring-back tone offers, geo-targeting, viral campaigns, advertising on mobile broadcast and mobile telemarketing (Shankar & Balasubramanian, 2009).

Attributes inherent to m-marketing include personalisation, ubiquity, interactivity and localisation. M-marketing is thus ideal for individualised and dialogue-orientated communication and is considered superior to mass communication because of these attributes (Bauer *et al.*, 2005).

M-marketing has been exploited for its unique capabilities by marketers by making use of databases for opt-in methods, using its highly responsive and accurate targeting methods, and finally manipulating the mobile device that is used to communicate with friends and family and using it to communicate with consumers in a similar fashion. Moreover, m-marketers have exploited the fact that mobile phones provide convenience, low cost and compulsive use, and have integrated these features into marketing campaigns (Mort & Drennan, 2002).

Some successful modes of mobile marketing have seen the adoption of mobile marketing as a sub-culture which has developed around the phenomena, such as 'texting', 'tweeting' and 'flickring' communications (Shankar *et al.*, 2010). Other successful means of mobile marketing include mobile couponing, whereby customers opt-in to receive discounts and deals based on their activity with the firm on their mobile device. Mobile word-of-mouth marketing includes product reviews and customer-generated articles that consumers read about products, gaining greater insights through their mobile devices. Several newly introduced mobile marketing campaigns have seen firms release mobile applications that can compare products in

stores by taking pictures. The mobile application then finds online retail stores that offer the same product at different prices, meaning the consumer no longer has to use a search engine or website to do comparisons through their mobile device. Mobile devices also hold previous browsing and search history activities of consumers. Marketers can use consumer's browsing and search history to create targeted and specific marketing campaigns that are more relevant to consumer's current interests (Shankar *et al.* 2010).

According to Shankar and Balasubramanian (2009), marketers should rethink the value proposition and that the message that is being communicated over mobile devices should be brief, memorable and well-coordinated with time and the user's location. These authors argue that one should get the user to opt-in to any mobile marketing efforts to receive communication attempts, as unsolicited intrusions are not appreciated by customers. Shankar and Balasubramanian (2009) further explain that marketers have focused on understanding a customer's behaviour before making the communication attempt, as to deploy a marketing effort that is truly time- and location-specific. Marketers have also searched for social networking opportunities, where they can embed messages strategically within the newsfeed of potential customers. Shankar and Balasubramanian (2009) conclude that if the marketing effort is tied to a location-based benefit, it will make the consumer feel more involved, to send a message that is more applicable, and to communicate an idea that holds the potential to enrich the consumers' current time and location.

2.5 MOBILE PAYMENT (M-PAYMENT)

Firms, entrepreneurs and innovators are all finding new ways to transact, ways which include the use of mobile devices. Convenience in trading has resulted in retailers supporting new networks to reduce customer costs and encourage the use of mobile payments. Interbank payments are being reduced from days up to seconds in the online world and have led to the encouragement in the use of online banking systems. Cryptocurrencies such as Bitcoin have also emerged in the market, and offer a way in which the consumer can pay whilst remaining anonymous (Schneider & Borra, 2015).

Schneider and Borra (2015) explain that the payment industry consists of a complex ecosystem which includes financial institutions, intermediaries, technology retailers

and service providers. Combined with these multiple parties is the convergence of technological, regulatory, demographic and international mega-trends. These trends are believed to hold the impetus to disrupt the way in which markets move money, particularly with regard to innovations in technology and cryptography, which could change the speed and mechanisms of real-time payments.

Schneider and Borra (2015) explain that incumbent payment networks are leading innovation in providing mobile payment systems like Apple Pay, Google Wallet and Samsung Pay. Emerging trends which are supporting the facilitation of mobile payments include faster payment networks, which reduce the time required to move money from days to seconds. Other trends include Big Data, which allows merchants to drive increased sales by combining analytics and marketing. Moreover, payment security techniques assist in reducing payment fraud and losses for retailers. Lastly, Bitcoin and other cryptocurrencies allow for the de-centralised transfer of assets without a central clearing authority, which may allow for easier money movement due to absence of intermediaries.

According to Schneider and Borra (2015), mobile payments in an African context seem to be feasible. The authors note that 13 million people make use of mobile payments in Kenya, being the highest percentage of users of mobile payments than any other country in the world. This is due to a system the Kenyan people know as M-PESA (where the 'M' delineates mobile, and the 'PESA' is Swahili for money – thus, mobile money). M-PESA is a mobile service offered by a firm called Safaricom, which allows users to send and store money on Kenya's largest service providers' servers. Withdrawals, deposits and opening accounts can be done through any of Safaricom's 10 000 merchants. This concept of a virtual wallet has enabled consumers in Kenya to use the M-PESA mobile application on their mobile phones to inspect their balances, send money to people, pay debts and purchase airtime. It has been reported that M-PESA has greatly assisted poor people and small firms in Kenya in that money can be easily transferred between parties without needing formal bank card facilities and/or banking intermediaries (Morawczynski & Pickens, 2009).

There has been a relative change in opinion towards the use of Smartphones to conduct payment transactions, with particular interest in conducting online banking on Smartphone devices. This has been illustrated by the availability of banking

applications that are being released by commercial banks. It was found in Australia in 2013 that the primary means of mobile payment was to transfer money online from one person to another, usually to a pay bill, whereas in 2010 the main reason for mobile payments was to make purchases through the App store available on Smartphone operating systems (such as Android and iOS) (Ossolinski, Lam & Emery, 2014). Moreover, it has been reported that most Smartphone payments made in Australia are payments that are substituted with necessary online payments that consumers chose to make over their mobile devices rather than with a conventional desktop (Ossolinski *et al.*, 2014).

2.5.1 Apple Pay

Apple Pay is a mobile payment system and digital wallet service that is offered to users who own Apple devices such as the iPhone 6, iPhone 6 Plus, iPad and Apple watch. This service is thus exclusive to iOS (iPhone Operating System) users only, and was made by Apple Inc. The Apple Pay service works in confluence with Visa, MasterCard and American Express terminals. As can be seen in Figure 2.3, Apple Pay works with a tap-and-go ecosystem, where the consumer is only required to touch their phone to the retailer's scanner, instantaneously creating a connection with a NFC (near field communication) chip and verifying the payment (Turner, 2014). Due to the ease of payment and no physical card requirement, Apple Pay may experience growth in popularity in the future for customers who want a quicker procurement process.

Furthermore, Apple boasts high-end security with Apple Pay. It is believed that Apple Pay does not collect any purchase history of the consumer, no credit card details are stored, and a unique once-off number is generated when making a payment to ensure confidentiality of the user's details. Moreover, Apple has made sure that when payments are being made, users need to keep their finger on the touch-ID fingerprint pad of the device to ensure that it is in fact the owner who is using the device, so that no unknown individuals can make payments from lost or stolen devices (Turner, 2014).

In October 2014, Tim Cook, the CEO of Apple, announced that more than one million credit cards were registered on Apple Pay in the first three days of its release, making it the world's biggest mobile payment system to date. Apple Pay works in conjunction with the six largest credit card firms in the World and can be used in more than 200 thousand stores in America (Worland, 2014).

Figure 2.3
Example of Apple Pay



Source: Apple (2015)

2.5.2 Samsung Pay

Samsung Pay allows consumers to make use of secure mobile payments. Samsung claims that Samsung Pay can be used in almost all merchant locations based on the technology that they are implementing to facilitate it. Samsung Pay also leverages NFC that is similar to Apple Pay, but has also introduced a new proprietary technology known as MST (Magnetic Secure Transmission) to make payments more accessible to both merchants and consumers (Taylor, 2015). MST is said to be a secondary service by which consumers can pay for goods and services if store outlets do not have NFC readers. MST emulates a swipe transaction by means of a swipe reader on the terminal. If the mobile device detects a NFC tag on the terminal, it will use it respectively, if it doesn't, it will automatically make use of MST. This system supports Samsung's claim that Samsung Pay is more versatile than Apple Pay's NFC only payment system (Boden, 2015). The availability of MST technology to Samsung is because Samsung purchased a firm called LoopPay in February 2015. Magnetic stripes are placed on the countertop of almost every retail store, where it broadcasts data magnetically, making it possible for the consumer to tap their phone on the side of the terminal where one would normally swipe a bank card. The biggest advantage of MST is that retailers need no additional technology to accommodate consumers who would like to pay using this methodology (Holly, 2015).

Taylor (2015) explains that Samsung Pay will reinvent the way people use their Smartphones and transform the landscape of paying for goods and services. They further argue that it will bring value to their customers and partners in their ecosystem. Samsung Pay is also believed to have the potential of being accepted by over 30 million merchants worldwide, making it an almost universal payment method. This is because of MST technology, which does not require NFC chips, allowing transactions to be conducted with traditional magnetic stripes. Samsung Pay offers similar services as Apple Pay in terms of privacy. Samsung Pay also does not store personal account numbers of consumers' devices, and replaces card numbers with a once-off generated number for transactions to help prevent fraud (Taylor, 2015).

2.5.3 Google Wallet

Google Wallet is a mobile payment system that was developed by Google which allows users of the system to store debit, credit, loyalty and gift cards on mobile devices. Google wallet makes use of NFC to facilitate payments fast and conveniently where consumers simply tap their mobile device in confluence with an NFC reader at a store's pay point. Google Wallet requires a phone that has a NFC chip imbedded in it. Security measures implemented on Google Wallet is a pin that needs to be entered on a phone before a transaction can go through at a pay point. Google Wallet works in over 300 thousand different merchant locations as they have joined forces with MasterCard to use the latter's PayPass system (Hamburger, 2011).

Payment information and transaction history are synchronised and stored in the Cloud (Google, 2015a). This means that the wallet is hosted on a server on the Internet, allowing individuals to access their wallet on any device they choose to use. Thus, Google Wallet is not limited to one device in particular, and is versatile in that it can be called upon with an array of devices. Google Wallet can be accessed by downloading the Google Wallet mobile application that is readily available on all Smartphone platforms. The Google Wallet mobile application turns a mobile phone into a virtual wallet in that it allows a virtual version of one's credit card to be created, so that users can shop online directly from their phone, and pay through the mobile application (Google, 2015a).

Google Wallet, Apple Pay and Samsung Pay all use similar technology to exploit mobile devices as payment processors. However, Google Wallet was introduced in

September 2011 (Dickinson, 2011), whereas Apple Pay was only launched in 2014, and Samsung Pay in 2015. Thus, it can be seen that the Google Wallet payment system was the brainchild of Google, where Apple and Samsung followed suite in copying the idea of combining NFC technology and mobile devices.

2.5.4 QR code payment

Quick Response codes or QR codes are a two-dimensional black and white bar code that holds information that can be scanned by a mobile device. The information on QR codes vary, but is versatile in nature, in that QR codes are capable of storing any data up to the length of 7 000 digits. QR codes were introduced in the commercial landscape to allow information dissemination among consumers and third parties. Moreover, QR codes are being used for online payment procedures in stores that print out bills in the format of QR codes (Soon, 2008). The QR code on the bill holds the amount payable by the customer and the banking details of the retailer to fulfil the payment process. New mobile applications that have recently been introduced to the mobile payment market that use QR codes are MCX (Merchant Customer Exchange), SnapScan and Zapper. MCX and Zapper are being introduced internationally, whereas SnapScan currently only operates within South Africa.

a) MCX (MERCHANT CUSTOMER EXCHANGE)

A group of retailers have initiated a mobile payment system called Merchant Customer Exchange (MCX), which consumers can download onto their phones and then use to make purchases at pay points. MCX has been introduced by leading firms in the US such as Wal-Mart, Best Buy, Target, Dillard's, 7-Eleven, Gap, Dunkin Donuts and Bed Bath and Beyond (Desai, Potia & Salsberg, 2012). The annual sales of these retailers who were initially part of MCX amount to more than one trillion US Dollars (Sidel, 2012).

MCX's mobile payment system includes a currency called 'CurrentC'. The system uses a Smartphone mobile application and digital wallet system, where users can scan a QR code or a numeric code can be entered, which transmits financial data over the Internet, charging the customer and paying the retailer. The CurrentC mobile application also shows consumers' location-based deals, displays coupons, has interactive loyalty programmes, and tracks receipts and transactions of the customer.

Unlike MCX's competitors, MCX itself currently only makes use of QR codes, where other mobile payment systems are also using NFC. However, MCX boasts that it will later integrate Bluetooth compatibilities for payment methods (Constine, 2014).

b) SnapScan

SnapScan was released in June 2013 in the South African market by Standard bank, one of South Africa's largest commercial banks. This was Standard Bank's first mobile payment offering that allows consumers to pay for purchases with their Smartphone devices (MyBroadBand.co.za, 2014). SnapScan is Standard Bank's effort to create a digital payment system that eliminates the use of cash or cards when it comes to merchant-to-consumer transactions. Although SnapScan is a Standard Bank creation, the Bank has also enabled the use of Visa, MasterCard, debit cards and hybrid cards from any other bank so that all individuals can make use of the mobile application (Greenway, 2014).

SnapScan works by downloading a mobile application, called SnapScan, which facilitates payments using QR codes at pay points. To pay for items using SnapScan, users have to download the mobile application, create and register an account, and register either their Visa or MasterCard credit card on the mobile application. Once registered, users can use the mobile application to scan QR codes made available by retailers, thereafter they are prompted to pay. The user enters their pin on the mobile device and the transaction is procured (MyBroadBand.co.za, 2014).

SnapScan can be used by both formal and informal businesses, as Standard Bank allows both types of businesses to register for the facility. Informal businesses can withdraw their earnings in the form of vouchers (known as Standard Bank's Instant Money solution) at local outlets such as Spar or a Standard Bank ATM. No Standard Bank account is required to do so. Formal businesses nominate a business banking account which sales are credited to (MyBroadBand.co.za, 2014). Currently, SnapScan charges a flat fee of 3 per cent for businesses to make use of SnapScan but aims to reduce the cost as more businesses adopt the system (Greenway, 2014). This system promises many opportunities for South African businesses, as it opens the market for informal establishments to receive payments without opening a bank account, or paying for banking services and facilities they may not be able to afford.

c) Zapper

Zapper is a South African developed Smartphone and Tablet payment system which makes use of QR codes to facilitate payment between retailers and consumers. The mobile application has already been launched in the UK, Australia, France, Spain, Belgium, the Netherlands, Germany and Sweden (Van der Berg, 2014). Zapper makes use of the mobile application, called Zapper, which scans QR codes on bills provided by retailers to offer instantaneous payment procedures. Both the customer and the retailer get notified instantly of payment success. Zapper also has a feature that allows customers to add a tip on the QR code bill (Zapper, 2015).

By 2014 Zapper saw 40 million downloads of its mobile application across Android, iOS and windows platforms (Van der Berg, 2014). Moreover, Zapper has partnered with over 500 merchants and restaurants to offer the service to customers. Zapper can be used anywhere from the taxi industry to e-commerce. The difference between Zapper and SnapScan is that Zapper offers custom analytics and real-time notifications of transactions, whereas SnapScan does not. Additionally, Zapper offers technology that automatically notifies the retailer when the transaction goes through, proof of payment is not needed, whereas SnapScan requires SMS confirmation of the payment to be shown to the retailer. Zapper also supports the splitting of bills on the mobile application, so more than one individual can scan and pay from the single QR code that is provided by the merchant. In the South African market Zapper has been rolled out in restaurants first, but gradual expansion is expected once adoption increases. Firms wanting to use Zapper receive a free three-month trial, after which they have to pay a 2.7 per cent transaction fee (Van der Berg, 2014).

2.6 MOBILE SHOPPING (M-SHOPPING)

Mobile shopping (m-shopping) allows consumers to make use of online retail channels at any time and any location, where the basic tools of m-shopping services are handheld mobile gear, such as a mobile device, and a reliable wireless communication system (Lu & Su, 2009). M-shopping is defined by Latitude (2012) as the finding, discovering, browsing, researching, bookmarking, price-checking, comparing, sharing, tracking, or purchasing goods, services or experiences – facilitated in whole or in part by mobile devices. The ubiquitous characteristics of a mobile device reaching a user

anytime and anywhere enables retailers to offer shopping services to customers on the move through an omnipresent shopping experience (Yang & Kim, 2012).

M-shopping provides personal shopping assistant availability through the use of a mobile device that can transform the way traditional consumers experience shopping in brick-and-mortar stores to an optimised shopping experience that uses mobile channels. The way in which m-shopping optimises the shopping experience is by creating real-time interactions between retailers and consumers, assisting a consumer in making smart purchasing decisions by providing customised product/service information, and delivering non-intrusive mobile marketing to consumers that is based on their preferences and priorities (Yang, 2010).

Holmes, Byrne and Rowley (2013) assert that there has been considerable evidence that industry sources support the increasing use of mobile phones in the shopping process, along with the increased adoption of Smartphones accessing retailers' websites to conduct price comparisons. Shankar *et al.* (2011) explain that the deep penetration of technological development in mobile devices has opened up new opportunities to influence shopper attitudes and behaviour, particularly in the retail environment. It has also been reported by Forrester Research Inc (2011) that m-shopping is expected to increase by 39 per cent year-on-year from 2011 to 2016.

2.6.1 The infancy of m-shopping

Several researchers are of the opinion that research with regard to m-shopping is in its infancy (Groß, 2015a; San-Martín *et al.*, 2013; Lu & Su, 2009), and that a better understanding of the factors that influence the adoption of m-shopping is needed. Lu and Su (2009) suggest that the scope of consumer motivations and perceptions with regard to m-shopping, as well as their attitudes and beliefs about the m-shopping process also need to be properly delineated to guide further research. Yang and Kim (2012) further explain that a limited understanding of consumer behaviour in the mobile technology-mediated shopping environment hinders the retailer's ability to develop appropriate shopping services in the early stages of mobile shopping. Moreover, the unique characteristics of mobile shopping such as small screens, limited data processing, ubiquity, mobile applications, and different platforms may all contribute to create different consumer wants and needs than other shopping

channels. A proper understanding of the aforementioned will make it possible for managers, marketers and firms to develop appropriate strategies to promote and build specific m-shopping services that consumers will want to use.

2.6.2 Who engages in m-shopping and why?

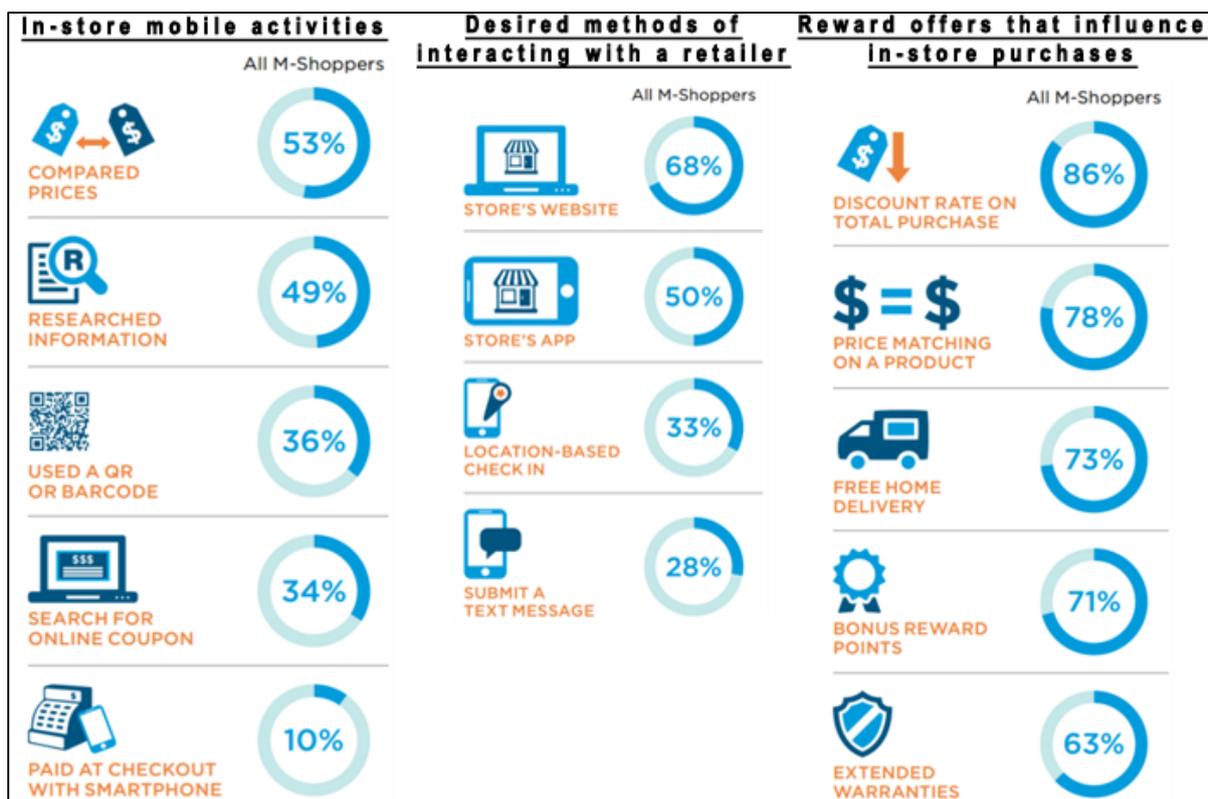
Ström, Brendal and Berdican (2014) investigated how an m-shopper can be typically identified and what host of activities result in customers engaging with m-shopping. It was concluded by Ström *et al.* (2014) that m-shoppers are experienced mobile device users who are computer-savvy Internet users, have thorough knowledge, have high self-efficacy and who show exploratory search behaviour. Furthermore, m-shoppers are more involved with the purchase process, are more price-conscious, and may have higher education levels (Ström *et al.*, 2014).

Providers of m-shopping facilities have become aware of the fact that consumers can easily switch from one website to another with a few clicks, meaning their service offering needs to be optimised at all times. System providers of m-shopping have for this reason invested a great deal into mobile Internet infrastructures as well as web-dedicated hardware and software. With these developments, mobile phones can access advanced features that allow for greater customer efficiency and capabilities. For example, mobile websites offer a shopping flow process that is similar to in-store experiences, from logging in, providing product information, searching for items, comparing prices to ordering, paying and conducting after-service activities, as well as providing integrated advertising (Lu & Su, 2009).

Figure 2.4 demonstrates the typical in-store mobile shopping activities, the desired methods of interacting with a retailer, and the reward offers that influence in-store purchases that occur most frequently in retail environments. The statistics presented in Figure 2.4 are based on research conducted by Quint, Rogers and Ferguson (2013) among m-shoppers. Their study examined more than 3 000 consumers in markets in America, the United Kingdom and Canada in order to shed light on how consumers are actually using mobile devices in-store. As can be seen in Figure 2.4, comparing prices using mobile devices in in-store settings is the most popular use with the highest percentage of all m-shoppers engaging in this activity (53%). Researching information follows secondly with 49 per cent of all m-shoppers reviewing product information on

their mobile devices whilst shopping in-store. Accessing the retailer’s website is the most desired means of interacting with a retailer with 68 per cent of all m-shoppers making use of the retailer’s web portal. Fifty per cent of all m-shoppers made use of retailers’ mobile applications that are provided on their mobile devices, suggesting that mobile applications may be important to an m-shopper. Quint *et al.* (2013) established that if there is a lower price in-store for a product/service in comparison with the price that m-shoppers can acquire through mobile purchases, they will make an in-store purchase instead. Moreover, it was found that price matching of online mobile retailers against the in-store product result in m-shoppers making in-store purchases if the price is the same.

Figure 2.4
M-shopping statistics



Source: Quint, Rogers and Ferguson (2013)

2.6.3 The challenges and drivers of m-shopping

M-shopping is believed to face three challenges in its initial application. Firstly, the bandwidth that is available to users on their mobile devices is a concern to any individual who wants to access online retail channels (Lu & Su, 2009). Bandwidth takes into account both the data that is available to a user, as well as the speed at which that data is delivered to the user's mobile device (Ergen, 2009). Bandwidth is much lower in both instances on mobile devices. This is so because data speed is highly constrained on mobile devices as wireless networks are not as fast as landlines, as well as the fact that mobile Internet connections frequently disconnect. Moreover, data costs on mobile networks may be more expensive and the cost to access mobile Internet retail channels may be high relative to the consumer's income. The second challenge of m-shopping is that, compared to personal computers, mobile phones have limited input buttons, display screens and computing capacity. With the smaller screens of mobile devices, mobile shopping requires more pages for processing requests as limited information can fit on a mobile website (Lu & Su, 2009). However, with each passing season, another wave of mobile devices is released that are more capable and more powerful than the generation preceding it. Some of these Smartphones and Tablets have optimised display functions, with much larger screens, and computing power that is similar to those of conventional laptop and desktop computers (Valcarcel, 2015). This may further stimulate m-shopping, as technological innovation is fast overcoming these hurdles. Finally, Lu & Shen (2009) note that the m-shopping environment is not always stable enough, where data requests and payment processes are often lost in-between transactions, which may cause consumers to develop anxiety using their mobile devices in such circumstances.

San-Martín, López-Catalán and Ramón-Jerónimo (2013) identified both the impediments and drivers of m-shopping in previous literature, providing a concise and accurate picture of the variables that are prevalent in both the support and stagnation of m-shopping. Table 2.3 demonstrates the variables identified and the researchers who made these conclusions. As can be seen in Table 2.3, many drivers and impediments repeat throughout different studies. Moreover, some drivers and impediments are parallel to others but are described or captured differently in the respective studies. The antecedents of m-shopping studied in the present study are

representative of the majority of the drivers that are identified in Table 2.3. The antecedents in the current study are also multipurpose in that they capture many of these drivers in one model. For example, innovativeness as identified in this study may account for IT knowledge, responsiveness to IT, mobile affinity and perceived technological capability. Self-efficacy may account for personal efficiency, mobile skillfulness, personal efficacy, the ability to use the mobile phone, previous problems and self-control. Perceived ease of use, as portrayed in this study accounts for design aesthetics of a mobile website, user-friendliness, perceived convenience of the transaction, trialability, image, visibility, perceived convenience and perceived attractiveness. Perceived usefulness as applied in this study accounts for content quality, connection quality, contextual quality, interaction quality, mobile service quality, system quality, compatibility and usefulness. The antecedents are discussed in more detail in Chapter 4, where the dynamic and inclusive nature of each concept is demonstrated.

Table 2.3
Impediments and drivers for m-shopping

Reference	Variables
Megdadi and Nusair (2011)	Impediments: Security problems
Basheer and Ibrahim (2010)	Drivers: Perceived entertainment; Intention to participate in SMS advertisement Impediment: Personal use
Gu, Lee and Yah (2009)	Drivers: Structural assurance; Normality in situations; Familiarity; Facilitating conditions; Trust; Personal efficacy; Personal efficiency; Quality of the system
Lu and Su (2009)	Drivers: Ease of access; Compatibility; Mobile skillfulness; Enjoyment Impediment: Anxiety
Aldás-Manzano, Ruiz-Mafé and Sanz-Blas (2009)	Drivers: Internet compatibility; Mobile affinity; Innovativeness
Chen, Yen, and Chen (2009)	Drivers: Organisational factors; possibilities of observation (degree of difficulty in finding out the benefits of the product); Computability; Environmental factors; Personal efficiency
Jeong, Yoo and Teo (2009)	Drivers: IT knowledge; Responsiveness to IT news; Ability to use the mobile phone; Multifunction phone; Perceived need; Ease of purchase; Personal innovativeness in the domain of information technology; Income
Mallat, Rossi, Tuunainen and Oorni (2009)	Drivers: Ease of use; Compatibility; Mobility; Context of use
Lin and Shih (2008)	Drivers: Disconfirmation; Mobile technology trusting expectations; Personal values; Perceived performance; Mobile vendor trusting; Satisfaction
Koivumaki, Ristola and Kesti (2008)	Drivers: Content quality; Connection quality; Contextual quality; Interaction quality; Satisfaction

Mallat, Rossi and Tuunainen (2008)	Drivers: Compatibility; Previous experience; Confidence; Mobility; Influence of others; Impediments: Cost
Tan and Chou (2008)	Drivers: Perceived gaming possibilities; Quality of content; Quality of mobile phone services; Feedback; Perceived technological compatibility; Personalisation; Variety; Mobile service quality
Kim, Lee and Kim (2008)	Drivers: System quality; Social influence; Ubiquitous connectivity; Compatibility; Perceived value Impediments: Perceived cost
Chen (2008)	Drivers: Perceived convenience of the transaction; Perceived speed of the transaction; Security and privacy concerns; Compatibility Impediments: Perceived risk
Khalifa and Shen (2008)	Drivers: Privacy problems; Efficiency; Perceived security; Perceived convenience in transaction Impediment: Cost
San Martin and Camarero (2008)	Drivers: Convenience; More alternatives; Rationality Impediments: Lack of physical contact; Greater transaction cost; Technical problems
Ha, Yoon and Choi (2007)	Drivers: Flow experience; Perceived attractiveness; Perceived lower sacrifices; Perceived appeal; Perceived enjoyment
Turel, Serenko and Bontis (2007)	Drivers: Perceived value; Actual use
Kim, Chan and Gupta (2007)	Drivers: Usefulness; Enjoyment; Perceived value
Hsu, Lu, and Hsu (2007)	Drivers: Relative advantage; Compatibility; Trialability; Image; Visibility; Result; Demonstrability; Voluntariness
Mallat (2007)	Drivers: Relative advantage; Compatibility; Trust Impediments: Complexity of payment via mobile phone; Cost; Network externalities
Cyr, Head, and Ivanor (2006)	Drivers: Design aesthetics of a mobile website; M-loyalty; Perceived enjoyment
Pedersen (2005)	Drivers: User-friendliness self-control; Self-efficacy; Facilitating conditions; Usefulness; Interpersonal influence; External influence
Yang (2005)	Drivers: Specialisation; Technology cluster; Innovativeness; Previous acceptance behaviour; Knowledge
Gilbert and Han (2005)	Drivers: Innovativeness; Image; Perceived enjoyment; Facilitating conditions; Influence of others; Interpersonal influence
Nysveen, Pedersen and Thorbjørnsen (2005)	Drivers: Perceived expressiveness; Perceived enjoyment; Normative pressure
Bruner (2005)	Drivers: Consumer visual orientation; Perceived entertainment
Wu and Wang (2004)	Drivers: Compatibility
Pagain (2004)	Drivers: Speed of use; Relative advantage Impediments: Price
Tea and Pok (2003)	Drivers: Relative advantage; Compatibility; Self-efficacy; Government's satisfaction; Image; Influence of others; Mobile operator's facilitation Impediment: Perceived risk
Variables derived from experts' contribution	Drivers: Makes shopping easy for the disabled; Reliable information; Ample information; Special offers and discounts; Access to special products; Lower prices Impediments: Limited user-knowledge of mobile; Small screens

Source: San-Martín *et al.* (2013)

2.6.4 The future of m-shopping

M-commerce is growing at three times the rate of e-commerce and firms should prepare themselves for the emergence of a retail environment that is m-shopper ready

(Nayar, 2015). The iResearch summit of April 2013 published annual mobile Internet data, which demonstrated that the growth of mobile Internet use is much larger than that of traditional Internet industries. The latter clearly indicates that the use of devices to access the Internet by mobile means has entered an upward trend that is predicted to support the growth of mobile shopping in the coming years (iResearch, 2013). It has been reported by a mobile shopping survey hosted by Takealot.com in 2013 that Tablet device ownership increased by 10 per cent in South Africa. Moreover, 70 per cent of South Africans connected to the Internet via Tablets use them to shop online. Takealot.com reported a remarkable growth of 124 per cent in Tablet-driven traffic for quartile one and quartile two of 2013. However, Smartphones are still the key driver for m-commerce and m-shopping in South Africa (Biz Community, 2013).

Moving forward in m-shopping to enhance the in-store experience for consumers includes more immersive experiences that are focused on what consumers' goals are, which includes the use of augmented reality, location-based services and extreme modes of personalisation (Tode, 2013). Retailers have started to look at their businesses in terms of an omni-channel shopping experience, where mobile devices and m-shopping have been integrated with the use of other retail channels as a complementary support system. M-shopping has the ability to act as a conduit to shape retailing experiences based on the information available on the mobile device, as well as information available in retail settings that mobile devices can access and adjust for their own requirements. An example of a mobile application that is leading the way in the m-shopping experience is Sephora. This cosmetic retailer has introduced a skin scanner into their latest mobile application on Smartphone and Tablet devices which enables customers to scan themselves to allow Sephora to identify their skin tone. Once their skin tone is identified, Sephora automatically redirects the consumer to cosmetic products that are specific to that individual's skin type (Deahl, 2013). This type of mobile application demonstrates the capabilities that mobile devices have in transforming the purchase process and consumption experience.

The following paragraph discusses Clifford's (2014) and Tode's (2012) work with regard to IBM. IBM predicts that mobile devices will be a portal by which consumers can manipulate their senses such as sight, smell and sound. IBM are developing

technology that uses tactile and infrared to enable users to feel the texture of a product by brushing their hands over a mobile device's screen using pressure point technology. Moreover, IBM is making it possible that Smartphones can detect certain odours and display feedback on what is being smelt. IBM is also implementing technology that can detect where sound is coming from, and the nature of the noise being produced. Thus, IBM aims to drive the m-shopping retail experience to the next level with technology that can heighten the sensations of in-store shopping with mobile devices (Tode, 2012). IBM has also invested a sizeable amount of capital into what they call the 'Watson Group', which is a digital commerce project that includes the development of a mobile application that will apply cognitive power of artificial intelligence into making decisions for consumers based on data analytics. This new era of computing will see the mobile application access data to analyse knowledge streams and assert a decision based on the information it can access. Consumers can then shop according to Watson's advice on the mobile application. IBM has infused the personalised, interactive feel of an in-store conversation into a digital shopping assistant (Clifford, 2014). Marketers have realised that information sources and channels are becoming more intelligent and powerful with the use of technology and mobile interfaces. Marketers have integrated these devices with their communication efforts, as consumers will use them as their primary means of information extraction. Marketers have deployed strategies that allow themselves to become a part of the consumer's knowledge base rather than being an external agent. This can be done by adopting an intermediary role in the consumption process as a digital assistant that is interactive, immediately available and personal.

IAB Europe (2012) reported that 30 per cent of mobile shoppers would like a shopping cart that connects to their Smartphone. Moreover, they reported that 20 per cent of shoppers are interested in interacting with brands through their mobile devices while shopping in stores. Furthermore, 24 per cent of the mobile shoppers of the IAB report stated that they would like to purchase their groceries using mobile devices. The aforementioned illustrates the continual growth in consumers' desire to make use of their mobile devices to assist in the shopping experience, and perpetuates the ongoing need for retailers to integrate an omni-channel shopping experience that incorporates mobile devices as a facilitator of information and interaction with in-store experiences. Offers like virtual dressing rooms and 3D catalogues on mobile devices are examples

of physical and digital realities becoming enmeshed with each other to provide a superior end experience for consumers in the retail environment (Latitude, 2012).

Consumers no longer need to rely on being transactional nor adopting a need-based mind-set before considering a purchase, as mobile devices have allowed for constant connectivity which has made individuals more spontaneous and receptive in their shopping behaviour (Latitude, 2012). Brands and retailers have engineered serendipity in shopping through the use of the mobile device. This can be done by gathering marketing metrics on consumers' shopping behaviour and transactions, of which individual consumer preferences can be learnt over time, allowing for truly tailored communication efforts that can be integrated with consumer habits and behaviour. The virtual mobile shopping experience is delivering immerse content, suit consumers personally and generate opportunities for social engagement.

The apparent shift in consumers' habits towards m-shopping suggest that firms should start developing optimised mobile websites. Firms should not neglect the mobile website, as it differs greatly from normal website lay outs (Funk, 2007). Mobile devices have different screen sizes, and firms should accommodate the way in which the page is presented to allow for optimum navigation and ease of use. Firms have ensured that their mobile websites have images that are small enough to allow for fast loading times, as well as visible buttons for search and payment procedures.

a) The global expansion of the Internet

This chapter concludes with a supporting argument for both e-commerce, m-commerce, the use of mobile devices, and the increased accessibility for consumers in cyberspace. Large and already highly established firms such as MDIF, Google and Facebook are launching campaigns which will see Internet coverage on a global scale, and will provide Internet services for free (Neal, 2014; Russon, 2014; Google, 2015b; Cell C, 2015; Facebook, 2015). The following paragraphs will explain these campaigns in more detail, where one should keep in mind the potential that free worldwide Internet coverage could have for consumers. Global and free Internet access means that mobile devices can access networks anywhere at any time, thus allowing consumers to access products and services with a mobile device anywhere at any time. The increased connectivity for consumers will mean that firms will always be a click of a button away. This is especially important for rural communities who cannot afford the

infrastructure to access the Internet, and who will then be able to connect to online platforms and participate as buyers and sellers through mobile devices.

MDIF stands for Media Development Investment Fund, and consists of a group of individuals from New York who want to create a free global Wi-Fi network called the Outernet which can bypass censorship (Neal, 2014). Creating the Outernet will be achieved by means of a network of miniature satellites broadcasting Wi-Fi from space (Russon, 2014). MDIF have been working on this technology since 2013 and aims to bridge the global information gap in countries like China and North Korea (Russon, 2014). MDIF's Internet solution works by using 10 centimetre cube-shaped satellites called 'cubesats' which are relatively inexpensive to produce and can easily be launched into space. Each cubesat receives data streams from a network of ground stations and transmits that data in a continuous loop until new content is received (Neal 2014; Russon, 2014).

Google's own provision of free Internet has been born through a different medium than that of MDIF's, where Google plans to send balloons into space that beam Wi-Fi signals back to earth, named Project Loon. Google (2015b) claims that two thirds (66 per cent) of the world's population does not have access to the Internet, and Project Loon's balloons travelling on the edge of space will attempt to connect people in rural and remote areas which will essentially fill network coverage gaps. Google (2015b) explains that their balloons will float in the stratosphere, twice as high as airplanes and clouds, and be able to navigate to areas where people require network access. Google (2015b) further declares that they are partnering with telecommunications companies to share network coverage and allow individuals to connect using their mobile phones.

Facebook has released their own initiative for free Internet across the world called Internet.org, where they have brought Internet access to under-served communities. Cell C (2015) are currently offering network plans in South Africa in partnership with Internet.org where consumers can sign up and receive free data packages when using Cell C's services. Facebook (2015) reports that as of July 2015 Internet.org has been running for one year in 17 different countries to provide access to relevant basic Internet services without data charges. Additionally, Facebook (2015) has reported that they have made Internet available to more than one billion people in the world who did not previously have access to the Internet. Finally, Facebook (2015) has

openly stated that they want to continue to form partnerships with mobile operators to continue offering free Internet services on a broader scale.

2.7 SUMMARY AND IMPLICATIONS OF THIS CHAPTER FOR THE STUDY

The chapter started with a discussion on e-commerce and the different types of e-commerce. It was stated that e-commerce is primarily facilitated over the Internet between organisations and individuals. Moreover, firms make use of EDI to conduct transactions between each other where complex technological systems and servers interact to exchange documentation and mediate transactions. B2C e-commerce can be considered within the domain of online retailing, where consumers exchange money for goods and services through online portals. Online retailing is facilitated by the use of the Internet to allow consumers to connect to firms' websites and to purchase goods and services. Following this discussion, was a review of Bitcoin, a cryptocurrency that is growing in popularity with e-commerce transactions, as firms and individuals want to maintain anonymity by means of unidentifiable virtual wallets.

A review of m-commerce followed. M-commerce is another means by which transactions can be conducted in the online world, by using mobile devices. M-commerce holds specific beneficial features that are inherent in the nature of its mobility, such as ubiquity, immediacy, localisation, instant connectivity, pro-active functionality, simple authentication procedure and personalisation. These beneficial features offer different value propositions that a marketer can use to reach the consumer and to capitalise on a consumer's mobility and engages them in both their real time and space. However, m-commerce currently faces the challenges of privacy and security in the online world, where consumers fear that their personal information will be misused by third parties. It is observed from the literature that a variety of firms work towards applications and strategies that ensure both better privacy and security for potential buyers.

M-marketing considers various ways in which marketers can reach users on mobile platforms. The increase in Smartphone usage has led towards ample opportunity for marketers to develop strategies and campaigns surrounding the mobile medium. Moreover, m-marketing allows for a two-way stream of communication between consumer and retailer of which information is a crucial component in keeping the consumer involved and nurturing an ongoing relationship. M-marketing can exploit the

features inherent to a mobile device such as GPS systems to track consumers' movements and to develop campaigns that are specific to their locations. Furthermore, mobile devices are personalised machines of which marketers can provide communication efforts which contain tailored content to immerse the consumer in more relative media. Finally, marketers should not neglect the social aspect that falls in tune with mobile devices, where firms should direct their efforts towards integrating campaigns into social networks and social media, meeting consumers in those places where they connect with friends and family.

M-payment considers the different types of mobile payment methodologies that are available on mobile devices and the ways in which firms are introducing these payment methods to retailers. The different m-payment methods that were covered in this research were Apple Pay, Samsung Pay, Google Wallet, and QR code-based payment methods such as MCX, SnapScan and Zapper. It was emphasised that Apple Pay, Samsung Pay and Google Pay have all made use of NFC technologies to integrate a wireless payment process between the mobile device and the retailer. Furthermore, Samsung Pay has introduced MST technology to their payment methods, which acts in a similar fashion as a bank card on a payment terminal, allowing for an m-payment method that may see universal presence in time to come. SnapScan and Zapper are both growing in use in South Africa as a payment medium and hold benefits such as no cash or card requirements. Furthermore, SnapScan does not require a bank account and has large potential to support the informal business industry in South Africa. Zapper has integrated tipping functions with their m-payment system, split-bill functionalities and automatic payment notification to retailers, which may provide businesses a smoother payment process through mobile devices.

The chapter also examined m-shopping, which included a discussion on the ways in which retailers should transform their in-store experience to accommodate for mobile devices to be used in confluence with the traditional buying process. However, it was revealed that research with regard to m-shopping is still in its infancy and that consumers' behaviour, motivations, beliefs and attitudes still need to be better understood in the domain of m-shopping. M-shopping statistics showed that comparing prices in-store on mobile devices is the activity that m-shoppers are most involved in. Researching information on products whilst in store is the second most undertaken activity. Moreover, price proved to be of vital importance to m-shoppers as

retailers offering discounts or matching prices based on m-shoppers searches revealed that m-shoppers would buy in-store as opposed to through the mobile reference website. It was also mentioned that Smartphone devices and Tablets are transforming at a rapid rate, and that mobile devices are becoming optimised for m-shopping experiences as new models are being released.

The future of m-shopping reiterates the growth of Smartphones and Tablet devices, as well as the increasing integration of mobile devices with consumers' lives and their adoption of these devices into their shopping habits. Following this discussion, was a review of IBM's mobile marketing efforts, which included mobile applications that have the capacity to compute intricate human decisions from data analytics, and assert an action for a consumer as to what they should buy and where they should buy. The research also found that marketers should focus on attempting to bridge the online and offline world using mobile devices, so that retail stores can enhance the consumption experience. This is known as the omni-channel shopping experience. Furthermore, marketers should deploy strategies that allow themselves to become a part of the consumer's knowledge base rather than an external agent. This can be done by adopting an intermediary role in the consumption process as a digital assistant that is interactive, immediately available and personal. Moreover, the virtual mobile shopping experience should deliver immerse content, fit consumers personally and generate opportunities for social engagement.

Lastly, the provision of the Internet is expanding on a global scale, which will see an exponential growth in those that can access the Internet, or otherwise a growth of connected consumers. The use and proliferation of the Internet is the underlying supporting function which facilitates transactions over mobile devices in cyberspace, and thus the global growth in Internet access will allow for the potential growth in those that are able to use mobile devices to buy and sell products online.

CHAPTER 3

THEORIES THAT ARE HELPFUL TO GUIDE OUR UNDERSTANDING OF M-SHOPPING

3.1 INTRODUCTION

This chapter deals with the theories that are relevant to m-shopping, and that offer insight into the use of m-shopping and possible buying behaviour. The theories thus served as a framework which enhanced the researcher's understanding of the m-shopping and online shopping experiences, as these were vital for the purpose of the research.

The theories that have been identified are those that are deemed relevant in the explanation of behaviour with regard to information technology and information systems. These theories are the Theory of Reasoned Action (TRA), the Theory of Planned Behaviour (TPB), the Technology Acceptance Model (TAM), the Technology Acceptance Model 2 (TAM2), the Technology Acceptance Model 3 (TAM3), the Technology Transfer Theory which includes the technology cluster concept, the Diffusion of Innovations Theory, the Technology Readiness Index (TRI), the Social Exchange Theory (SET), the Utility Maximisation Theory (UMT) and Status Quo Bias.

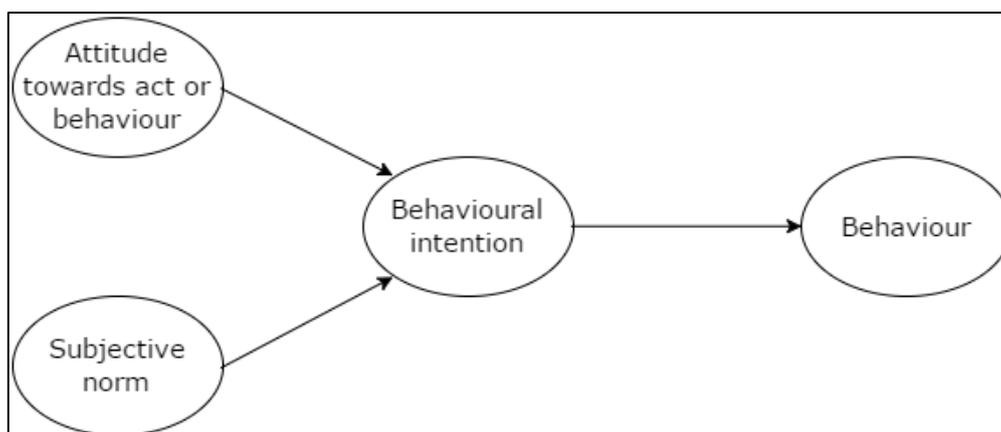
3.2 THE THEORY OF REASONED ACTION (TRA)

The Theory of Reasoned Action (TRA) considers a consumer's behaviour as determined by the consumer's behavioural intention, where behavioural intention refers to an attitude towards the behaviour and subjective norm. The TRA predicts an individual's intention to behave in a certain way based on a consumer's attitude towards that behaviour. Also, a consumer's intention to behave in a certain way may be influenced by the normative social beliefs of the consumer (Hansen, Jensen & Solgaard, 2004).

The TRA is similar to the Theory of Planned Behaviour (TPB) in that it also employs attitude-behaviour relations in the understanding of behavioural intentions. TRA is based on the assumption that humans are rational in their decision-making and use information that is available to them (Fishbein & Ajzen, 1975). Ajzen and Fishbein

(1980) define intention as the conscious plan to exercise effort to behave in a certain way, of which the two main determinants of intention are attitude and subjective norm. The attitude towards an act or a behaviour refers to the individual's positive or negative feelings about performing a particular behaviour, which is determined by the assessment of one's own beliefs. Subjective norm is defined by Ajzen and Fishbein (1980) as an individual's perception of whether people who are important to that individual think the behaviour should or should not be performed. However, it must be noted that according to the TRA, attitude and subjective norm have an indirect effect on behaviour because of their effect on behavioural intention. Figure 3.1 demonstrates these relationships.

Figure 3.1
The Theory of Reasoned Action (TRA)



Source: Fishbein and Ajzen (1975)

For example, a consumer might have a favourable attitude towards buying the latest apparel from an online store, but might not do so because of the appropriateness of the dress ware in their own country, or their motivation to comply with the normative beliefs in that country. The TRA is thus well suited for the purpose of investigating and predicting online purchase intentions, the normative beliefs associated around online buying, and the ways in which attitude may affect both the consumers' intentions and behaviour on mobile platforms.

3.3 THE THEORY OF PLANNED BEHAVIOUR (TPB)

The Theory of Planned Behaviour (TPB) is an extension of TRA, but adds perceived behavioural control as a determinant of behaviour. Perceived behavioural control can be defined as the consumer's subjective belief of how difficult it would be to perform a given task or action (Hansen, Jensen & Solgaard, 2004). Intentions to perform a certain behaviour can be predicted with a high level of accuracy from attitudes towards that behaviour, the individual's subjective norm, and their perceived behavioural control. These intentions, together with perceptions of behavioural control, account for considerable variance in the individual's actual behaviour (Ajzen, 1991). Thus, for any particular action, attitude depends on whether the person is in favour of doing so, subjective norm refers to how much social pressure the person experiences to do it, and perceived behavioural control considers whether the person feels in control of the action in question (Francis, Eccles, Johnston, Walker, Grimshaw, Foy & Bonetti, 2004).

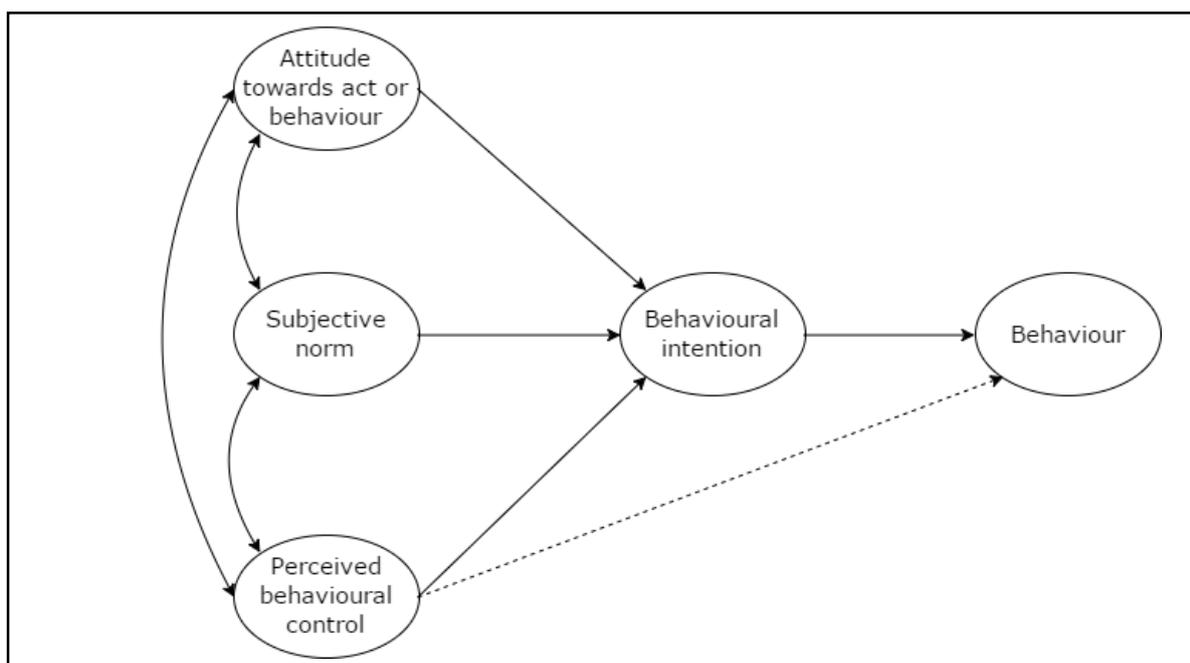
Ajzen (1991), who initially formulated the TPB, explains that intentions to perform different types of behaviour (such as the re-use of information technology) can be predicted with a high level of accuracy from attitudes toward that behaviour. Ajzen (1991) defines attitude as the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question. Thus, the attitude held toward the information technology may affect the intention to re-use the technology, where a favourable evaluation may result in the intention to perform the behaviour in question, and an unfavourable evaluation may result in no intention at all. Attitudes are formed by an individual's beliefs about the consequences of performing the behaviour in question, as well as the outcomes of that behaviour.

Ajzen (1991) asserts that subjective norm and perceived behavioural control are also factors that affect and account for variance in behavioural intention. Thus, an individual's personal beliefs and perceptions (subjective norm) as well as the extent to which they believe they are in control of the information technology (behavioural control) may affect their intention to re-use the technology. Subjective norm is defined as the perceived social pressure to perform or not to behave in a certain way, where those individuals that are important to him or her influence whether or not to perform the behaviour in question. Ajzen (1991) adds that behavioural control refers to the

perceived ease or difficulty of performing the behaviour in question and reflects past experiences of anticipated obstacles, thus noting the degree to which an individual feels performance or non-performance is under his or her control.

Ajzen (1991) further explains that the most important determinant of an individual's behaviour is behavioural intent, where the stronger the intention to engage with a certain behaviour, the more likely an individual is to perform that behaviour. Thus, if an individual's intention is strongly inclined towards the use of mobile devices, that individual is more likely to engage with mobile devices, and to use mobile devices more frequently. Figure 3.2 illustrates these relationships and how they ultimately result in an individual's behavioural decisions.

Figure 3.2
The Theory of Planned Behaviour (TPB)



Source: Ajzen (1991)

Figure 3.2 illustrates that the attitude towards behaviour, subjective norm and perceived behavioural control all have an influence on each other. The differences in each of these constructs may shape the extremity and/or deficiency in that of the other constructs. Moreover, it is demonstrated in Figure 3.2 that attitude towards behaviour, subjective norm and perceived behaviour control influence an individual's intentions. On the other hand, an individual's intentions determine the actual behaviour that is

performed. Figure 3.2 also illustrates a relationship between perceived behavioural control and behaviour, which considers the difference between the perception of an individual's control over the situation and the actual behavioural control they have. As a general rule of thumb with the TPB, the more favourable an attitude and the subjective norm, and the greater the perceived behavioural control is, it is expected that the person's intention to perform the behaviour in question would be more strongly motivated.

This rule may also be relevant in m-shopping. For example, a consumer may fail to buy a product using their mobile device if they hold negative or adverse beliefs towards the m-shopping and/or m-purchasing process (attitude). The same consumer, even though holding an attitude that is not conducive to m-shopping, may be influenced by friends or family to make m-purchases through m-shopping portals, and does so based on social pressure (subjective norm). However, if the same consumer believes that the purchasing process is too complex, or does not have the sufficient cognitive or technical capabilities to complete the transaction, then they would most probably not make an m-purchase (an effect of behavioural control). Behavioural control may also take into account the ability of a consumer to use a mobile device, as well as mobile platforms, and the perceived complexities surrounding the m-shopping process.

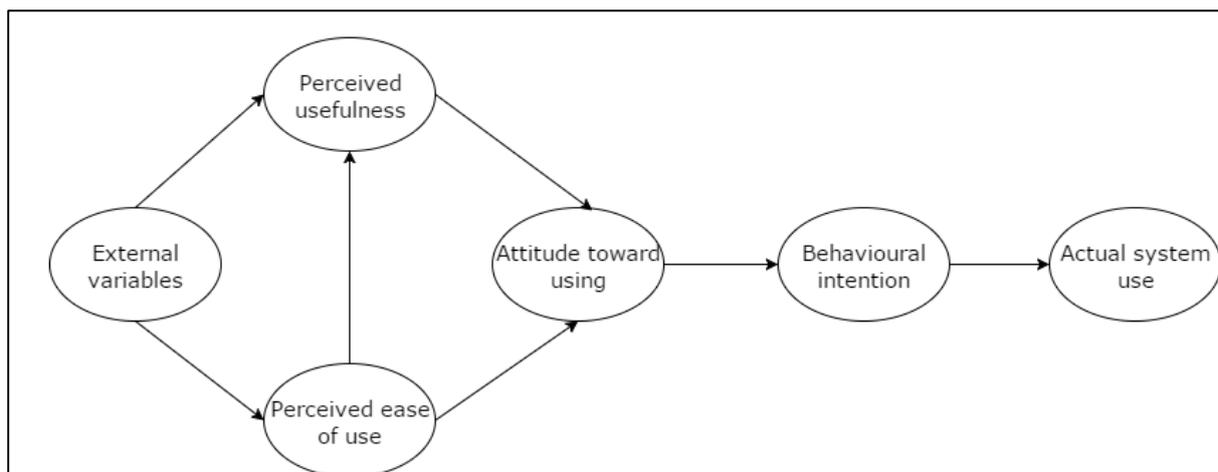
3.4 THE TECHNOLOGY ACCEPTANCE MODEL (TAM)

The Technology Acceptance Model (TAM) was first developed by Davis in 1986 and then further refined by Davis and co-researchers Bagozzi and Warshaw in 1989 (Nguyen Thi, Nham & Yoshi, 2013). The TAM is based on the TRA, where the latter primarily involves salient beliefs about one's attitude toward a particular behaviour (Benbasat & Barki, 2007). Davis attempted to capture these salient beliefs within the TAM by formulating particular constructs relevant to technology. The TAM is considered as the most influential theoretical approach in the study of determinants related to the use of information technology (in the current study mobile phones), due to its robustness, flexibility and explanatory strength (Arning & Ziefle, 2007; Djasasbi, Siegel & Tullis, 2010). The TAM provides a link between acceptance of the technology and usage behaviour. The key purpose of TAM is to explain the impact of external variables on internal beliefs, attitudes and intentions (Rannenber, Royer & Deuker, 2009).

Before a model for users' acceptance of technology could be established, it is necessary to first define customer satisfaction. By understanding which characteristics contribute to customer satisfaction, researchers could more plausibly determine which aspects are needed in a technological model to more readily predict user satisfaction, and as a result, user acceptance. Thus, the TAM is fundamentally embedded in the discipline of satisfaction. The TAM model proves useful with regard to explaining marketing phenomena, both in theory and in practice (Lee, Kozar & Larsen, 2003). The TAM model explains why certain technological innovations succeed in their relevant markets as well as why certain innovations experience market failure. It also explains the role marketing plays in the occurrence of such events.

As indicated in Figure 3.3, the TAM consists of the constructs perceived usefulness and perceived ease of use. Both these constructs relate to the salient beliefs under the assertion of information technology. Perceived usefulness postulates the probability of the activity increasing a consumer's performance or engagement with information and/or information systems alike. Perceived ease of use, in contrast with usefulness, refers to the degree to which the information and/or information system's use will be free of effort or require limited effort from the consumer (Davis, Bagozzi & Warshaw, 1989).

Figure 3.3
The Technology Acceptance Model (TAM)



Source: Davis *et al.* (1989)

Figure 3.3 also illustrates the outcomes of the TAM, namely the attitude towards using the item which stems from perceived usefulness and perceived ease of use, which leads to the behavioural intention and finally the actual use of the system.

The TAM has been simplified by researchers such as Venkatesh, Speier and Morris (2002) by removing the attitude-towards-using construct that is found in the Theory of Reasoned Action. Moreover, the TAM is used in research by extending the model depicted in Figure 3.3 by means of including constructs and factors that may not be accounted for in the original model. This extension of the model may see constructs or factors being introduced from other related models that may result in perceived usefulness and perceived ease of use being represented in the context of a researcher's particular study (Rannenbergh *et al.*, 2009).

Ingham, Cadieux and Berrad (2013) explains that the TAM contributes significantly to the understanding of online environments, such as online shopping and the properties of web-based platforms for buying online (such as the usability of the platform), as well as understanding the customer (such as their innovativeness and capabilities), and the retailer (such as their responsiveness and flexibility) which may all affect online purchasing behaviour.

The theoretical importance of perceived usefulness and perceived ease of use as determinants of user behaviour is indicated by the cost-benefit paradigm. The cost-benefit paradigm derived from the Behavioural Decision Theory is relevant to perceived usefulness and perceived ease of use in that it explains consumers' choices among various decision strategies, based on cognitive trade-offs between the amount of effort required to employ a given strategy and the quality of the resulting decision (Davis, 1989). Thus, the cost-benefit paradigm may explain decision-makers' choices based on the complexity of the task at hand. Perceived usefulness and perceived ease of use are applied in information systems and commerce as measurement instruments to assess user feedback on system features or design approaches, to assist in understanding the factors that influence the success of information systems, to diagnose problems in user acceptance, and to determine problem areas in acceptance or deficiencies of technology (Adams, Nelson and Todd, 1992).

Venkatesh and Davis (2000) found that the majority of external variables related to the use of a system are directly linked with perceived usefulness and it is thus the

strongest predictor of system use. In a similar vein, Davis (1989) postulates that usefulness is significantly more strongly linked to usage than ease of use. However, Venkatesh and Davis (2000) argue that perceived ease of use should not be disregarded, as it is an important secondary determinant in the adoption of a system, as well as a strong subsidiary to perceived usefulness.

According to Wang and Chou (2014), perceived usefulness and perceived ease of use do indeed affect consumers' attitudes in online environments. Moreover, they confirm that perceived ease of use affects perceived usefulness when buying in online environments, perceived usefulness and attitude affect the intention to search again, and the intention to search again affects a consumer's repurchase intention. Tang, Yang, Yan and Zhou (2014) found that perceived usefulness and perceived ease of use are the most important antecedents that influence consumers' channel migration intentions when they change from traditional systems to mobile devices to conduct online shopping.

Based on the previously discussed literature on the TAM, the following two paragraphs explain the real-world, practical applications of TAM for m-shopping. The TAM may be useful in understanding online buying behaviour as the perceived ease of use is an integral contributing component to the final purchase decision. The extent to which a consumer perceives that a system (such as a mobile device) is easy to understand and to use, the more the consumer can manipulate the m-shopping experience to his or her liking and thus improve their shopping experience. Perceived ease of use also considers the mobile portals' interface, more specifically the following: easy navigation of the website; easy organisation of carts; special offers that are easily viewable and closable; and effective search functions for better price and product comparisons. These factors may be highly dependent on whether a retailer has ensured that their website is optimised for mobile device browsing and purchases.

The TAM may also be useful in understanding online buying behaviour with regard to the perceived usefulness of buying through online retailers. The perceived usefulness of an online mobile retailer may be expressed in terms of its reliability as a commercial entity; this refers to the ability of the online retailer's website to fulfil the purchases made on the website with smooth and timely delivery, as well as to offer visible warranties and refund policies. The perceived usefulness of an online mobile retailer

may also be assessed in terms of its ability to be used as an organisational tool, as well as a support system for decision-making, in that the m-portal is capable of providing valuable and up-to-date information to allow consumers to make judicious decisions on goods and services. Proper information provision may also warrant consumers to make live comparisons of products on their mobile devices and review a broader spectrum of product ranges and prices, which may be perceived as useful to the consumer.

3.4.1 The Technology Acceptance Model 2 (TAM 2)

The development of the TAM created a great deal of interest among academics and practitioners and resulted in the development of the TAM 2 model. The difference between the original TAM model and the TAM 2 model is that the TAM 2 holds a specification for the external variables that were described in the original TAM model, as depicted in Figure 3.3. The external variables in the TAM 2 model, however, are: subjective norm, image, job relevance, output quality, result demonstrability, experience and voluntariness (Venkatesh & Davis, 2000). Figure 3.4 portrays the TAM 2 model, and the aforementioned constructs.

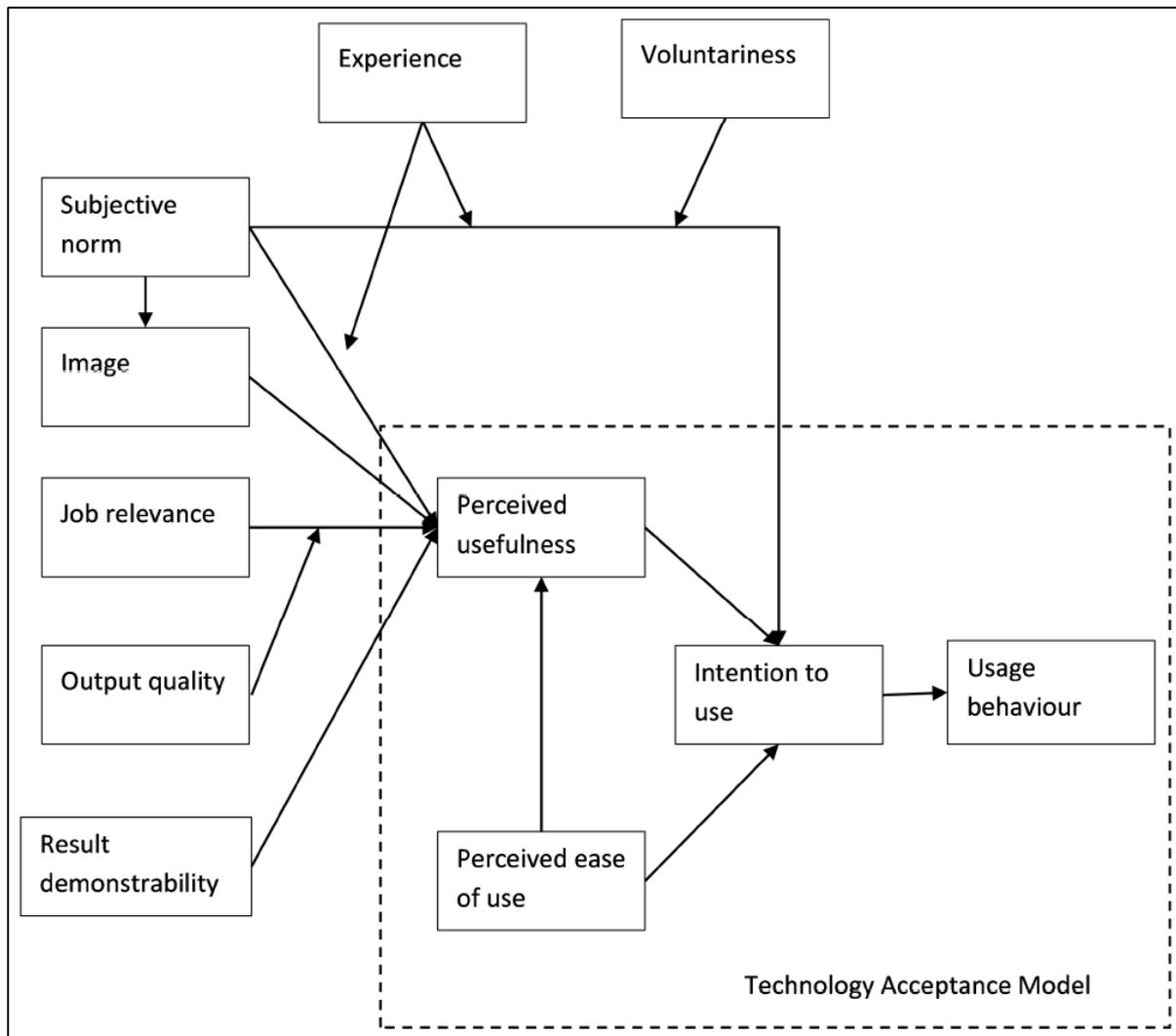
Subjective norm originates from a person's perception of those people that are most important to them, where a behaviour in question is performed based on these important people's opinions of whether they should or should not perform the behaviour (Fishbein & Ajzen, 1975). Subjective norm was explained in the TRA model in Paragraph 3.2. As can be seen in Figure 3.4, experience is linked to subjective norm. This is because over time, through experience of a system, subjective norm becomes progressively irrelevant as users' perceptions change as a result of the actual use of the system.

Image is the extent to which the use of the system enhances a person's social status (Moore & Benbasat, 1991). A practical example of this can be seen by wearing a Rolex watch, where the slick, classy design delineates a certain social class through ownership and use. It is important to note that subjective norm, image, experience and voluntariness are all classified as constructs that are affected by social influence.

Voluntariness refers to whether the implementation of a system is mandatory or not (Venkatesh & Davis, 2000). This has a direct effect on the users' perceptions, as to

whether they actually want to use the system or not. Thus, voluntariness is also placed on the arch of subjective norm, as it has a direct effect on what a user's predisposition to the system may be.

Figure 3.4
The Technology Acceptance Model 2 (TAM 2)



Source: Venkatesh and Davis (2000)

The cognitive instrumental processes comprise of job relevance, output quality, and result demonstrability. Job relevance can be defined as an individual's perception of the degree to which the target system is applicable to his or her job (Venkatesh & Davis, 2000). For example, if a user needs to make calculations, Microsoft Excel may be deemed as highly job relevant as it can perform all relevant tasks the user may require.

Output quality posits over and above job relevance, that people will take into account how well a system actually performs a given task. This portrays the user's need for accuracy and efficacy in the system's use (Venkatesh & Davis, 2000). There is no point in making use of a system that cannot properly execute a given task. Output quality thus refers to the proper completion of a task by means of a system. For example, a conveyer belt can automatically count, assemble and produce products at a more rapid and accurate speed than a human being, and thus may be regarded as a system that holds a high output quality.

Result demonstrability is the tangibility of the results that are produced by using a system (Moore & Benbasat, 1991), thus whether the use of the system allows for visible results. For example, a system receives a request and produces the given data. Here the user can see the data requested, which may be produced at a faster rate than what the user may be capable of producing. A good example of demonstrating results to the user is making use of training programmes, to show individuals how a system works, where they can see the results that the new system can produce on their behalf.

The TAM 2 model assists the researcher to further understand the interacting relationships of perceived usefulness with technological systems. This is particularly helpful as perceived usefulness has been identified as an antecedent of m-shopping in the literature review of the present study. As depicted in Figure 3.4, the TAM 2 model shows that perceived usefulness is the most important determinant for the adoption of a system, as all the aforementioned external variables have a relationship with it. However, it must be noted that perceived ease of use is an important secondary determinant to the adoption of a system and must not be disregarded. TAM 2 posits that subjective norm has a positive influence on the intention to use (Venkatesh & Davis, 2000). TAM 2 also suggests that experience moderates the relationships between subjective norm and perceived usefulness and the intention to use, and finally that voluntariness moderates the relationship between subjective norm and the intention to use.

3.4.2 The Technology Acceptance Model 3 (TAM 3)

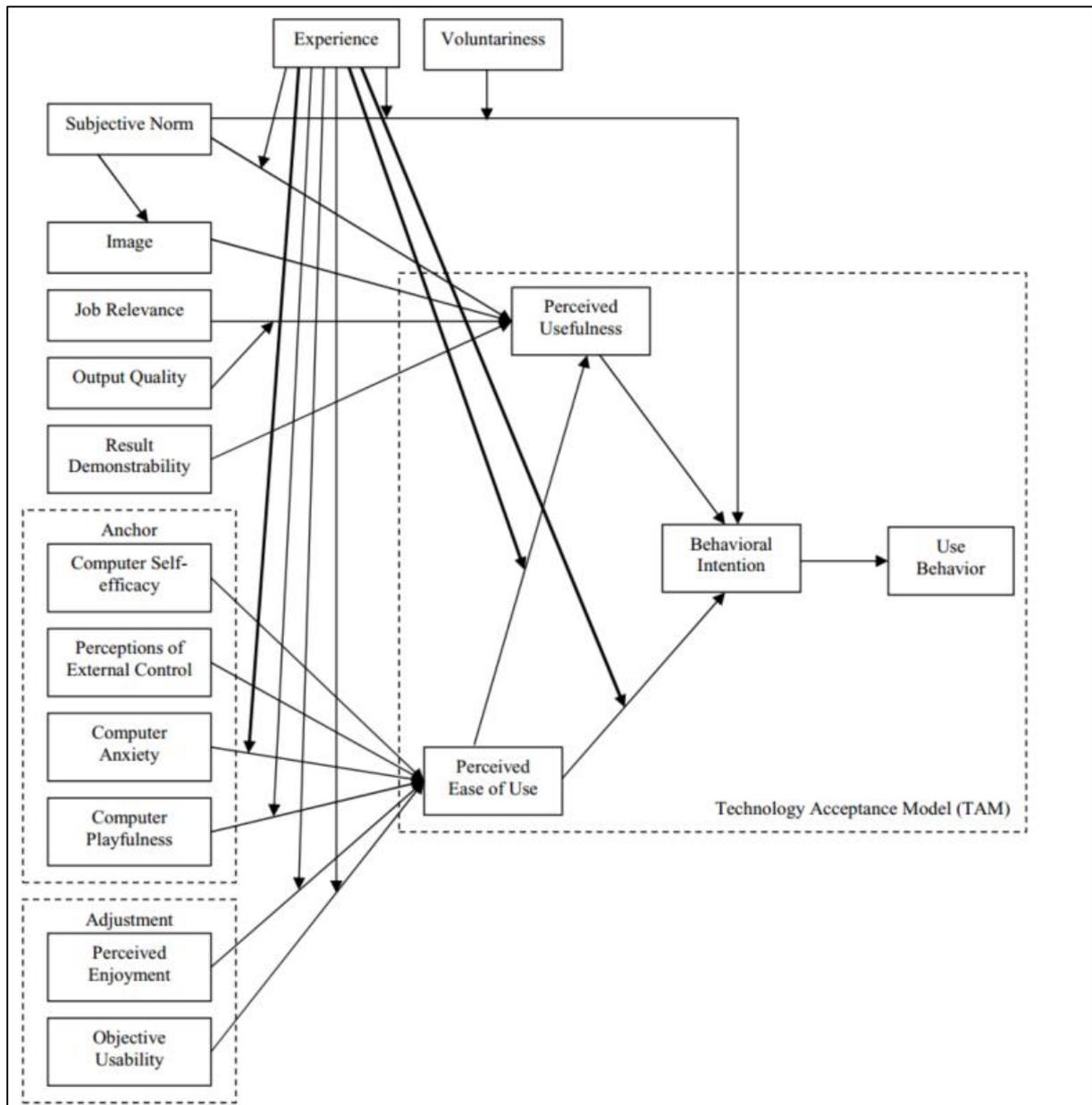
Venkatesh and Bala (2008) created the TAM 3 model by combining the TAM 2 model by Venkatesh and Davis (2000) and the model of the determinants of perceived ease

of use by Venkatesh (2000), to create one integrated framework for technology acceptance. Thus, the TAM 3 model accounts more comprehensively for the factors related to perceived ease of use, and creates a nomological network of determinants to explain technology adoption and usage.

Figure 3.5 illustrates the TAM 3 model, where the thick solid lines indicate the new relationships stipulated by the model. The difference between TAM 2 and TAM 3 is that TAM 3 extends perceived ease of use with six specified determinants. These are computer self-efficacy, perceptions of external control, computer anxiety, computer playfulness, perceived enjoyment and objective usability. As can be interpreted from Figure 3.5, the determinants of perceived ease of use will not influence perceived usefulness. The determinants of perceived ease of use as suggested by Venkatesh (2000) are primarily individual difference variables and general beliefs about computers and the use of computers. The main underlying strength of the TAM 3 model is its comprehensiveness and potential for actionable guidance, adding richness and insights into the understanding of the user's reaction to technology (Venkatesh & Bala, 2008).

TAM 3 emphasises the unique role perceived ease of use and perceived usefulness plays in the understanding of technological usage, as each of these determinants are proved to not directly influence each other given the findings of Venkatesh and Bala (2008). According to the TAM 3 model, experience has key relationships with other variables in the model. Moreover, experience is an important factor in the understanding of technology, as an individual's reactions to technology change over time because of experience. TAM 3 posits that experience moderates the relationship between perceived ease of use and perceived usefulness - while the effect of perceived ease of use on behavioural intention will decrease, the effect of perceived ease of use on perceived usefulness will also increase. Furthermore, Venkatesh and Bala (2008) found that the relationship between computer anxiety and perceived ease of use is moderated by experience. Lastly, the relationship between perceived ease of use and behavioural intention is moderated by experience.

Figure 3.5
The Technology Acceptance Model 3 (TAM 3)



Source: Venkatesh and Bala (2008)

3.5 THE TECHNOLOGY TRANSFER THEORY

The transfer of technology may be referred to as the re-evaluation and/or re-implementation of a technological system from one context to another (Bar-Zakay, 1970), or stated otherwise, the process of the movement of technology from one entity to another. The transfer may be successful if the receiving entity, the transferee, can effectively use the technology transferred and eventually assimilate it (Ramanathan,

1994). An example is when a person is familiar with a personal computer system and would like to use a mobile phone. A mobile phone system – which has a similar interface and can perform similar tasks - thus requires a similar set of skills, which the person is already familiar with given his or her prior use of a personal computer. Technology transfer is therefore more likely to occur from the one system to the other that is from, for example, a personal computer to a mobile phone.

A further understanding of the technology transfer concept can be illustrated with an example from Internet purchases. Internet purchases have a significant influence on the m-commerce decision, given that the technology cluster concept asserts that the adoption of new communication technology is best predicted by the adoption of functionally similar technology and user perception towards it (Rogers, 2010). Thus, individuals who have made a purchase by using the Internet have broken the barriers to non-store shopping and are more predisposed to m-shopping (Bigné, Ruiz & Sanz, 2005).

The technology cluster concept consists of one or more distinguishable elements of technology that are interrelated (Rogers, 2010). The technology cluster concept has been used to analyse the adoption of videotext, e-commerce and m-commerce (Bigné *et al.*, 2005). The technology cluster concept explains how consumers are likely to adopt a technology offering similar functions as those technologies that they have already adopted in their day to day lives. It is highlighted by Bigné *et al.* (2005) that prior experience with any non-store shopping channel has a positive influence on the adoption of new, direct shopping channels as the consumer has already acquired skills in purchasing products and services without having to physically inspect them. Thus, it can be deduced that different technology that form the same cluster can satisfy the same need because they possess similarities in process and function.

Yang (2005) states that m-commerce emerged from e-commerce, using similar functions and processes to complete the need of the consumer. For this reason, consumers who have used conventional computing are more likely to adopt new generation computing facilities such as mobile devices to perform similar tasks. Yang (2005) also found that past adoption behaviour and ownership of certain technology can influence the perceived usefulness and perceived ease of use of related technology.

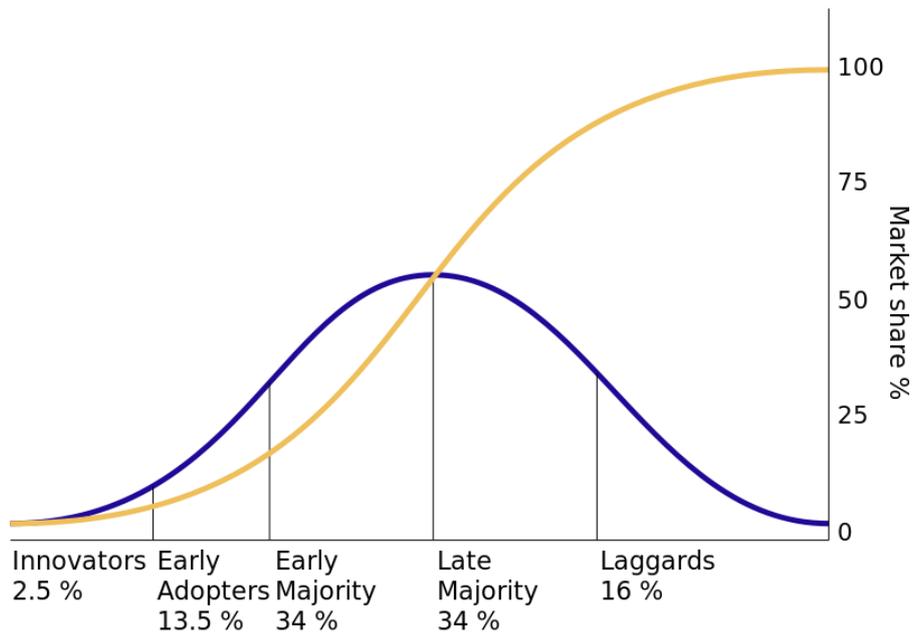
3.6 THE DIFFUSION OF INNOVATIONS THEORY

A theory which may be relevant to the transfer of technology is the Diffusion of Innovations Theory which is based on the research of Rogers (2010). Diffusion of Innovations Theory refers to the process during which an innovation is communicated through channels over time among social systems. Essentially, this means that the Diffusion of Innovations Theory explains why and at what pace technology spreads through cultures and pervades into people's lives (Rannenber *et al.*, 2009). Thus, the Diffusion of Innovations Theory may enable one to understand the use of complex and controversial technology.

Rogers (2010) proposes that four key elements contribute to the spread of new technology, namely the innovation itself, available communication channels, time and a social system. Figure 3.6 illustrates the Diffusion of Innovations Theory, where the blue line, being a bell curve, displays the five successive groups of consumers that adopt new technology, and the yellow line represents market share which will eventually reach saturation. As can be seen in Figure 3.6, the Diffusion of Innovations Theory identifies five types of individuals to explain the different rates at which market segments adopt technological developments. These are the innovators (which account for 2.5%), the early adopters (which account for 13.5%), the early majority (which account for 34%), the late majority (which account for 34%), and lastly the laggards (which account for 16%).

Each of the five groups in this model has specific characteristics, as identified by Rogers (2010). Innovators are described as venturesome, educated people who search for multiple sources of information and have a greater propensity to engage in risk-taking behaviour. Furthermore, it is believed that innovators have the ability to understand complex technical processes and cope with high levels of uncertainty. The typical innovator is described by Rogers (2010) as the catalyst of the use and adoption of new ideas.

Figure 3.6
The Diffusion of Innovations Theory



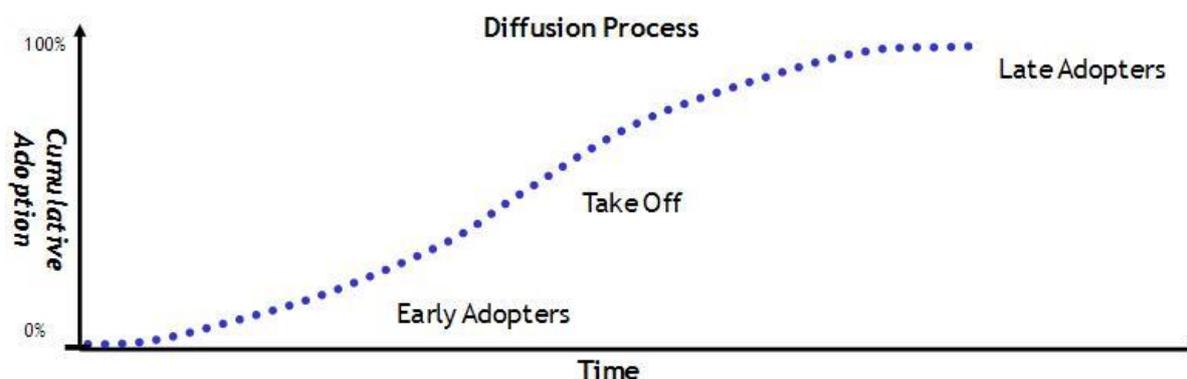
Source: Rogers (2010)

Rogers (2010) describes early adopters as social leaders, popular in social circles, and as educated individuals. The early majority group, the late majority group and the laggards seek for advice from the early adopters. The early majority are described as deliberate and hold many informal social contacts. The late majority are described as sceptical in their thoughts and actions, very traditional in their ways, and have an overall lower socio-economic status than that of the innovator, early adopters and early majority. Their acceptance of a new idea or technology only comes after the average individual has accepted it. Laggards can be described as individuals who gain information through secondary sources such as neighbours and friends. Laggards normally have a fear to engage with new ideas and are adamant in resisting change.

Rannenber *et al.* (2009) note that each adopter's willingness to adopt an innovation would depend on their awareness, interest, evaluation, trial and adoption. Figure 3.7 shows the cumulative adoption of new technology or ideas over time, which results in an S-shaped curve. As illustrated in Figure 3.7, as time goes on, adoption of new technology and ideas increases, where innovators would be the ones to create the

onset, early adopters would be the first to accept new technology, and the late adopters would be the last to follow suite.

Figure 3.7
Cumulative adoption over time



Source: Rannenberg *et al.* (2009)

Rannenberg *et al.* (2009) and Clarke (2008) assert that the Diffusion of Innovations Theory developed by Rogers (2010) holds five innovation characteristics that are vital in the application of mobile telecommunications and consumer behaviour in the adoption of these devices. The five key innovation characteristics are relative advantage, compatibility, complexity, trialability, and observability. It is further explained by Rannenberg *et al.* (2009) that relative advantage considers the availability and/or reachability of the subscriber, anywhere/anytime communications, and the use of personal devices. There needs to be high compatibility in society, as flexibility and reachability become more important. The complexity of mobile devices needs to be low, in that everyone should be able to use them, allowing for a standard understanding, even with advanced features, simple use of these features allows quicker adoption. Mobile devices should also make provision for trialability in that users should be permitted to test the devices first before committing to a purchase, as this will contribute to feelings of security and higher rates of adoption. Observability needs to be high in that non-users should be able to visibly recognise the benefits of using mobile devices and m-shopping from peers and social circles, which in turn may influence their adoption of the devices quicker.

3.7 TECHNOLOGY READINESS INDEX (TRI)

Technology readiness refers to an individual's propensity to embrace and use new technology to achieve goals. The construct can be viewed as a gestalt of mental enablers and inhibitors which contribute to, or hamper, a person's predisposition to use new technology (Parasuraman, 2000).

The Technology Readiness Index (TRI) comprises four dimensions, namely optimism, innovativeness, discomfort and insecurity. Optimism refers to a positive view of technology and the belief that technology allows for increased control, flexibility and efficiency. Innovativeness denotes a tendency towards being a technological pioneer and thought leader. Discomfort implies a perceived lack of control when using technology and results in feeling overwhelmed. Insecurity refers to distrust and scepticism about a technology's ability to work. Optimism and innovativeness are drivers of technology readiness, whereas discomfort and insecurity are inhibitors (Parasuraman, 2000).

The Technology Readiness Index can be used to understand the relationship between inherent personality traits and technology usage. A study conducted by Walczuch, Lemmink and Streukens (2007) used the TRI to measure the relationship between the TRI's personality dimensions – optimism, innovativeness, discomfort, and insecurity - with the cognitive dimensions of the TAM. Walczuch *et al.* (2007) found that personality does indeed make a difference in the adoption of IT processes, where the TRI's personality traits as well as the characteristics of the technology all influence the adoption decision, thus concluding that the personality dimensions of the TRI have a significant effect on technology adoption. Moreover, it was established that optimism has the strongest impact on perceived ease of use and perceived usefulness. Contrary to expectations, it was also found that innovativeness negatively influences perceived usefulness, in that innovative people are more critical towards a technology as they are aware of the most recent updates and developments, thus having high expectations and demands of technology. Discomfort has a negative impact on perceived ease of use where individuals feel overwhelmed by the complexity of technology. Similarly, insecurity has a negative effect where it makes individuals feel less comfortable with technology and perceive it to be less easy to use.

The TRI and the TAM are related to each other, in that both endeavour to explain technology paradoxes, technology anxiety and computer anxiety. Davis *et al.*'s (1989) work reflects the components that drive and inhibit technology acceptance, similar to that of the TRI model which uses personality characteristics to explain technology acceptance. Lin and Hsieh (2007) call the combination of these two models the TRAM (Technology Readiness Acceptance Model), where they argue that the TRAM substantially broadens the applicability and explanatory power of the separate models. Furthermore, they explain that the TRAM is a better way to gauge technology adoption in situations where adoption is not mandated by organisational objectives.

Earlier, Lin and Hsieh (2006) combined the TRI model with the TAM in a study to understand customer satisfaction and behavioural intentions towards technology. Their study holds relevance to the understanding of designing better service interfaces, and planning marketing strategies surrounding technological interfaces. The study concludes that technology readiness is an important driver for customer satisfaction. Moreover, technology readiness has a significant positive effect on behavioural intentions, where the higher an individual's technology readiness the more inclined an individual is to hold favourable behavioural intentions towards technology. Lastly, the more satisfaction individuals experience in the use of a particular technology, the more likely it is that they will use the technology again and recommend it to others.

The following paragraphs discuss the practical application of the TRI model with regard to m-shopping. The degree to which an individual is optimistic and innovative, may affect their propensity to use m-shopping. For example, if a person feels more in control, they will trust their ability to use the system (in this case mobile device), as well as the system's ability to deliver their demands. Trust may allow the user to complete the final purchase process as it overcomes an infringement of purchase intention – perceived risk. Innovativeness may constitute a technologically astute and adept individual who can perform tasks and procedures in the online environment with ease, and understand the demands of the technology at hand. Innovativeness thus allows for a more experienced user that can make use of m-shopping cart systems and credit card procedures with greater ease and less effort, which in turn may increase the potential to be an m-purchaser.

The degree to which an individual has discomfort and insecurity may also affect the final purchase intention. If individuals feel they do not have control over the m-shopping experience, they will be cautious in their actions and are more likely to opt-out of purchase in-between possible transactions. Insecurity refers to individuals having little trust in the m-shopping environment, which may subsequently result in non-buying behaviour. The person is sceptical of who they are buying from, whether the online entity is reliable, and if their information is safe in the entity's hands.

3.7.1 Index to show the likelihood to embrace new technology

An expansion of the Technology Readiness Index can be found in Ratchford and Barnhart's (2012) work. They developed an index to show the likelihood to embrace new technology, which combines the assessments of consumers' positive and negative attitudes towards technology. Table 3.1 shows the four factors and the 14 items of the index.

Table 3.1

14-item index showing the likelihood to embrace new technology

Items	Factor
1. Technology gives me more control over my daily life.	Optimism
2. Technology helps me make necessary changes in my life.	
3. Technology helps me to more easily do the things I want to do at times I want to do them.	
4. New technologies make my life easier.	
5. I can figure out new high-tech products and services without the help of others.	Proficiency
6. I seem to have fewer problems than other people in making technology work.	
7. Other people come to me for advice on new technologies.	
8. I enjoy figuring out how to use new technologies	
9. Technology controls my life more than I control technology.	Dependence
10. I feel like I am overly dependent on technology.	
11. The more I use technology the more I become a slave to it.	
12. I must be careful when using technologies because criminals may use the technology to target me.	Vulnerability
13. New technology makes it too easy for companies and other people to invade my privacy.	
14. I think high-tech companies convince us that we need things we don't really need.	

Source: Ratchford and Barnhart (2012)

The 14-item index specifically aims to devise a measure of a consumer's propensity to adopt technology that could adapt to the rapidly evolving array of high-technology products and services. The results of Ratchford and Barnhart's (2012) investigation

suggest that a consumer's technology adoption propensity (TAP) can be measured using the 14-item index. Ultimately, the 14-item measure consists of two contributing factors (optimism and proficiency) and two inhibiting factors (dependence and vulnerability). The TAP index can predict consumers' technology usage behaviour across a range of high-technology products and services such as mobile phones and Tablets.

Ratchford and Barnhart's (2012) research offers new insights into modern drivers and inhibitors of technology adoption. A belief that a technology will provide increased control and flexibility in life (optimism) and a sense of one's proficiency in learning could contribute to consumers using a technology to engage in m-shopping. However, consumers' concerns about technology also play a substantial role in technology adoption. Feeling overly dependent on technology and feeling vulnerable to malicious activities facilitated by technology inhibit the adoption of technology, and may also inhibit the adoption of m-shopping. Meuter, Ostrom, Bitner and Roundtree (2003) confirm with their own findings that technological anxiety has the potential to influence the overall levels of satisfaction felt and behavioural intentions to use a technology. Thus, the adoption of m-shopping and the use of mobile devices to facilitate m-shoppers may be dependent on low levels of technological anxiety.

3.8 THE SOCIAL EXCHANGE THEORY (SET)

The Social Exchange Theory (SET) posits that resources will continue to flow in a particular direction only if there is a valued return contingent, and this may be referred to as either return reinforcement or flow exchange (Emerson, 1976). SET was originally developed by Homans in 1958 to understand human behaviour, and was later used to examine organisational behaviour (Shiau & Luo, 2012). In 1964, Blau placed emphasis on the technological economic analysis of social exchange (Emerson, 1976). Blau drew a comparison between social and economic exchange and warned that a psychological perspective might blind one against important emergent aspects of social exchange (Emerson, 1976).

SET fundamentally explains the human motivation behind building relationships. Individuals will participate in exchange behaviour only if the cost of this relationship is justified by the perceived rewards (Liao, 2008). If the costs of the exchange exceed

the reward, the transaction or exchange arrangement will be terminated. Therefore, it can be argued that this particular theory deals with intangible resources and social costs, where no guarantee of rewards can be provided (Liao, 2008). From a cost-benefit perspective, the acquisition of benefits are the driving force in exchanges in interpersonal interactions. SET states that people and organisations interact to maximise their rewards and minimise their costs (Salam, Rao & Pegels, 1998).

An important aspect regarding SET is the development of a relationship that takes place when social exchange is performed (Sutphin, 2010), drawing on the literature of relationship marketing. In any relationship a minimum of two actors are required where one actor is obligated to return a benefit when receiving value of some sort (Sutphin, 2010). When applying the assumption of SET to a relationship, it can be assumed that the relationship will only continue as long as both parties perceive the benefit to be equal to the cost of forming the relationship.

The SET may be applied to m-shopping, where individuals weigh the cost of disseminating their personal information in exchange for benefits such as instantaneous purchases, free delivery, international products, and exclusive deals. In this instance, the valued return contingent for an m-purchaser may be the advantages that online shopping offers.

The value equation is shown in Figure 3.8, and accounts for the building of long-term relationships through the consideration of benefit and price. According to the value equation, the value that an individual perceives should be equal to the received benefit divided by the cost (Keegan & Green, 2013). Therefore, value can be increased in two ways, either by lowering the cost of the interaction, or inversely by attempting to increase the benefit that one would receive. The value equation provides an adequate framework for SET.

Figure 3.8
Value equation

$$Value = \frac{Benefit}{Price}$$

Source: Keegan and Green (2013)

According to Salam *et al.* (1998), SET was used to understand how trust, as an economic incentive, plays a role in the facilitation of e-commerce over the Internet. The results demonstrated that the higher the perceived trust of an individual, and the greater the economic incentives between sellers and buyers, the lower an individual's perceived risk would be in the transaction.

The SET may also explain experiential shopping online, where new or first-time buyers engage with an online shopping environment, but do not receive the product they purchased, or are not satisfied with the way in which the shopping experience was produced and feel for that reason, there is no appropriate value returned and thus choose to become a non-buyer. This logic also applies to the m-shopping experience.

The theory further explains how a dyadic relationship must exist between a consumer and the web portal for interaction between the two to continue, and argues that appropriate value will motivate consumers to reciprocate equally with eventual purchases using mobile platforms.

3.9 THE UTILITY MAXIMISATION THEORY (UMT)

Williamson's (2002) Theory of Utility Maximisation originally referred to the objective of managers to maximise their own profits by conducting actions that concur with their own interests in the firm, rather than acting in line with that of the stakeholder's interest. It is also known as the managerial discretion theory. In economics, utility captures the preference of the individual, and aims to understand how this preference shapes their actions. Williamson (2002) introduced the concept of expense preferences to a manager's consideration. Expense preferences refers to the amount of costs a set of actions require, where managers aim to minimise the costs of actions that are directly detrimental to themselves, and where costs incurred to others are disregarded. In other words, managers frame and execute policies that maximise their own utilities rather than those of others. The underlying notion of utility maximisation separated from a corporate context is that it explains how individuals seek to maximise their own benefits in interactions and minimise their costs to the furthest.

Utility maximisation has been applied to consumer privacy in previous research to examine the market with regard to privacy concerns. The UMT posits that consumers tend to weigh the trade-off involved between their decision to offer their personal data

and the potential negative consequences of doing so. Utility maximisation may measure the negative effects of concerns of disseminating personal information against the consumer's importance of their information, which in turn, affects the consumer's willingness to participate in an online offer and/or m-shopping experience (Okazaki, Navarro-Bailón & Molina-Castillo, 2012).

Thus, UMT enables researchers to understand how information acquisition as well as information dissemination plays a role in the intention to re-use a m-shopping platform and/or to make an m-purchase.

3.10 STATUS QUO BIAS

Status Quo Bias explains people's preference to maintain their current status or situation (Kim & Kankanhalli, 2009). The theory of rational decision-making under uncertainty postulates that individuals assign probabilities to possible outcomes. They then calibrate the value of these outcomes, which results in selecting the alternative that offers the highest utility (Samuelson & Zeckhauser, 1988).

Status Quo Bias refers to loss aversion, where individuals have a strong tendency to stay with the status quo because the disadvantages of leaving it may result in a larger loss than gain for that individual (Kahneman, Knetsch & Thaler, 1991). Loss aversion is defined by Kahneman *et al.* (1991) as choices that are not based on wealth or welfare, but rather on changes relevant to a neutral reference point. Loss aversion behaviour by individuals can be further explained by considering the Prospect Theory, (Hardie, Johnson & Fader, 1993), because gains and losses must be estimated. The Prospect Theory posits that gains and losses are evaluated against a reference attribute. An attribute better than the reference attribute is identified as a gain, whilst an attribute worse than the reference attribute is identified as a loss (Tversky & Kahneman, 1992).

Samuelson and Zeckhauser (1988) conducted a test where they presented participants with a financial situation in which uncertainty was present, and then asked participants to decide to invest their money in a firm. The majority of participants invested in the moderate risk firm, because changes in the consequences for this investment were insignificant. The results of Samuelson and Zeckhauser's (1988)

study was that alternative options became more popular when they were designated as the status quo.

Status Quo Bias can be divided in three definitive categories, namely rational decision-making, cognitive misperceptions, and psychological commitment (Samuelson & Zeckhauser, 1988).

A rational individual will always make a decision where their benefit outweighs their cost (benefit > cost). Where benefit outweighs costs, consumers gain from engaging in the activity. If the cost outweighs the benefit (cost > benefit), more is lost than what is gained prior to the engagement, and the consumer will not engage in the activity (Samuelson & Zeckhauser, 1988). For example, if data costs on mobile phones are higher than transport costs to a physical store, the consumer will forego m-shopping and make use of regular retail outlets.

Cognitive misperceptions refer to one's own misunderstanding or lack of understanding with regard to a certain aspect or thing. Cognitive misperceptions of people's perceptions result from a bias based on their beliefs, expectations and context, as well as by their needs, motives and desires (Pronin, 2006). For example, a cognitive misperception can be a consumer misunderstanding the m-shopping process, and thus misusing the m-shopping portal, which in effect encumbers the m-shopping experience.

Three main factors that contribute to psychological commitment are sunk cost, social norms, and efforts to feel in control (Samuelson & Zeckhauser, 1988). For example, if consumers were to associate m-shopping with negative affiliations, consumers would not want to engage with m-shopping in a social visible manner as it would ultimately exclude the consumer from their social group.

Kim and Kankanhalli (2009) conducted a study on a user's resistance with regard to information systems implementation using a Status Quo Bias perspective. It was found that switching costs increased the user's resistance both directly and indirectly because of the user's perception of how it would influence perceived value. Thus, if it costs a user more to switch from a computer to a mobile device than what the value is derived from switching platforms, the user will forgo switching and remain with their status quo (with the computer). Self-efficacy includes ease of use as found by

Venkatesh (2000), which explains that the level of one's self-efficacy determines their desire to maintain their status quo or deviate from the norm. Thus, a higher level of self-efficacy may lead to an individual being more likely to switch. Therefore, individuals with higher levels of self-efficacy are more likely to switch to mobile devices and potentially use m-shopping. Kim and Kankanhalli (2009) also found that perceived value and support systems assist in reducing user resistance to information system-related changes. Thus, the more valuable a mobile device is perceived to be, the more likely an individual is to adopt it. Moreover, Kim and Kankanhalli (2009) explain that the greater the presence of support systems, the more likely an individual is to adopt technology.

3.11 SUMMARY AND IMPLICATIONS OF THIS CHAPTER FOR THE STUDY

The aim of this chapter was to provide an overview of the theories that are helpful in advancing our understanding of e-commerce, m-commerce and m-shopping. The relevant theories discussed provide insights into the way consumers behave with technology and information system platforms. Moreover, the theories assist in divulging attitudes, perceptions and tendencies towards the adoption and usage of technology such as mobile devices. Theories such as the TRA and the TPB explain the intention of consumers, and how this intention affects their behaviour with regard to technology usage or preferences. Both the TRA and the TPB highlight the importance of subjective norm, where peer groups and social circles contribute to influencing an individual's final behavioural decision. The TAM also clarifies the adoption and usage behaviour of technology, and stresses the importance of perceived usefulness and perceived ease of use as integral components in the adoption process. The TAM 2 and TAM 3 extend on the original TAM model, of which TAM 2 focuses on perceived usefulness, and TAM 3 focuses on perceived ease of use, extending perceived usefulness and perceived ease of use respectively. The comprehensiveness of TAM 2 and TAM 3 contribute to a more detailed understanding of adoption and usage behaviour with regard to technology such as mobile devices. The Diffusion of Innovations Theory categorises the technological adoption process, where five separate groups materialise over time. The TRI explains how personal characteristics may affect the adoption process of technology and how certain traits may be more influential in this process. The SET describes how a dyadic relationship

must exist between a consumer and the technology for interaction between the two to continue. Finally, Status Quo Bias denotes that individuals may evaluate the use of technology by means of reference points, as well as loss aversion, where the level of uncertainty may affect whether an individual chooses to adopt the technology or remain within the status quo. In the next chapter, the antecedents of m-shopping will be discussed in more detail.

CHAPTER 4

THE ANTECEDENTS OF M-SHOPPING

4.1 INTRODUCTION

This chapter attends to the antecedents of the m-shopping experience, or otherwise, the dimensions that may contribute to the use of mobile devices by individuals to conduct transactions on online platforms. The individual antecedents that will be discussed in this chapter include perceived usefulness, perceived ease of use, confirmation, subjective norm, self-efficacy and innovativeness.

Chapter 4 also contains an analysis of each antecedent, from its origin to its current applications in information technology, m-commerce and m-shopping. The purpose of this chapter is thus to provide a better insight into each antecedent, as well as their relationships with the outcomes, as identified in the conceptual model. Finally, hypotheses are formulated based on the literature.

4.2 PERCEIVED USEFULNESS

For the purpose of this study, perceived usefulness is defined as the degree to which a person believes that using a particular system would enhance his or her job performance. This stems from the definition of the word 'useful': capable of being used advantageously (Davis, 1989). From an m-commerce perspective, Zampou *et al.* (2012) defines perceived usefulness as the degree to which a person believes that by using mobile services, his or her job performance would be enhanced.

Perceived usefulness determines an individual's attitude towards using a technology in the TAM, where perceived usefulness can be described as the degree to which the user believes that technology will enhance their performance of a given activity (Davis *et al.*, 1989). Davis (1989) conducted two studies in which the measurement of perceived usefulness was refined to the following six scaled items that may denote or better delineate perceived usefulness: allows one to work more quickly, makes job easier, increases productivity, increases job performance, increases effectiveness, and is useful.

When considered in terms of e-commerce, perceived usefulness may be regarded as the ability to improve a consumer's shopping performance, shopping productivity and to accomplish shopping goals which would conclude their shopping experience as a success (McCloskey, 2004; Childers, Carr, Peck & Carson, 2001). Ur Rehman, Rizwan, Ud din Ahmed, Ali and Khan (2013) explain the term by arguing that usefulness assists in improving consumers' overall performance by buying via technology-based platforms. In a similar vein, Mahmood, Burn, Gemoets and Jacquez (2000) note that perceived usefulness should not be ignored as the usefulness of a system, such as a mobile device used for online retail purchases, adds overall satisfaction to the consumer. It has been found that perceived usefulness has one of the strongest impacts on a customer's satisfaction (Calisir & Calisir, 2004; Agrebi & Jallais, 2015; Groß, 2015a). Against this background, the following hypothesis was formulated:

H1: Perceived usefulness has a positive relationship with a customer's satisfaction of m-shopping

Perceived usefulness as a performance expectancy has received attention in both initial adoption and intention to continue using technology, where usefulness is recognised as a key determinant of a consumer's behavioural decisions (Lu, 2014). Perceived usefulness has been found to be a determinant of continuing to shop online (Al-Maghrabi *et al.*, 2011; Al-Maghrabi & Dennis, 2011). Groß (2015a) explains that the intention of the consumer to adopt is mostly affected by their perception of usefulness which can be seen as a utilitarian performance expectancy, as well as an individual's enjoyment, which may be portrayed as a hedonic performance expectancy.

Barkhi, Belanger and Hicks (2008) assert that consumers will develop favourable attitudes towards products and services based on whether they believe that it may provide a sufficient solution to a problem or situation. Online websites that provide information that aid the consumer in their purchasing decision will also be perceived as useful for shopping (Kim, Williams and Lee, 2003). Usefulness may also be perceived through services that may be offered on online platforms that are not readily available in traditional retailing, such as quick comparisons between products on different websites (Bisdee, 2007). Tang *et al.* (2014) explain that perceived usefulness

is one of the most important considerations for consumers to adopt mobile shopping. Retail firms that conduct transactions via mobile devices are in the position to enhance the perceived usefulness of mobile interfaces above other means to transact. Improving perceived usefulness of mobile devices and platforms include enhancing mobile network services (which may in turn improve loading times and/or speed), designing more efficient procedures that help the consumer to complete the shopping process, and increasing the amount of data a mobile phone can store, send and interact with.

Given the aforementioned application of perceived usefulness in e-commerce, one would expect that price comparison may be a component of perceived usefulness. Price comparison assists in achieving shopping goals, provides sufficient benefits towards a solution, and functions as an aid for consumers to make better decisions. Utilitarian value is defined as the overall assessment of functional benefits and sacrifices, where utilitarian value is relevant for task-specific use of online shopping, such as considering the product, service, and price features before actually purchasing. Utilitarian value incorporates cognitive aspects of attitude, such as value for money, and judgements about convenience and time-saving in the online shopping process (Overby & Lee, 2006). Price comparison may function as a utilitarian benefit and thus generates value for consumers. Additionally, efficiency may also be considered as a component of perceived usefulness, in that consumers seek to improve their shopping performance. Price comparison and efficiency both affect utilitarian performance expectancy. Moreover, hedonic and utilitarian outcomes derive value for the consumer (Babin *et al.*, 1994).

4.3 PERCEIVED EASE OF USE

According to Davis (1989), perceived ease of use refers to the degree to which a person believes that using a particular system would be effortless. This contention follows from the definition of ease: freedom of difficulty or great effort. Effort refers to a finite resource that a person may allocate to the various activities for which he or she is responsible. Furthermore, Davis (1989) explains that an application that is perceived to be easier to use than another, and yields the same return, is more likely to be accepted by users. From an m-commerce perspective, Zampou *et al.* (2012) define

perceived ease of use as the degree to which a person believes that using mobile services would require limited effort.

Davis (1989) refined the measurement of perceived ease of use to six scaled items that may denote or better delineate perceived ease of use. These items are: easy to learn, controllable, clear and understandable, flexible, easy to become skilful, and easy to use.

Perceived ease of use has been empirically verified as a predictor of perceived usefulness (King & He, 2006). This finding has been confirmed by Bruner and Kumar (2005), who found that users tend to consider technology useful when they have perceived the technology as easy to use. Consumers who perceive that online shopping requires little effort would most likely perceive it to be useful (Ramayah & Ignatius, 2005). From these findings, the following hypothesis was put forward:

H2: Perceived ease of use has a positive relationship with a consumer's perceived usefulness

Tang *et al.* (2014) explain that perceived ease of use is affected by a consumer's knowledge, their skills and their ability to adapt, suggesting that mobile interfaces should be user-friendly and the transaction process should be simplified as best possible. The significant impact of perceived ease of use on a consumer's attitude has been confirmed by past research (Thong, Hong & Tam, 2006; Pavlou, 2003; Sheikhi, 2012). In their study on m-shopping with Smartphone devices, Agrebi and Jallais (2015) confirmed that perceived ease of use has a significant impact on customer satisfaction. Thus:

H3: Perceived ease of use has a positive relationship with a customer's satisfaction of m-shopping

Consumers may base their experience of online shopping on the ease in which the shopping activity was executed (Lim & Ting, 2012). Stated differently, the easier it is for consumers to use online shopping websites, the more useful online shopping will be perceived by consumers (Heijden, 2000). Given the aforementioned, it can then be asserted that navigation processes may be part of perceived ease of use - as the point of entry and exit, the aesthetics, and the interface that may provide for less effort from the consumers, making it easier for them to undertake shopping activities.

Perceived ease of use in the current study refers to the customer's perception that shopping with mobile devices is easy and does not require much effort to complete the task (Davis, 1989). Groß (2015a) expands on this by suggesting that perceived ease of use can be seen as the level of expected effort that an individual would have to exert given facilitating conditions such as compatibility, connectivity, convenience and social influence which may all play a role in the level of effort that is required. Thus, time may be part of perceived ease of use, where a consumer aims to save time in shopping transactions, as well as to shop in the most convenient manner possible.

If the consumer believes that the process of online shopping is free of effort and does not require the consumer to develop additional skills to undertake the process, they will be more predisposed to engaging with the online shopping process (Chiu *et al.*, 2009).

4.4 CONFIRMATION

Confirmation is operationalised in the Expectation-Confirmation Theory (ECT) literature as either objective confirmation, perceived confirmation or inferred confirmation (Yi, 1990). Objective confirmation refers to an external judgement which assesses the expected performance of a product or service, assuming that the products and services can be judged in a uniform manner by using predefined standards (Bhattacharjee, 2001a). However, Yi (1990) explains that objective confirmation is not an accurate predictor of satisfaction because it ignores variations in a consumer's expectations and performance perceptions. Inferred confirmation refers to the difference between expectations and performance in terms of the predefined product or service attributes before and after the consumption experience (Bhattacharjee, 2001a). However, it is argued that Inferred confirmation may be biased based on pre-consumption ratings that may cause a ceiling or floor effect (Bhattacharjee, 2001a). An example of a ceiling or floor effect is when a consumer rates a product at its maximum of say 10 points at pre-consumption, and then rates a maximum of 10 points post-consumption, leaving a confirmation magnitude of zero, which is an inaccurate representation of the consumption level. Perceived confirmation represents a consumer's subjective ratings but only at a post-consumption level, considering the overall performance of the product or service, or rating the product or service based on its individual attributes (Oliver, 1980). It has been found that

perceived confirmation best predicts satisfaction (Tse & Wilton, 1988), while Yi (1990) recommends that perceived confirmation is the most appropriate measure of confirmation. Therefore, the term perceived confirmation will be used throughout this study when referring to confirmation. Moreover, Oliver (1980) argues that the attribute level of perceived confirmation does not provide a significant enhancement in explaining the overall performance of the product. Thus, for the purpose of this study, overall product-level confirmation is deemed adequate.

4.4.1 Expectation-Confirmation Theory (ECT)

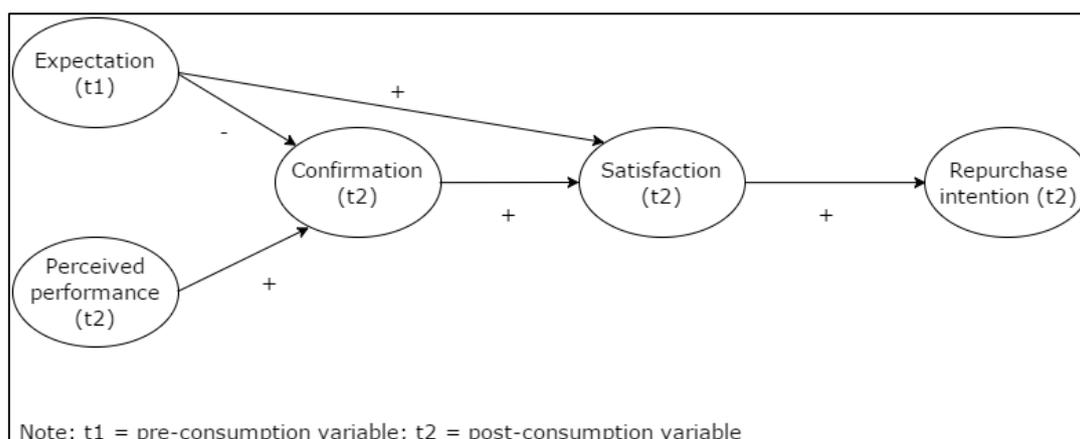
The Expectation-Confirmation Theory (ECT) was originally proposed by Oliver in 1980 and then further developed to help both research and industry understand customer satisfaction, post-purchase behaviour, and service marketing in general (Bhattacharjee, 2001a). ECT explains how satisfaction with a product or service is the primary motivation for its continued use, where satisfied consumers continue to use products or services while dissatisfied users discontinue to do so, or switch to alternative options (Bhattacharjee, 2001b). According to the ECT, satisfaction is defined as an *ex post* evaluation of a customer's experience with the product or service, and is captured as either a positive feeling which is denoted as satisfaction, neutral feelings denoted as indifference, or a negative feeling denoted as dissatisfaction (Bhattacharjee, 2001b). The evaluative response of a customer is analogous to that of their attitude toward the product or service as shown in information systems literature published by Melone (1990). Thus, the relationship with attitude and a consumer's intention provides additional support for the link between satisfaction and a consumer's intention toward continuance.

Figure 4.1 illustrates the key constructs and relationships posited by the ECT. Oliver (1980) explains that the process during which consumers reach the point to continue shopping, starts with them forming an initial expectation of a specific product or service prior to the purchase. Following this, the consumer accepts and uses the product or service, and then undergoes a period of initial consumption where perceptions about the product or service's performance are formed. Consumers then assess the performance of the product or service against their original expectations and determine the extent to which these expectations are confirmed. Consumers are then satisfied, based on their confirmation level and expectation on which that confirmation

was based. This process is known as confirmation, and is illustrated in Figure 4.1. Thus:

H4: Confirmation has a positive relationship with a customer's satisfaction of m-shopping

Figure 4.1
Expectation-Confirmation Theory



Source: Bhattacharjee (2001a)

The ECT furthermore illustrates how consumers' repurchase intentions are determined by their level of satisfaction, which is derived from their expectations prior to use, and the actual performance of the item in question (Anderson & Sullivan, 1993). The positive and negative relationships between the constructs depicted in Figure 4.1 are indicated by a positive ('+') and a negative ('-') sign between each stipulated relationship. It is important to note that lower expectation and/or higher performance lead to greater confirmation, which in turn, positively influences customer satisfaction and continuance intention. The reverse of this would cause disconfirmation, dissatisfaction and discontinuance. Thus, confirmation is inversely related to expectation and directly related to performance. Therefore a m-shopper with higher expectations of m-shopping, and a relatively lower performance of the m-shopping experience, would be more likely to be dissatisfied.

Taking the aforementioned into account, one can reiterate the above in terms of m-shopping. A consumer's confirmation of their satisfaction of the m-shopping experience will be based on an *ex post* evaluation. Once the consumer has used the mobile device to conduct mobile transactions, they can assess whether the service

was adequate, where satisfaction arises when positive feelings are felt toward the m-shopping experience. Positive feelings are only felt when the perceived performance of the m-shopping experience exceeds that of the consumer's expectations of the m-shopping experience. If this is the case, the consumer confirms that they are positively satisfied.

4.5 SUBJECTIVE NORM

As pointed out earlier, subjective norm and perceived behavioural control are factors that affect and account for variance in behavioural intention (Ajzen, 1991). Thus, an individual's personal beliefs and perceptions (subjective norm) as well as the extent to which they believe they are in control of the information technology (behavioural control) may affect their intention to re-use the technology. Rannenbergh *et al.* (2009) define subjective norm as the perceived social pressure to perform or not to perform a certain behaviour. In other words, those people who are important to an individual will influence the individual to perform or not to perform the behaviour in question. From the aforementioned one can deduce that subjective norm can also be regarded as normative pressure (Nysveen *et al.*, 2005), which is often included in research to consider the impact of social influences. In this respect, Nysveen *et al.* (2005) found that social influences have a direct and positive effect on the use of mobile devices as consumers can use technology on the basis of social pressure alone, even though they may have a negative or neutral attitude towards that technology. The former illustrates the importance of subjective norm and how it may directly affect the continuance of mobile shopping regardless of a consumer's attitude.

Venkatesh and Davis (2000) believe that subjective norm is a direct determinant of behavioural intention in the Theory of Reasoned Action (TRA) and the subsequent Theory of Planned Behaviour (TPB) model, in which the rationale for the direct effect of subjective norm on intention is that people may choose to perform a certain behaviour, even if they themselves are not favourable towards that behaviour, if one or more important referents sufficiently motivate them to perform the behaviour.

With the TAM 2 model, Venkatesh and Davis (2000) hypothesise that subjective norm influences intention to use. It was therefore expected with the current study that subjective norm will affect an m-shopper's intention to continue mobile shopping. Venkatesh and Davis (2000) further report that the effect of subject norm, where

subjective norm's effect is noted as a consumer choosing to execute a given action based on the referral of an important person, regardless of whether they believe in the action or not, is prevalent in both mandatory and voluntary situations. Based on this discussion, the following hypothesis was put forward:

H5: Subjective norm has a positive relationship with a consumer's continuance of m-shopping

Both Hung, Ku and Chang (2003) and Teo and Pok (2003) have suggested that subjective norm should be used as an antecedent in the study of consumers' intentions to use and continue using mobile services which further justifies the selection of this construct for this study.

4.6 SELF-EFFICACY

Self-efficacy refers to the beliefs of an individual with respect to their capability to act in a particular way to obtain desired results (Bandura, 1977). In a similar vein, self-efficacy can be defined as the individual's decision to accomplish a specific goal by means of organising and executing, where self-efficacy consists of the prediction of a result and the prediction of efficacy (Chen, Chen & Yen, 2011). The prediction of a result refers to an individual's expectation that their actions will lead to a particular outcome. The prediction of efficacy denotes an individual's assessment of whether they are actually capable of successfully executing a set of actions to achieve a desired result. Thus, self-efficacy does not consider the existing abilities of an individual, but rather their perception of their abilities to complete the given task at hand (Bandura, 1977).

Self-efficacy distinguishes between subjective knowledge, objective knowledge and experience. Subjective knowledge implies what one thinks that he or she knows, objective knowledge is what an individual really knows, and experience is what an individual has done (Wei & Zhang, 2008). Hill and Beatty (2011) define online consumer self-efficacy (OCSE) as the degree to which a consumer perceives they are capable of engaging effectively as a shopper and/or buyer in the online marketplace. Hill and Beatty (2011) assert that online technical self-efficacy also exists, which comprises the individuals' perceived technical ability to use the Internet to achieve desired tasks. Technical abilities include click-and-search skills, navigation

optimisation, and an overall ability to manipulate computer functions in a resourceful manner.

Chen *et al.* (2011) expand the definition of efficacy and define computer efficacy as an individual's personal evaluation of their capability to use a computer, which emphasises what an individual can achieve in the future regardless of what they have done in the past. Bandura (1982) notes that efficacy involves a generative capability in which cognitive, behavioural and social skills are integrated into courses of action in one's environment. Self-efficacy is believed to affect a person's thought patterns and emotional responses when engaging with threatening or difficult situations (Bandura, 1997).

Compeau and Higgins (1995) developed a measurement instrument which contains three distinct but interrelated dimensions pertaining to self-efficacy. The first is magnitude, which refers to the level of task difficulty a person believes to be attainable. Second is strength, which refers to how strong a person's conviction about their judgement is. Lastly, generalising, which refers to the way in which self-efficacy can limit a person's perception in specific situations.

Individuals with a high level of self-efficacy have a greater inclination to use communication media and technology, and may be more flexible in using it. Users with a low level of self-efficacy may be limited in the way they consider their ability to use technology (Li *et al.*, 2012). For example, a user with a high level of self-efficacy may feel more competent and exhibit a greater amount of control in the search for information, as well as to conduct purchases over the Internet, all whilst remaining comfortable and feeling safe during the process (Wu, Chen & Lin, 2007). Empirical evidence has been found for the causal link between self-efficacy and behavioural intention, which is mediated by utilitarian perceptions such as perceived ease of use and perceived usefulness (Li *et al.*, 2012). Against this background, the following hypotheses were formulated:

H6: Self-efficacy has a positive relationship with a consumer's perceived ease of use of m-shopping

H7: Self-efficacy has a positive relationship with a consumer's perceived usefulness of m-shopping

In the context of online shopping, the difference between perceived ease of use and self-efficacy is that perceived ease of use describes the degree to which a consumer feels the Internet is easy to use and does not require effort, whereas self-efficacy takes into account the consumers' perception of being effective, efficient and executing the process of online shopping with satisfaction (Ur Rehman *et al.*, 2013). The TBP has demonstrated the positive effect of self-efficacy on an individual's final behaviour based on their perceptions of the task at hand (Hernández *et al.*, 2011).

Moynihan, Kabadayi and Kaiser (2010) ascertained that consumers who make use of mobile devices to shop in online environments show better knowledge of the situation at hand, as well as greater self-efficacy. A consumer's use of mobile services and mobile marketing has proved to be more compatible with individuals who have a history of previous engagement with such behaviour (Aldás-Manzano *et al.*, 2009). Customer satisfaction with technology has been found to be dependent on a consumer's ability to cope with that given technology (dependent on the degree of difficulty), as well as an individual's validation in their confidence in using that technology (Ellen, Bearden & Sharma, 1991; Gunawardena, Linder-VanBerschoot, LaPointe & Rao, 2010).

4.7 INNOVATIVENESS

Rogers (2010) states that innovativeness is an individual personality variable that reflects a favourable attitude towards the use of new technology, which is an innate characteristic of that individual. Rogers (2010) developed the Diffusion of Innovations Theory which explains that the level of innovativeness present in a consumer will determine the extent to which he or she will consult information sources to decide in favour of or against the adoption of a given innovation. Rogers (2010) further concludes that an innovative person is more prone to engage in high-risk activities as opposed to a non-innovative individual who conversely selects low-risk activities.

Zarmpou *et al.* (2012) explains that innovativeness in terms of information technology can be defined as the willingness of an individual to explore with new information technology. Innovativeness is thus, the propensity for an individual to try a new thing or concept or an innovative product or service. Therefore, individuals displaying innovativeness are more likely to interact effectively with new technology. Roehrich

(2004) notes that innovators buy new products more often and at a more rapid rate than non-innovators.

Walczuch *et al.* (2007) argue that innovativeness can be seen as a personality trait, where individuals display first-hand knowledge of an innovation and are considered technically competent. Walczuch *et al.* (2007) adds that innovativeness has a positive impact on perceived ease of use as well as perceived usefulness when adopting new technology. Thus, an individual who is more innovative, may perceive technology as easier to use, and more useful.

Zarmpou *et al.* (2012) explain that innovativeness may assist in the adoption of devices such as mobile phones. The literature indicates that more individual exposure to new technology entails a greater predisposition to shop (Dholakia & Uusitalo, 2002). In other words, more exposure to mobile devices and their use may lead to a greater predisposition to shop with mobile devices, or in the m-commerce context, a favourable attitude towards m-shopping.

It has been found that satisfaction with self-service technology, such as Internet banking and electronic fund transfers (EFTs), reinforces the continual use of such technology (Chen, Chen & Chen, 2009). Individuals who are more innovative may be able to sufficiently complete these tasks on their own and hold positive dispositions and attitudes towards the technology based on their own ability to use new technology, and ultimately viewing the experience as satisfactory. Similarly, consumers that are more inclined to use new information technology such as mobile devices, are more likely to adopt a greater subjective understanding, and therefore, be more positively disposed towards buying by using that technology as they are more comfortable and capable with it (San-Martín & López-Catalán, 2013). Individuals who are more inclined towards the use of technologies may feel a greater urge to purchase via these channels, since internal variables (innovativeness) are more likely to push them towards buying (Dawson & Kim, 2009).

Lu (2014) explains that the proximate influence on an individual's cognitive interpretation of a target object (such as mobile devices or other technology) is related to factors directly linked to that individual (such as innovativeness). Lu (2014) further claims that individuals with higher levels of innovativeness are expected to adopt technology at an earlier stage than those that are not innovative. The implications of

innovativeness allow researchers to better understand the adoption of innovation, as it captures an individual's natural tendency to try new technology in multiple acceptance domains. Previous research conducted on m-commerce identified innovation as a primary determinant of adoption intentions (Aldás-Manzano *et al.*, 2009; Zampou *et al.*, 2012; Zhao, Zhang & Chau, 2012). Thus:

H8: Innovativeness has a positive relationship with a consumer's continuance of m-shopping

4.8 SUMMARY AND IMPLICATIONS OF THIS CHAPTER FOR THE STUDY

Chapter 4 provided an in-depth discussion of the constructs perceived usefulness, perceived ease of use, confirmation, subjective norm, self-efficacy and innovativeness, as well as the way in which these constructs interact with each other. The interactions between these constructs highlighted the importance of the significant positive relationships with each other.

The next chapter considers the outcomes of the m-shopping experience, which include satisfaction, value, trust and the continuance of m-shopping. Chapter 5 also provides an in-depth analysis of each of the outcome constructs in an attempt to better understand them, and to make further inferences pertaining to their relationships with each other, and the antecedents of m-shopping.

CHAPTER 5

THE OUTCOMES OF M-SHOPPING

5.1 INTRODUCTION

This chapter examines the following outcomes of m-shopping: customer satisfaction, value, trust and the continuance of m-shopping. The aim of this chapter is to provide a better understanding of each outcome, and to properly delineate the relationships among themselves and the antecedents in the conceptual model.

5.2 CUSTOMER SATISFACTION

Various frameworks and models have been developed to explain customer satisfaction. In general, customer satisfaction is a relative concept which is judged in relation to a standard, whereas some judge customer satisfaction in relation to values and desires. Other approaches standardise customer satisfaction in terms of predictive expectations (Yüksel & Yüksel, 2001).

Customer satisfaction is at the centre of a chain of relationships, extending from the antecedents of customer satisfaction (perceived quality, perceived value and customer expectations) to the consequences of customer satisfaction (complaints and loyalty). Perceived quality consists of both perceived product quality and perceived service quality. Perceived quality results from product performance (Terblanche, 2006). Customer expectations considers a customer's prior consumption experience with a firm's products or services as well as marketing communication and word-of-mouth information (Terblanche, 2006). Customer satisfaction has been credited with several beneficial outcomes such as loyalty, usage behaviour, positive word-of-mouth, reduced cost of future transactions and reduced costs related to warranties (Terblanche & Boshoff, 2010). The two positive outcomes studied in this research are customer satisfaction and m-shopping continuance, where customer satisfaction means cumulative satisfaction which refers to all the experiences the customer has had (Johnson & Fornell, 1991) when purchasing goods and services with a mobile device. Cumulative customer satisfaction is preferred instead of a transaction-specific viewpoint as cumulative satisfaction is a better predictor of a customer's future behaviour (Johnson, Gustafsson, Andreassen, Lervik & Cha, 2001). Customer

satisfaction is thus formed over a period of several purchases. Customer satisfaction has been confirmed to be a more robust predictor when it is based on emotion (from subsequent several experiences) rather than cognitive measures when assessing future behavioural intentions (Martin, O'Neill, Hubbard & Palmer, 2008).

Customer satisfaction can be constructed by means of expectations, performance, satisfaction, disconfirmation and perceived quality of the service (Churchill & Suprenant, 1982; Bolton & Drew, 1991; Babakus & Boller, 1992). Customer satisfaction arises from the customer and provider of the product. They both have a role to play in the final disconfirmation with the product. Where the provider falls short in their state of fulfilment, there will be a negative disconfirmation. Where the provider exceeds themselves in their state of fulfilment there will be a positive disconfirmation. The highest point of customer satisfaction may be classified as customer delight (Oliver, Rust & Varki, 1997). The disconfirmation arises from the discrepancy in expectations and performance (Howard & Sheth, 1969). Additionally, the perceived quality of a service contributes to how much satisfaction a customer can derive from that service (Bolton & Drew, 1991). Furthermore, the increase in noticeable quality (tangibles) allows for the opportunity to better meet customer expectations (Parasuraman *et al.*, 1985). The disconfirmation paradigm will be discussed in greater detail in the following sections of this Chapter.

5.2.1 The disconfirmation paradigm

The concept 'customer satisfaction' consists of three constructs: state of fulfilment, customer judgement, and customer reaction (Oliver *et al.*, 1997). The state of fulfilment refers to the extent to which the provider of the product completes the job as expected. The customer's judgement is derived from the state of fulfilment. Customer judgement also includes preconceived expectations. The state of fulfilment and customer judgement lead to customer reaction, which can either be positive or negative. The reaction of the customer determines the subsequent satisfaction of the product. The disconfirmation paradigm takes the abovementioned three constructs into account as a formal model from which customer satisfaction may be determined (Churchill, 1979).

The disconfirmation paradigm has been used extensively in examining customer satisfaction/dissatisfaction (Patterson & Johnson, 1993), while it can also be used to measure customer satisfaction. The disconfirmation paradigm comprises three

possible outcomes, where four underlying constructs are prevalent: expectations, performance, disconfirmation and satisfaction (Churchill & Suprenant, 1982). Expectations are the preconceived assumptions of the end product. Services are produced during the service encounter; therefore service firms need to be particularly sensitive to customer needs and expectations (Boshoff, 1999). Performance is the extent to which the producer delivers the product. The producer's performance determines the extent to which the customer may derive satisfaction. Preconceived expectations, which may be formed from extraneous variables (such as the environment and previous experiences) on the customer's part, also play a role in the level of satisfaction. For example, if the customer notes a cluttered online platform, poorly designed interface and deficient transaction facilities on the website, the experience may be deemed to be low in satisfaction.

5.2.2 The Dissonance Theory

The Dissonance Theory is similar to the disconfirmation paradigm, in that it consists of a customer recognising a product that is low in value, which causes cognitive dissonance, and in turn creates an onset of disparity in the customer (Cardozzo, 1965). Disparity exists when preconceived expectations of the customer are not met, which subsequently results in the creation of dissonance.

Thus, dissonance is explained by the existence of disparity in a customer which arises from a prior (preconceived) expectation level, where post-exposure to the product does not meet the expectation (Yi, 1990). The outcome results in cognitive dissonance, which changes the customer's perception of the product. Cognitive dissonance may cause irrational or emotional justification in the consumption of a product, especially if the product was expensive. A consumer who paid more for a product with a resulting low expectation post-exposure might reduce his or her dissonance by saying the product isn't as bad as it actually is. The consequence of dissonance is that it may cause an inaccurate measurement in the customer's level of satisfaction.

5.2.3 The Discrepancy Theory

Disconfirmation occurs when there are discrepancies present between prior expectations and performance. Howard and Sheth (1969) define the Discrepancy

Theory by stating that satisfaction is a function of the degree of congruency between aspirations and the perceived reality of experiences. Disconfirmation can arise both negatively and positively. The three classifications of expectations can be explained as follows: firstly, confirmation when a product performs as expected, secondly, negative disconfirmation when a product underperforms and does not meet expectations, and lastly positive disconfirmation, when a product performs better than expected, and therefore exceeds expectations (Churchill & Suprenant, 1982).

Customer delight may portray a more clear groundwork of the Discrepancy Theory. Customer delight results when customer expectations are exceeded, or otherwise, the utmost extreme of positive disconfirmation occurs as defined by Churchill and Suprenant (1982). Customer delight is seen as the extension of providing basic satisfaction (Oliver *et al.*, 1997). Customer delight is more than merely meeting expectations, in that expectations are surpassed, and therefore a discrepancy becomes apparent. As defined in a similar vein by Oliver *et al.* (1997), customer delight arises from a positive emotional state that generally has occurred from the expectations of the result being exceeded. An example of this can be seen as a basic customer-restaurant interaction. The customer is welcomed pleasantly, seated timely, their meal is brought faster than expected, the presentation is beyond what they originally thought it would be, and the meal tastes good. All of these motions combined create a positive discrepancy between expectations and performance, which creates customer delight, as the customer's expectations have been surpassed in every aspect.

5.2.4 Service quality

The quality of service proved to be an important contributing factor to customer satisfaction. To measure service quality the SERVQUAL model was developed. The SERVQUAL model contains five dimensions which measure perceived service quality or simply the perceptions of customers (Babakus & Boller, 1992). Customer perceptions are capable of forming, changing and influencing expectations from which a level of perceived customer satisfaction may be derived. Therefore, the perceptions concept is deemed relevant when customer satisfaction and its measurement are examined. Perceived quality reflects the opinion of the consumer regarding the given superiority or global excellence of a product or service (Zeithaml, Parasuraman &

Berry, 1985). Therefore, service quality can be defined as the gap between customer expectations and customer perceptions. A customer will only perceive the quality to be positive when the service provider has met or exceeded the customer's expectations (Robledo, 2001).

The five dimensions that form the SERVQUAL model are reliability, tangibles, responsiveness, assurance and empathy. The dimensions of SERVQUAL are measured with 22 Likert-type items which aim to determine consumers' expected levels of service for a particular industry. SERVQUAL aims to explain the gap in customer expectations and/or perceptions and performance (Babakus & Boller, 1992).

Service quality has become a primary component of contributing to final customer satisfaction. Bolton and Drew (1991) has shown how overall service quality can be predicted by customer satisfaction. Customer satisfaction and loyalty are secured by means of high-quality products and services providing value for money for the consumer (Robledo, 2001). Quality has been difficult to capture as a tangible component, and has often bypassed conventional definitions with the use of unidimensional self-report measures to capture the concept (Jacoby, 1978).

When purchasing goods there are tangible cues involved to allow for the assessment of quality, such as physical equipment, appearance, facilities, features, and the actual visibility of the product. However, with services the nature of these cues are dependent on other quality indicators. These quality indicators can vary from the environment surrounding the service, the additional tangible offerings of the service, to the personnel executing the service. The extent to which these quality indicators are met eventually constitute customer satisfaction (Zeithaml *et al.*, 1985). Much of the virtual world holds intangible service queues, where customers cannot physically interact with the product or service itself, as it is emulated on a screen on a website. As a result, intangible quality indicators may be of particular importance to this study.

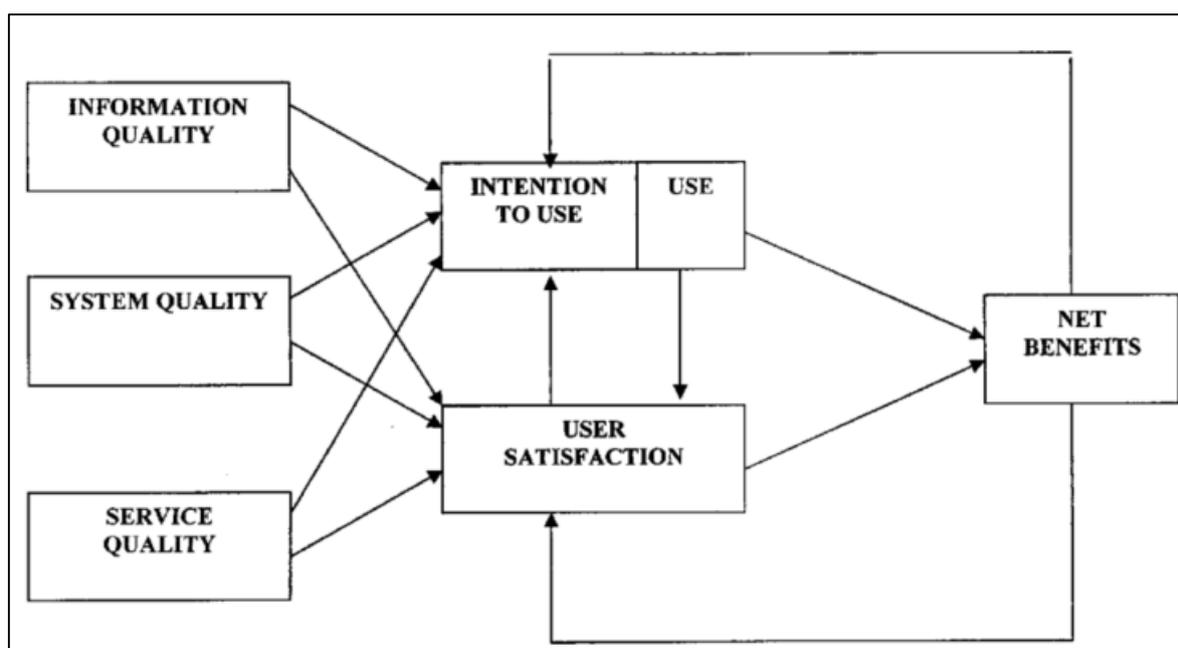
Zeithaml *et al.* (1985) compiled a service quality model in an exploratory investigation that involved executive and focus group interviews. The primary findings from the exploratory research, and constructed service quality model, were that the service quality model's gap five (the difference between expected service and experienced service) illustrated the mismatch between expected services and perceived services. The judgement of service quality depends on how consumers perceive the actual

service performance in the context of what they expected. The magnitude and direction of this gap has a direct effect on a customer's satisfaction. Perceived quality is the antecedent of satisfaction, where a higher quality leads to higher customer satisfaction (Henard, 2001).

5.2.5 Perceived quality

Perceived quality is vital in generating customer satisfaction (Terblanche, 2006). From an information technology perspective, the concept perceived quality has been used by researchers such as DeLone and McLean (1992) who created the Information System (IS) Success Model to explain perceived quality in technological systems and devices.

Figure 5.1
Information System (IS) Success Model



Source: DeLone and McLean (2003)

The IS Success Model is based on the communications research of Shannon and Weaver in 1949, and the Information Influence Theory of Mason in 1978 (DeLone & McLean, 2003). Figure 5.1 shows the updated IS Success Model that was revised later by DeLone and McLean (2003). The model includes information quality, system quality and service quality as the three dimensions which capture perceived quality.

Figure 5.1 illustrates that information system success can be measured by the system's quality, the quality of the information provided by a system (or the content provided), and the service quality. All three these factors are forerunners of a user's satisfaction towards an information system, and it also affects a user's behavioural intention towards re-using an information system. As one can see from Figure 5.1, satisfaction and intention to use interact with each other, and they have the potential to influence the degree to which each one is experienced. The intention to use, as well as user-satisfaction determines the sum of net benefits resulting from the use of the technology. Figure 5.1 also indicates that the net benefits have a positive feedback loop, in that more benefits are associated with satisfaction, and more benefits may encourage an increased use of technology.

5.2.6 Customer satisfaction in m-commerce

Satisfaction in the realm of m-commerce is most likely rooted in Oliver's (1980) Expectation-Confirmation Theory (ECT), which takes into account a consumer's perception of a retailer's performance, and as such reflects the success of the interaction between the customer and the firm. The Expectation-Confirmation Theory notes the gap between expectations and actual performance (Oliver, 1981). An example of the latter is a consumer's perception of a retailer's mobile platform where interactions and transactions may be concluded. Satisfaction that is operationalised in the m-commerce domain, considers the emotional responsiveness of a consumer, which is derived from m-commerce activities, such as the use of a particular system (e.g. a Smartphone or Tablet), the quality of information that the system provides, and the quality of service that the system provides (Wang & Liao, 2008). These satisfaction factors all concur with DeLone and McLean's (2003) IS Success Model.

Satisfaction is considered as a relational variable in m-commerce, where it refers to the way two or more things are connected (San-Martín *et al.*, 2013), in this case, the connection between a customer and the m-shopping experience. The connection may be positive or negative. Satisfaction thus takes into account the way m-shopping may fulfil a consumer's expectations, where it can be seen as a positive connection, or conversely, perform below a consumer's expectation, where it can be seen as a negative connection. Therefore, satisfaction may be key to commercial entities

operating within the m-commerce domain, as it holds the potential to form or break relations with consumers (San-Martín *et al.*, 2013).

Hernandez *et al.* (2011) note the importance of three interrelated variables: acceptance of the Internet, the frequency of use of the Internet, and satisfaction. The interrelation refers to the fact that the acceptance of the Internet as well as the satisfaction derived from using the Internet ultimately influence the use that is made of it. Thus, customer satisfaction has the potential to cause initial technological usage and continued usage, if satisfaction is experienced after a transaction or a search has been completed. Therefore, customer satisfaction can alter a consumer's attitude, their intention to use, and the intensity of their use (or frequency of use).

In a study by Ghalandari (2013) on online retailing attributes and their effects on satisfaction, it was found that shopping convenience has the most positive effects on a customer's satisfaction. Ghalandari (2013) also notes that product selection, price and customisation do not have a positive effect on satisfaction. Ghalandari (2013) concludes that the individual characteristics of a customer affect the level of satisfaction derived from the online shopping experience.

Lee, Jeon and Kim (2011) established that mobile Internet service quality is influenced by ubiquity, reachability and instant connectivity, which in turn, affect mobile Internet service satisfaction, of which satisfaction affects an individual's intention to continue the use of mobile platforms for transactions. Thus, the universal presence of mobile services, the ability to reach the website in question when needed, and the ability to connect instantly to web portals may facilitate satisfaction with respect to m-commerce.

Zhou (2011) found that customer satisfaction is significantly affected by perceived ease of use, perceived usefulness, the cost of use, and expectation confirmation. These dimensions may further explain a customer's post-adoption intentions, especially perceived usefulness which has the most significant direct effect on the intention to continued use. Tan, Lee and Hsu (2015) further postulate that the IS Continuance Theory states that satisfaction does indeed lead to continuance intention. Thus, the more a customer is satisfied with the m-shopping experience, the more likely it is that the customer will continue using m-shopping. The research of Agrebi and Jallais (2015) reinforced this likelihood, by explaining that when performance meets

expectations, the post-choice evaluation is a positive predisposition for mobile purchases.

5.3 VALUE

The most recent definition of marketing, formulated in 2013 by the American Marketing Association (AMA), states that the creation of value for customers is the essence of marketing. The American Marketing Association (2013) states that marketing is the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large. Therefore, the primary goal of marketing and corporate ventures is to create superior customer value, which in turn is a means of attaining a competitive edge over other firms. Thus, maximising customer value is desired by both firms and marketers. The importance of value is rooted in the fact that perceptions of value have a substantial effect on a customer's loyalty and intention to repurchase (Gummerus, 2013). Value is considered to be a pivotal determinant of shopping behaviour and product choice. A serious concern with value, however, is that it can be misunderstood because of its elusiveness as a concept, and therefore it needs to be properly defined. Researchers have often confused value with quality, where value and quality have not been well differentiated. Similar constructs such as perceived worth and utility are sometimes also mistaken for value (Zeithaml, 1988).

Zeithaml (1988) conceptualises value to be highly personal and idiosyncratic, and that value is expressed differently for each individual. It is further explained that value can be grouped into four consumer definitions, namely: value is low price; value is whatever I want; value is the quality I get for the price I pay; and value is what I get for what I have given. The diversity of these definitions may explain the difficulty in defining and measuring value as a construct. However, Zeithaml (1988) believes that these four consumer expressions may be captured in one overall definition of value, where value is the consumer's overall assessment of the utility of a product, based on the perceptions of what is received and what is given. Consumers cannot typically make objective assessments about the value of goods, but rather make decisions on the perceived value of goods (Zeithaml, 1988).

In addition to these definitions, Holbrook (1994) describes value as being the fundamental basis for all marketing activities. He argues that perceived value implies

an interaction between a subject (being a consumer) and an object (a product or service). Holbrook (1994) further explains that value is relative by virtue of its comparative, personal, and situational nature. This means that value is dynamic, circumstantial, and highly dependent on the individuals themselves who eventually determine the value.

5.3.1 Equity Theory

Sirdeshmukh, Singh and Sabol (2002) expand on the aforementioned theories by explaining that value can be regarded as the consumer's perception of the benefits minus the costs of maintaining an ongoing relationship with a service provider, where benefits include intrinsic and extrinsic utility provided by the relationship, and associated costs include both monetary and non-monetary sacrifices that are required to maintain the relationship. The Equity Theory considers both the consumer's input and outcome against that of the firm's input and outcome. Consumers believe that equity is present when their ratio of input to outcome levels are equal to that of the firm. Moreover, customers typically measure a company's input and outcome ratio against their competitors to assess which offering holds the highest value (Oliver & DeSarbo, 1988). Bolton and Drew (1991) further explain the Equity Theory by noting that there should be differences in the customer's assessment of value, given that each customer has to make different sacrifices (based on monetary and nonmonetary costs) as well as their individual tastes and characteristics which determine the end-value.

5.3.2 The goal and action theories that explain value

Sirdeshmukh *et al.* (2002) explain value by means of the goal and action theories, which pertain to relational exchange. Consumers are guided by the underlying goal they wish to obtain, of which multiple or conflicting goals may be present. Goals are organised in a hierarchical fashion, with super-ordinate goals at the highest level and subordinate goals at the lowest level, where consumers consciously regulate their actions to make sure that they obtain goals of the highest level, known as value maximisers. Therefore, value implies a trade-off between benefits and sacrifices, as well as an interaction between a customer and a product and/or service (Sánchez-Fernández & Iniesta-Bonillo, 2007).

Rokeach (1968) notes that values are personal beliefs that are held closely to the self, and that are inextricably linked to the goals that a person would want to achieve. This once again emphasises that value is rooted in goal-driven motives. Value can thus be seen as the implicit criteria that an individual employs in making a preference judgement. These criteria guide the behaviour of the individual because it reflects their ultimate desired end states (Flint, Woodruff & Gardial, 1997). Thus, value is both preferential and perceptual in nature.

Furthermore, value is normally utilitarian and/or hedonic in nature, and can be perceived as an amalgam of rational and emotional factors (Terblanche & Boshoff, 2010). The literature provides prime examples of hedonic and utilitarian values which will be discussed in the following sections.

5.3.3 Utilitarian value

Holbrook, Chestnut, Oliva and Greenleaf (1986) suggest that a shopping experience should be evaluated by considering all the intangible factors as well as the emotional costs and benefits included in the decision-making process, which ultimately determines the value of a product. Babin *et al.* (1994) also note that one must fully understand the hedonic and utilitarian aspects of a shopping experience as they are two important dimensions in the development of a scale that may measure a consumer's assessment of consumption experiences.

In addition, Babin *et al.* (1994) assert that utilitarian value can be observed as a consumption behaviour that is related to task-orientated activities, involving rational and functional decision-making. Thus, consumers who desire utilitarian value are concerned with whether their needs, or the activity in question, have been fully accomplished.

Utilitarian value is defined as the overall assessment of functional benefits and sacrifices, where utilitarian value is relevant for task-specific use of online shopping, such as considering a product, service, and price features before actually purchasing (Overby & Lee, 2006). Utilitarian value incorporates greater cognitive aspects of attitude, such as value for money, and judgements about convenience and time-saving in the online shopping process (Overby & Lee, 2006). For example, consumers may only use m-shopping for the convenience of finding and comparing items

instantaneously, as well as conserving limited resources such as their thought processes and time. Thus, marketers should attempt to provide convenient, safe, and pleasant online environments which are appropriate in addressing shoppers' functional goals (Bridges & Florsheim, 2008).

Utilitarian shopping motives serve as a strong theoretical basis for online shopping motivations among consumers (Hill, Beatty & Walsh, 2013). Examples of utilitarian motives refer to aspects such as shopping online to obtain good value for money, or a transaction that would have otherwise not been present without the use of a m-shopping portal. Consumers are aware of the power of the Internet, realising that it may enable them to derive greater utilitarian value by easier navigation processes, which may allow quicker selection and purchases of products and services. M-shopping may also facilitate easier comparison of products and prices among different shops. This can be important for consumers who have limited time and resources to search for products and services.

Similarly, Chiu *et al.* (2014) and Yang and Kim (2012) concur that utilitarian benefits may be viewed by customers by considering the following: product offerings, product information, monetary savings, and convenience. Product offerings include the variety of items on offer by both the retailer and its competitors. An example is the wide variety of books available at Amazon.com that also offers instant comparison features and stock listings. Product information refers to the quality and quantity of information on offer, such as live reviews and feedback on products on Amazon.com. Due to the highly competitive nature of online retailing, products tend to be less expensive, and thus monetary savings are more prominent (Chiu *et al.*, 2014). Convenience can be defined as the time and effort saved from using m-shopping and online portals. For example, instead of travelling to a store, the ease of accessing the store on a mobile platform at home may prove much more time efficient. Both utilitarian and hedonic scales have been empirically confirmed by studies on online shopping by To, Liao and Lin (2007) and O'Brien (2010).

5.3.4 Hedonic value

Babin *et al.* (1994) describe hedonic value as more subjective than its utilitarian counterpart. Moreover, hedonic value can be conceptualised as a type of value that

results from pleasure, fun, fantasy and activities that involve playfulness (Holbrook & Hirschman, 1982). Thus, hedonic shopping value involves the emotional and entertainment worthiness in the purchase process. A hedonic shopping experience may include increased arousal, perceived freedom, fantasy fulfilment and escapism. Consumers do not necessarily need to buy a product to enjoy it; they can simply experience the product to obtain hedonic value from it (Babin *et al.*, 1994). Therefore, hedonic value can be present with or without purchasing a product. This may be an important incentive for m-shoppers who may experience enjoyment by simply browsing on online retail stores.

Overby and Lee (2006) confirm that hedonic value has become an increasingly important factor in online shopping. This is so because the online shopping experience normally provides entertainment and out-of-routine experiences that may absorb consumers and let them experience a sense of flow. Flow can be described as a sense of involvement that is intrinsically enjoyable for consumers, and it instinctively stimulates online buying (Bridges & Florsheim, 2008).

The following section of this paragraph is based on the work of Arnold and Reynolds (2003) and Chiu *et al.* (2014), who identify six hedonic benefits, namely adventure, social, gratification, idea, role and value. Adventure is portrayed as shopping for stimulation, where individuals visit the website because of its atmospheric and entertainment value. Social means shopping with friends and family, where the ultimate goal is to bond. Gratification denotes the ultimate goal of reward, where consumers go online to obtain intrinsic or extrinsic gratification. Idea signifies keeping up-to-date with current innovations and obtaining information about new products. Role indicates the enjoyment someone obtains by shopping for others, essentially empowering themselves. Finally, value denotes searching for sales, discounts and shopping bargains.

a) Hedonic value as enjoyment

Holbrook and Hirschman (1982) stress the importance of experiential aspects of consumption which may enrich the purchasing process. They explain that the phenomenon of experiential shopping involves the multi-sensory aspects of enjoyment, the role of aesthetic products, the syntactic dimensions of communication, time-budgeting in the pursuit of pleasure, product-related fantasies and imagery,

feelings arising from consumption, and the role of play in providing enjoyment and fun. All these experiential aspects are primarily subjective states of consciousness and are important in the consumption process. Holbrook and Hirschman (1982) further explain that neglecting the experiential view may constrict scientific enquiry and limit our understanding of consumer behaviour. Cyr *et al.* (2006) affirm that the sensory experience of a website can determine whether a user stays and shops, where the online retailer should optimise aesthetic beauty as it holds the potential to bring about enjoyment.

The concept enjoyment has been studied from the perspective of various disciplines such as psychology, sociology, and the medical field. In psychology, enjoyment is approached as a hedonistic emotion that ranges from the cognitive to the physical and as motivation to engage in worldly activities (Goetz, Hall, Frenzel & Pekrun, 2006). From a medical perspective, enjoyment has been regarded as an experience which improves the quality of a person's life and brings about happiness (Specht, King, Brown & Foris, 2002). In sociology, enjoyment has been conceptualised as having a stabilising influence on societal structures (Sato, 2006).

However, from an e-commerce perspective, enjoyment is defined by Davis, Bagozzi and Warshaw (1992) as the extent to which the activity of using a computer or a mobile device is perceived to be enjoyable in its own right, and can be seen as a direct determinant of the intention to use. In a similar vein, Igbaria *et al.* (1996) describe enjoyment as the intrinsic drive to use new technology. Ur Rehman *et al.* (2013) view enjoyment as the degree of fun and enjoyment customers experience during the process of electronic shopping. Ingham *et al.* (2015) further conceptualise enjoyment as either a trait or state of playfulness. A trait of playfulness is described as a long-lasting characteristic of an individual, while a state of playfulness is a short-term characteristic. Ingham *et al.* (2015) add that enjoyment online focuses the user's attention, stimulates curiosity and flow, and ultimately procures enjoyment. A study by Moon and Kim (2001) used varying constructs such as perceived playfulness and perceived fun, but these constructs are similar to enjoyment because they capture the extent to which the use of a technological system is enjoyable in its own right.

Al-Maghrabi, Dennis and Vaux Halliday (2011) as well as Al-Maghrabi and Dennis (2011) found that enjoyment is a determinant of online shopping continuance. This

finding relates to earlier research by Davis *et al.* (1992), Pritchard and Howard (1999) and Venkatesh *et al.* (2002) who established that enjoyment is a strong determinant of behavioural intention. Lim (2015) notes that a higher entertainment value on a website may create a favourable attitude towards using that website more often. Jarvenpaa and Todd (1997) concur that when online shopping is enjoyable it has a significant positive effect on online shopping intentions.

Venkatesh (2000) discovered that the effect of enjoyment on ease of use becomes stronger as users gain more direct experience with the system. Thus, if users perceive a system to be easier to use, then the system may be perceived as more fun, and/or more engaging. This perception may facilitate feelings of being in control which in turn may generate enjoyment (Bruner & Kumar, 2005).

Individuals normally consume products based on hedonic gratification and utilitarian functions. Utilitarian products are tangible, functional and objective in nature, whereas hedonic products are pleasure producers, relate to the senses, and stimulate enjoyment (Childers *et al.*, 2001). Drawing from hedonic shopping motivation ideas, online shopping enjoyment refers to the level of intrinsic enjoyment derived from the online shopping experience, where enjoyment may be present regardless of purchasing or not. Perceived enjoyment is important in hedonic technology contexts since the mere intrinsic joy of using technology is a significant determinant of a user's perceptions and subsequent behaviour (Turel, Serenko & Giles, 2011). According to Lim (2015), enjoyment is the degree to which the online world is deemed as fun, entertaining to users, and fulfilling users' needs for escape, aesthetic enjoyment, emotional release and hedonistic pleasures. Feelings of freedom, fantasy, and enthusiasm are present in consumers who find enjoyment in browsing for clothes, downloading music, and shopping for themselves and others in online store settings (Hill *et al.*, 2013), which may ultimately derive satisfaction (Agrebi & Jallais, 2015).

Huang (2008) notes that when a website is capable of fulfilling the aforementioned pleasures of fun and fantasy, and enjoyment is ultimately obtained, then the consumer will perceive the online experience to be useful to him or her. However, Pikkarainen, Pikkarainen, Karjaluoto and Pahnila (2004) argue that enjoyment is different from usefulness as enjoyment can be seen as an inherent cue (Igbaria, Parasuraman & Baroudi, 1996), whereas usefulness is generated by external cues. Hong and Tam

(2006) conclude that enjoyment is one of the strongest factors in the explanation of perceived usefulness of mobile services.

5.3.5 Value creation

Porter's (1987) value chain is of particular interest when considering value creation from a firm's perspective. According to Porter (1987), the value chain posits that every firm's operations are a combination of discrete activities ranging from sales and accounting to allowing the firm to compete. The value chain consists of both primary activities as well as support activities. Primary activities in the value chain consist of the creation of the product or service, and the delivery and after-sales support systems, which include inbound logistics, outbound logistics, marketing and sales, and operations and services. Support activities include input and infrastructure that make it possible for primary activities to take place. These activities are: company infrastructure, human resources management, technology development and procurement. Both the primary and secondary activities in a company's value chain assist in the creation of value from the firm's side so that they can offer a product to consumers that allows the firm to establish a competitive advantage in the marketplace. The value chain depicts how the different firm activities may add to value outcomes (Gummerus, 2013).

Vargo and Lusch's (2004) service dominant logic conceptualises the nature of value in services, by suggesting that service firms can only make value propositions. These authors propose a movement away from the firm-driven view and explains value creation as an interaction between both the firm and the customer, thus value is co-created. The concept of value co-creation is based on the notion that services are co-produced by the consumer and producer. Service firms are thus value facilitators, where they make value propositions that may or may not be realised. A value proposition therefore transmutes value as phenomenological and experiential in nature (Vargo & Lusch, 2008).

Value co-creation is based on the belief that no firm is an island, and that businesses should instead focus on their interactions with consumers as opposed to focussing on their internal processes, as customer involvement contributes to enhanced productivity. In addition, co-creation of value is believed to benefit customers as well. (Gummerus, 2013).

5.3.6 Customer satisfaction and value

As suggested by Athanassopoulos (2000), customer satisfaction is highly associated with value and is based on the combination of service quality attributes and price. It is explained by Cronin, Brady and Hult (2000) that favourable service quality perceptions lead to improved satisfaction and value, and that in turn positive customer satisfaction directly influences value. Bolton and Drew (1991) explain that consumers form their perceptions of a service based on the assessment of particular dimensions, namely customers' disconfirmation experiences, expectations and perceived performance levels, which are all captured as customer satisfaction, and can result in the creation of value. Furthermore, Gale and Wood (1994) developed a four-stage strategy for managing customer value, where customer satisfaction is an antecedent to value. Gale and Wood (1994) explains that firms need to get close to the customer, understand their needs and wants, and be customer-driven before value can be achieved. Against this background, the following two hypotheses were put forward:

H9: Customer satisfaction has a positive relationship with utilitarian value

H10: Customer satisfaction has a positive relationship with hedonic value

5.3.7 Value in m-shopping

Kim, Chung and Lee (2015) describe perceived value in an online environment as the net benefits (perceived benefits minus perceived sacrifices) of transactions conducted online, and that a user's perception of value is a vital determinant of mobile services adoption. Yang, Liu, Li and Yu (2015) describe value as a consumer's comprehensive evaluation of the mobile purchase through m-payment, based on the potential benefits and sacrifices induced by using m-payment and making m-purchases. Moreover, they argue that there is a strong relationship with perceived value and the acceptance intention to m-commerce service adoption. Their argument is based on the Prospect Theory and the Perceived Value Theory, both confirming that it is reasonable to assume that perceived value significantly affects consumer's intentions to accept making mobile purchases through mobile payment systems.

Cao, Lu, Gupta and Yang (2015) developed a model of consumers' transfer behaviour from online desktop portals to mobile channels, where the results indicate that the

perceived differences in technology, namely the perceived differences in the actual user devices (for example a desktop computer or a mobile phone) and the communication network, have a significant positive impact on a user transferring from one device to the other. Similarly, the technical capabilities of the device (how it performs), as well as the device's network capabilities (whether it is enabled with a fast network) may determine whether a consumer chooses to use that device over other devices to purchase. The importance of this choice is that the perceived differences of different technology create perceived differences in value. Thus, different devices may generate different value sets for consumers, and may indicate the reason why they choose to use a specific device. Cao *et al.* (2015) argue that perceived value of different devices may be represented as differences in terms of a device's convenience, how personalised a device is, and the degree of risk by using a given device.

According to Lu, Geng and Wang (2015) experiences can form value, which is called experiential value. Experience is further explained by Lu *et al.* (2015) as a concept that is articulated by feeling, thinking, and doing and that the underlying emotional elements of these actions affect a customer's behaviour. Consequently, experience can be seen as the progression of economic value. Experiential value creation has transformed by means of the use of mobile technology as the latter can assist consumers in their day-to-day decision-making and purchasing procedures. Furthermore, Lu *et al.* (2015) explain how mobile technology has changed the traditional marketplace interaction, and replaced it with a market space transaction, noting the change in customer-company interaction owing to mobile devices. Experiential value has changed in that it is no longer in the physical world, but rather produced in the virtual world through mobile devices and communication networks. Lu *et al.* (2015) conclude that mobile devices change the way value is experienced. These changes in experiences through the mobile device include enhanced information accessibility, the creation of customised purchases, closer interactions with other actors in the virtual world, and interactions with service providers in the virtual world. Thus, it is important to understand how value in m-commerce and m-shopping has been transformed into a virtual landscape, where intangibility may be the determinant in the creation of value. However, intangibility should ultimately be realised in a tangible form for the customer to accept that the m-shopping experience is truly real.

Lu *et al.* (2015) furthermore identify different types of experiential value in the case of mobile service technology, namely convenience, information value, monetary value, communication, social value, and identity value. All these values contribute to forming the mobile experience which, in turn, creates value.

Liljander *et al.* (2013) claim that mobile services offer consumers greater value in the consumption experience through the freedom of time and place, which leads to being flexible in consumer purchases and decisions, portable, and the admittance of ongoing universal access to information from mobile devices. However, Liljander *et al.* (2013) add that the values that mobile services create as mentioned earlier, can be regarded as context-dependent, whereby mobile value is contingent on the degree to which a person believes receiving context-relevant information would enhance their purchase performance. Thus, value for a consumer may only develop by means of a mobile device if the mobile device can offer an anytime-anywhere portal for information and shopping processes. Providing an anytime-anywhere shopping experience may be highly dependent on the mobile device's network coverage, to be able to send and receive information, and value may thus only be present when consumers' mobile devices are connected regardless of time and place.

Liljander *et al.* (2013) argue that owing to a mobile device's nature, erratic performance occurs because of situational conditions (for example, no network coverage, no data available or slow feedback speed). As a result, mobile devices and mobile services are predominantly used as alternatives to other retail channels, or are sometimes used to complement other retail channels, when sufficient information is not available, rather than exclusively replacing other retail channels.

Liljander *et al.* (2013) also identify three important characteristics that consumers may perceive to be valuable when using mobile devices to transact. These are: the ability to store data, portability, and location-awareness. An example would be a consumer using their mobile device to order a meal online, where the service provider, such as a local restaurant, can track the user's location, and make the meal based on how close they are to the restaurant. This enables the consumer to avoid a queue and receive a fresh meal on arrival. Thus, the mobile service has assisted the consumer in receiving a service more quickly, and has ensured that the end-product is of a better quality, which may be perceived as more valuable by the consumer.

Similarly, Ström *et al.* (2014) have identified what factors determine value in m-commerce and why consumers use mobile devices. Firstly, content delivery is seen as valuable to an m-shopper, where searching and receiving information about retailers, different assortments of products, brands, prices, and specials is of importance on mobile platforms. The way in which this content is delivered is also deemed important, as merely receiving the content in a cluster on the landing page will not suffice as a valuable experience for m-shoppers. Ström *et al.* (2014) further state that transaction-based services are also important to consumers, when the order and payment process is simple, easy and efficient. Moreover, location-based services are also valuable in that it presents the opportunity to offer personalised and time-sensitive transactions that would have otherwise not been present in a traditional in-store environment. Ström *et al.* (2014) conclude that more valuable functions for m-shopping include data storage and memory support which can save lists, shopping-carts, favourites, bookmarks and create reminders for consumers as to what they need or want to buy. As one can see, the mobile device offers an array of features that may not be present in conventional desktop computers, and therefore the mobile device can be deemed valuable to the consumer.

5.4 TRUST

Blau (1964) defines trust as an individual confiding in the motives or intent of another. Luhmann (1979) asserts that it must be possible for the partner to abuse the trust for trust to exist, where there is a considerable interest in doing so. Morgan and Hunt (1994) define trust to exist when one party has confidence in an exchange partner's reliability and integrity. Reliability and integrity are associated with qualities such as consistency, honesty, competency, fairness, responsibility, helpfulness and benevolence. Furthermore, Rotter's (1967) classical view of trust refers to a generalised expectancy held by an individual that the word of another individual can be relied on. These definitions highlight the importance of confidence between parties that conduct business with one another.

Jarvenpaa, Tractinsky and Vitale (2000) define trust in terms of the effect that the size of a firm and reputation of the firm exerts on customers in online buying situations. The results indicate that the reputation of a firm has a substantial positive association with

trust, and that the size of a company has a smaller positive association that may depend on the type of firm involved.

The importance of trust in social, political and economic landscapes have increased, because of the link between rational choices (Kramer & Tyler, 1995). The rational perspective is that declining trust in the existence of long-term exchange relationships eventually leads to the increase in transaction costs, as individuals must continually engage in self-protective measures to account for the actions of others (Kramer & Tyler, 1995). Thus, from a rational perspective, trust can be defined as the calculation of the likelihood of future cooperation between separate entities (Williamson, 1993). As trust declines, consumers increasingly become unwilling to take risks, engage with the respective entities that aren't trusted (such as retailers), and may insist on costly protective measures if they do want to transact (such as legal mediation). This is also applicable to m-shopping, as the existence of trust may determine the extent to which costs may be incurred by both the firm and the consumer in a transaction.

5.4.1 Trust in online environments

Trust has been a significant factor in influencing consumers' behaviour with regard to technology, particularly in cases of ambiguous environments, such as e-commerce and m-commerce. It is strongly recommended that trust should be examined as a driving factor in the field of m-commerce, as m-commerce is exposed to greater possibility of insecurity than e-commerce and therefore the importance of trust is relatively higher in m-commerce (Zarmpou, *et al.*, 2012). Due to the inherent nature of mobile devices, trust influences the intention to adopt mobile services to make mobile purchases both directly and indirectly. This is so because of the many uncertainties and uncontrollable circumstances that are part of the online environment (Anthony & Mutalemwa, 2015). This point is perpetuated by Gefen, Karahanna and Straub (2003), who believe that trust is associated with heightened levels of intended use. Thus:

H11: Trust has a positive relationship with a consumer's continuance of m-shopping

Pavlou (2003) asserts that trust in e-commerce is the belief that allows consumers to willingly become vulnerable to online retailers after having considered the retailers' characteristics. These characteristics include goodwill, benevolence, credibility, honesty, reliability, and integrity. Trust has been operationalised in m-commerce

literature as privacy protection, permitting a user to choose how his or her personal information is used, or perceived credibility, showing that one entity believes that the other entity has the required expertise to perform a job effectively (Zarpou, *et al.*, 2012).

Min, Ji and Qu (2008) explains that in the e-commerce domain trust can be divided into two sub-entities: trust in technology and trust in service providers. Trust in technology relates to technical protocols, transaction standards, regulating policies, payment systems and security in mobile devices. However, according to Min *et al.* (2008), trust in service providers refers to the user's perception of a provider's competencies and knowledge, the user's perception that the service providers will adhere to a set of principles or rules of exchange, and the service provider is believed to intend doing good to the users beyond its own profit motive.

Expanding on the previous definitions of trust, Ur Rehman *et al.* (2013) argue that trust assumes the existence of a relationship between two parties and the expectations of each party's behaviour given their previous interactions. In the context of e-commerce, there is an expectation from customers regarding the behaviour of online firms, where customers expect firms to fulfil their obligations in the transaction process. According to Chircu, Davis and Kauffman (2000), customers' trust in e-commerce increase their perceptions of the ease of use of e-commerce.

It has been noted that trust is a crucial variable in the growth of m-commerce as consumers enter into a position where they may be exploited (Gu, Lee & Su, 2009; Davis, Sajtos & Chaudhri, 2011). In a m-shopping context there are no tangible indicators of product quality, meaning that the purchase process is subject to greater risk and more dependent on the consumers' trust in the buying process (Li & Yeh, 2010). It can thus be assumed that it is important to provide a m-shopping experience that provides trust and allow clientèle to overcome feelings of risk (San-Martín & López-Catalán, 2013). San-Martín and López-Catalán (2013) also note that trust is derived from both consumer and retailer – where shopper characteristics as well as vendor characteristics are at interplay. There is a close relationship between trust and satisfaction, and m-service literature suggests that satisfaction is the consequence of trust (San-Martín & López-Catalán, 2013).

Trust can be measured in respect of the retailer, the service provider, or the website, where feelings of confidence and security are assessed about online transactions. It can thus be confirmed that trust is related to an entity (Ingham *et al.*, 2015).

a) Trust as privacy concerns

Trust in online marketing considers privacy concerns of consumers, which comprise the unauthorised collection, disclosure, or use of a consumer's personal information (Wang, Lee & Wang, 1998). The aforementioned refers to the selling, soliciting, and leveraging of consumers' information without their consent or knowledge to third parties who could potentially misuse it. Consumers have become cautious with disseminating information on websites, where the protection of their personal data is important to them, so as to avoid spam mail, junk mail and identity theft (Luo, 2002).

Countries such as the US have put procedures in place to ensure the protection of online users, where organisations such as the Federal Trade Commission (FTC) and the Department of Commerce (DOC) require that firms report the information that they collect from their customers, as well as inform their customers how they plan to use that information (Luo, 2002). Moreover, the business industry has implemented online seal programs which assist online consumers in identifying trustworthy websites. These are said to assist in building consumer confidence. The online seal programs include TRUSTe, MasterCard, Visa, and BBBOnline, where businesses who adhere to a certain set of principles are allowed to use these seals (Luo, 2002).

Luo (2002) reports that privacy is a major issue and barrier in using online domains to conduct transactions and to use the Internet as a marketing tool. Thus, privacy concerns have the potential to negatively affect the purchase intentions of consumers and their willingness to use the Internet as a buying tool. A study conducted by Korgaonkar and Wolin (1999) illustrated the aforementioned, where consumers indicated that if their privacy were compromised it would deter them from transacting on the Internet. Thus, privacy concerns are of importance to the consumer when using online shopping mediums.

Luo (2002) observes that since consumers are highly concerned with their private information and its negative impact on e-commerce, firms should build trust, where building customer trust should be done by using the core components of the Social

Exchange Theory (SET). This theory was discussed in Chapter 3, and should be considered when developing relationships with consumers and diffusing concerns about privacy. Campbell (1997) notes that developing a relationship that allows consumers to participate in the creation of goods and services may diminish privacy concerns by consumers' desires to participate. Thus, inclusion may generate trust and break the barriers of privacy concerns.

b) Trust as security

Miyazaki and Fernandez (2001) conducted a study on internet users and found that 37 per cent (269 respondents) of their sample regarded their biggest fear as security when shopping online. In the aforementioned study, security in online shopping was defined as the threat of third-party fraudulent behaviour that could potentially compromise sensitive information. Miyazaki and Fernandez (2001) further explain that consumers generally have an obscured perception of the security that is already in place in online shopping environments, and that consumers perceive the security protocols to be worse than what they actually are. Thus, consumers devalue a firm's and their own security, and in turn, become averse to conduct transactions online. Miyazaki and Fernandez (2001) conclude that if customers were more aware of the security that is already in place, they would feel safer, and be more willing to transact.

Grabner-Kraeuter (2002) conceptualises security in the domain of system-dependent uncertainty. System-dependent uncertainty comprises events that are beyond the direct influence of the actors and can be characterised as exogenous or environmental uncertainty. This exogenous uncertainty relates to the potential technological sources of error, such as security gaps. It is added that security modulates data exchange, where cryptographic protocols are used to ensure the safety of the data interaction between the consumer and retailer. Grabner-Kraeuter (2002) observe that technical safety gaps can emerge in the e-commerce system (which includes the consumers and the retailers' networks, and any possible intermediaries facilitating the connection), where the consumer can only control security in his own system but not in the systems of the other actors in the transaction. Thus, consumers are left feeling vulnerable, and security can only extend as far as their own connection in a possible multiple connection interaction. This may drive consumers away from online buying,

and thus security should be an important consideration in e-commerce and m-commerce portals.

5.4.2 Value and trust

Value and trust are considered cornerstones of long-term relationships (Karjaluoto, Jayawardhena, Leppäniemi & Pihlström, 2012). Karjaluoto *et al.* (2012) conducted a study on the wireless telecommunications industry, specifically mobile devices, focussing on the relationship between value and trust in this domain. Karjaluoto *et al.* (2012) confirm that trust is a key and central factor during the exchange of goods and/or services, after considering previously established antecedents such as value. Thus, value has the potential to create trust in an online context. Furthermore, it is postulated by Cazier, Shao and Louis (2006) that shared values determine social trust in institutions and people, and that individuals who hold similar values have greater trust in third parties. Cazier *et al.* (2006) add that value congruence creates trust, and value conflict destroys trust. Given this background, the following hypotheses were formulated:

H12: Utilitarian value has a positive relationship with a consumer's trust

H13: Hedonic value has a positive relationship with a consumer's trust

5.5 CONTINUANCE OF M-SHOPPING

The following section includes a discussion of the TPB, the TRA and WebQual to gain a deeper understanding as to what would motivate consumers to re-use mobile devices and mobile shopping. A consumer's continuance stems from their behavioural intention, which in effect moulds their actual behaviour, where behaviour can be seen as the intention to continue using (Ajzen, 1991). Finally, this section considers a consumer's continuance of the use of information technology.

5.5.1 The Theory of Reasoned Action (TRA)

The Theory of Reasoned Action (TRA) has received considerable attention in the field of consumer behaviour as it explains why consumer's behaviour changes when consumers use information technology (Rannenbergh *et al.*, 2009). The TRA is also

adequate in explaining consumers' behavioural intentions, which can in turn assist in the understanding of the continuance of m-shopping.

As defined by the TRA, Davis (1989) suggest that within TAM a consumer's attitude towards using a technological system is similar to the attitude towards a specific behaviour. Moreover, the TRA determines a consumer's attitude towards a behaviour based on an expectancy-value model of beliefs (Davis, 1993; Davis, 1989). Ultimately, the expectancy-value model specifies that behaviour is a function of an individual's expected beliefs as well as the value associated with the overall goal towards which these expectations are aimed at (Harrell & Bennett, 1974). Therefore, value may be a potential driver of the individual's behavioural intention, which in turn may affect their behaviour, such as the continued use of mobile devices for m-shopping.

5.5.2 The Theory of Planned Behaviour (TPB)

The Theory of Planned Behaviour (TPB) is an adequate model to use when examining behavioural intentions such as the continued use of information technology. The TPB is also a widely recognised model in the social psychology discipline and firmly supported in information technology applications (So & Bolloju, 2005).

To practically apply Ajzen's (1991) TPB towards the understanding of the continuance of m-shopping, one should reconsider all the constructs in Figure 3.2, but in terms of a m-shopping context. A consumer's attitude towards m-shopping would be a favourable evaluation of m-shopping after having m-shopped, and where the consumer's beliefs about the consequences of m-shopping are positive. If this same consumer is socially pressured by either friends or family to re-engage in m-shopping, then it will be more likely that this consumer will intend to continue using the m-shopping channel. If the consumer perceived themselves to be in control, and found the m-shopping experience easy, then it would further strengthen the inclination towards the continuance of m-shopping. Therefore, attitude, subjective norm and behavioural control may all facilitate the continuance of m-shopping.

5.5.3 The Technology Acceptance Model and continuance of m-shopping (TAM)

Davis (1989) believes that perceived ease of use and perceived usefulness are the two most important constructs that explain user-acceptance and usage of information

technology. Van der Heijden, Verhagen and Creemers (2001) propose that perceived ease of use can be viewed as an antecedent of attitude towards online purchasing. Moreover, it has been found by Agrebi and Jallais (2015) and Zhou (2013) that perceived usefulness affects the continuance of m-shopping.

5.5.4 WebQual

Loiacono, Chen and Goodhue (2002) explain how high-quality websites influence online consumers' continued use of a website. A model was developed by Loiacono in 2000 called WebQual, which 12 dimensions determine website quality from a consumer's perspective. WebQual was developed based on the TRA, the TAM and marketing literature. Table 5.1 illustrates the 12 dimensions, providing a description of each one. Each of these 12 dimensions represents a critical aspect of website quality that should be considered when developing a website that is effective to use, and that could motivate customers to continue using the website. Three of the four constructs identified in the WebQual model have also been identified in the current study: ease of use, usefulness, and entertainment (entertainment being similar to hedonic value). The WebQual model is a useful instrument for assessing the usability, information, and service-interaction quality of Internet websites, particularly those offering e-commerce facilities.

Table 5.1
WebQual

Initial higher level category	Dimension	Description
Ease of use	Ease of understanding	Easy to read and understand
	Intuitive operation	Easy to operate and navigate
Usefulness	Information fit-to-task	The information provided meets task needs and improves performance
	Tailored communication	Tailored communication between consumers and the firm
	Trust	Secure communication and observance of information privacy
	Response time	Time to obtain a response after a request or an interaction with a website
Entertainment	Visual appeal	The aesthetics of a website
	Innovativeness	The creativity and uniqueness of website design
	Emotional appeal	The emotional effect of using the website and the intensity of involvement
Complementary relationship	Online completeness	Allowing all or most necessary transactions to be completed online
	Relative advantage	Equivalent or better than other means of interacting with the company

	Consistent image	The website image is compatible with the image projected by the firm through other media
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Source: Loiacono *et al.* (2002)

5.5.5 The continuance of use of information technology

Li, Duan, Fu and Alford (2012) studied the Information System Success Model, the TAM and the concept of self-efficacy to gain more insight into online learners' intentions to continue using a system. They argue that continued use of a system is a strong indicator of a system's success, therefore, a better understanding of the continued use of a system could help researchers to clarify the efficacy of a system and the role it plays in consumers' lives. This understanding may also assist researchers and developers to identify what factors to focus on, and what to disregard in the development process. The results from Li, Duan, Fu and Alford's (2012) study confirm that service quality, perceived usefulness, perceived ease of use, and self-efficacy all have a direct effect on users' behavioural intentions to continue using a system. Moreover, it was found that self-efficacy affects the perceived ease of use of a system, which positively influences perceived usefulness.

In their research, Lin and Lu (2000) found that the intention to use a website is primarily concerned with the following: a well-designed website, a website's response time is important, and the content needs to be informative and timely. Furthermore, rapid feedback needs to be present, and unnecessary pictorial data should be minimised, as it may jeopardise loading times.

Tseng (2013) conducted a study with regard to customers' intention to continue using mobile services, based on factors of service quality, product function, and product price. The findings suggest that when the concepts of service quality, product function and product price of mobile service providers are taken into account, the number of customers that continue to use mobile devices is higher than that of those who are unwilling to re-use mobile devices. Thus, when customers are aware of the quality of a mobile service, the function of the mobile service, and an explicit price of that service is demonstrated, customers are more willing to continue using the service as they are aware of the costs relative to the use. This could imply that continuance of m-shopping

may be dependent on the extent to which consumers are aware of the costs of m-shopping.

Agrebi and Jallais (2015) have found that the ease of use of Smartphones does not have a significant impact on the intention to complete a mobile purchase. Furthermore, they found that the positive impact of perceived enjoyment on the intention to re-use a Smartphone to make purchases is only significant among m-shoppers. Agrebi and Jallais (2015) also conclude that m-shoppers, on the other hand, perceive usefulness as the only determinant in explaining their continuance of using a Smartphone.

Charlton (2011) asserts that activities such as price checking, product comparison, product information gathering, and reading user reviews are all fundamental considerations in the consumer's intention to make use of a mobile phone and m-shopping. Lai, Debbarma and Ulhas (2012) studied consumer switching behavior towards m-shopping and found that alternative attractiveness, peer influence, inconvenience, switching cost, trust, and security all influence switching intention towards m-shopping. Zhou (2013) point out that perceived usefulness, trust and flow affect a consumer's intention to continue using m-shopping.

5.6 SUMMARY AND IMPLICATIONS OF THIS CHAPTER FOR THE STUDY

In this chapter the outcomes of the m-shopping experience were discussed. Customer satisfaction was examined by means of the disconfirmation paradigm, the dissonance theory and discrepancy theory. Furthermore, service quality and perceived quality were identified as important dimensions of customer satisfaction. The IS Success Model showed that perceived quality stimulates both customer satisfaction and the intention to use a technology. The Expectation-Confirmation Theory (ECT) demonstrated how customer satisfaction is rooted in the realm of m-commerce.

Value can be created by the firm, or conversely co-created by both producer and consumer in an effort to derive products that are closer to market demand. Value can be hedonic or utilitarian in nature, where it can either be playful, fun and fantasy-driven, or task-orientated and functional. Trust captures the importance of honesty and integrity in transactions between firms and consumers. Trust also highlights the importance of a consumer's beliefs about their own information, and what the firm would do with that information. Trust can be conceptualised within two very important

domains, one of privacy concerns, and the other of security concerns. Privacy concerns consider consumers' desire to disseminate as little information as possible in fear of third party misuse of their information. Security concerns refer to the technical aspects of the online transaction process, where consumers cannot be certain whether they, or the retailer, are sufficiently protected against third party threats such as theft and/or fraud.

The chapter also discussed the continuance of m-shopping by explaining the relevant theories and models such as the TRA, the TPB, the TAM and more recently, WebQual. The underlying reasoning of the TRA and the TPB is that an individual's decision of continuing to use something is rooted in their attitude, subjective norm and perceived control, which affect their intention, and where intention, in turn, affects their behavioural decisions. The continued use of technology is conceptualised by the TAM and the WebQual model as the extent to which an individual perceives technology to be useful to them, easy to understand and to manipulate, and have positive feedback motivations such as enjoyment during use, or functional advantages such as quick payment or information access. Ultimately, the decision to continue using mobile devices may be rooted in the benefits that the mobile system offers to the user. These benefits would not have been available before using the technology.

Chapter 6 discusses the research methodology, which concerns how the primary research phase of this study was executed. Chapter 6 also explains the population, sampling method and sample size, the measuring instrument, and the data processing methods that were used.

CHAPTER 6

RESEARCH METHODOLOGY

6.1 INTRODUCTION

The purpose of this chapter is to explain the methodology that was followed in the study. The chapter explains the research design, the target population used in the study, sampling method, and sample size. The way in which the data was collected will be discussed and where justifications for decisions are provided. Succeeding this, the next section explains the procedures in the development of the constructs used in the conceptual model, scale development and pilot testing of the survey instrument. Finally, the chapter concludes with a discussion of the various data analysis techniques that were used.

The research methodology is dependent on research problems and objectives, and therefore it is deemed appropriate to reiterate the research problems and objectives.

The primary objective of this study was to investigate what influenced the customer to continue m-shopping based on the m-shopping experience, where the m-shopping experience consisted of the antecedents and outcomes of m-shopping.

The following secondary objectives were addressed in the study, namely to determine:

- What may cause customer satisfaction in m-shopping
- What may cause value in m-shopping
- What may cause trust in m-shopping
- What may cause the continuance of m-shopping
- The influence between the number of times a customer makes use of m-shopping and the continuance of m-shopping
- The influence between differences in demographics in m-shoppers and the continuance of m-shopping

The following hypotheses were postulated from the literature review:

H1: Perceived usefulness has a positive relationship with a customer's satisfaction of m-shopping

H2: Perceived ease of use has a positive relationship with a consumer's perceived usefulness

H3: Perceived ease of use has a positive relationship with a customer's satisfaction of m-shopping

H4: Confirmation has a positive relationship with a customer's satisfaction of m-shopping

H5: Subjective norm has a positive relationship with a consumer's continuance of m-shopping

H6: Self-efficacy has a positive relationship with a consumer's perceived ease of use of m-shopping

H7: Self-efficacy has a positive relationship with a consumer's perceived usefulness of m-shopping

H8: Innovativeness has a positive relationship with a consumer's continuance of m-shopping

H9: Customer satisfaction has a positive relationship with utilitarian value

H10: Customer satisfaction has a positive relationship with hedonic value

H11: Trust has a positive relationship with a consumer's continuance of m-shopping

H12: Utilitarian value has a positive relationship with a consumer's trust

H13: Hedonic value has a positive relationship with a consumer's trust

6.2 RESEARCH DESIGN

Research is undertaken to reduce uncertainty and to focus on decision-making. Three types of business research are found: exploratory research, descriptive research and causal research (Zikmund & Babin, 2010). Exploratory research is conducted to address a problem or situation that is ambiguous, and the researcher gathers knowledge to formulate conceptual distinctions or posit an explanatory relationship (Shields & Rangarajan, 2013). Exploratory research is not intended to provide conclusive evidence that determines a particular course of action, but is instead used to guide and refine subsequent research efforts (Zikmund & Babin, 2010). Descriptive

research describes the characteristics of a population or a phenomenon that is being studied (Shields & Rangarajan, 2013), which addresses the who, what, when, where, and how questions about the current economic and employment landscape (Zikmund & Babin, 2010). Causal research is research conducted with regard to cause-and-effect relationships, which determine causality. Moreover, the researcher observes the variation in the independent variable that is assumed to cause a change in the dependent variable (Brains, Willnat, Manheim & Rich, 2011).

Exploratory research was conducted in the preliminary stages of the current research effort to collect information and formulate ideas by undertaking a literature review. The literature review assisted the researcher in better understanding the domain of the study. The literature review also assisted in the construction of the conceptual model in this study as it supported the identification of the most significant antecedents and outcomes with regard to m-shopping. Moreover, a descriptive research design was used for this study for the following reasons: Firstly, the research problem was well-defined. Secondly, the hypotheses were formulated to assess the relationships between the dependent and independent variables and not causation, resulting in a causal research design to be inappropriate for this study. Dillon, Madden and Firtle (1993) explain that the research question requires the assessment of relationships between variables, which employs a descriptive research design.

The hypotheses were tested by means of statistics using structural equation modelling (SEM). The data that was collected to test the hypotheses were executed in a real-world environment with actual m-shoppers, thus classifying the research environment within field conditions.

Ex post facto designs are known as an 'after-the-fact' research design in which the investigation starts after the facts have occurred without interference from the researcher (Salkind, 2010). *Ex post facto* designs are made to explain a consequence based on antecedent conditions, to determine the influence of a variable on another variable, and to determine a claim using statistical hypotheses (Simon & Goes, 2013). An *ex post facto* design begins with groups that are already different in some respect, and searches in retrospect for factors that brought forth those differences (Cohen, Manion & Morrison, 2000). Thus, the present study is classified as an *ex post facto* design. The study is cross-sectional as it was carried out at a specific point in time.

The researcher addressed the subject by means of Internet communication, using self-administered and self-reported instruments. Thus, this study made use of an online questionnaire to collect data about the beliefs and attitudes of m-shoppers with regard to their m-shopping experience.

6.3 TARGET POPULATION

The target population refers to a group of elements containing information required by the researcher (Malhotra, 2004), and can be seen as any complete collection of units or individuals that possess a common trait (Zikmund & Babin, 2010). Similarly, Kumar *et al.* (2002) define the population of a study as all the objects that possess a common set of characteristics with respect to a marketing problem. The units of analysis are usually subsequent from the research question (Blumberg, Cooper & Schindler, 2008). Defining the target population starts with answering questions about crucial characteristics of the population (Zikmund and Babin, 2010).

The target population in the present study was classified as any individual who owned a mobile phone that could access the Internet, and who had purchased goods or services with that mobile phone on a mobile reference website. It is important to note that the present study excluded the use of Tablet devices, and the purchasing of goods and services using mobile applications on mobile phones. Thus, the target population only accounted for individuals who used mobile phones to buy items through mobile reference websites.

6.4 SAMPLING FRAME

A sample frame is defined as a list of elements that differentiate the sample group from the target population, and allows for a sample to be drawn accordingly (Zikmund and Babin, 2010). The sample frame was determined by a list of individuals that were procured through referral (Arnold & Reynolds, 2003; Brocato, Voorhees & Baker, 2012). The way in which referral was used to obtain a sample of respondents is explained in greater detail next.

6.5 SAMPLING METHOD

The sampling method includes the selection of probability or non-probability sampling (Blumberg *et al.*, 2008). Probability samples are selected on the basis that each unit

of the population has a known non-zero chance of being chosen, while non-probability samples are chosen on a subjective basis, and have an unknown non-zero chance of being selected (Blumberg *et al.*, 2008). Given that it was unknown how many recipients would respond to the online questionnaire along with the fact that the list that was acquired was not determined by probability, the researcher could not accurately determine a probable sample, and therefore a non-probability sampling method was used in the present study.

Non-probability samples consist of four different types, namely convenience, judgement, quota and snowball samples (Zikmund & Babin, 2010). For the purpose of this study, a convenience and judgement non-probability sample was used. Convenience samples involve selecting sampling units on the basis of where and when the study is being conducted (Dillon *et al.*, 1993), and is thus used on the basis of convenience. The selection of convenience sampling for this study was because of time and budget constraints. Judgement samples are hand-picked samples to purposefully address the stated research questions (Zikmund and Babin, 2010). Judgement sampling was used to assert judicious decisions with regard to how the online questionnaire was sent out, re-collected, and to most accurately determine those individuals who complied with the target population's requirements.

For the study, data was collected by recruiting respondents through referral (Arnold & Reynolds, 2003; Brocato, Voorhees & Baker, 2012), where individuals were asked to provide contact information of other potential respondents who qualified for the present study's target population and who would be willing to complete the questionnaire. Referral guidelines were given to the recruiters, where they were told to only select those individuals who are within the target population and to provide their name, email and/or phone number so that the researcher could contact them. The recruiters were instructed to approach people who consisted of a wide range of demographics to ensure that the study included a diverse sample of respondents. The sample needed to be truly representative of all m-shopper demographic types, which would allow for greater generalisability of the results produced by the study. The initial list of respondents was pre-screened by the researcher to ensure that the sample would include respondents that met the aforementioned criteria. After the screening was completed, the list was used and an email was sent to potential respondents. The

email included a small description of the study, and a link to an online questionnaire on SurveyMonkey. The questionnaire included a cover page which informed potential respondents about the study and why it was being conducted. The online questionnaire also included a qualifying question to seed out individuals who were not m-shoppers. The cover page and qualifying question can be seen in Annexure A.

Raw data was collected from the responses generated by the online questionnaire, and the data was then cleaned in Excel. The cleaning of the data included the removal of invalid responses which consisted of those individuals who did not qualify as m-shoppers, as well as responses with a variance below 0.7 (as recommended by Hair *et al.*, 2006). SPSS was used to conduct Cronbach's coefficient alpha and one-way ANOVA's (analysis of variance). LISREL 8.8 was used to conduct a confirmatory factor analysis (CFA) of the measurement model. LISREL 8.8 was also used to assess the composite reliability, convergent validity and discriminant validity of the measurement model. Following this was an analysis in LISREL 8.8 of the structural model. The steps in the structural modelling process for this study are discussed in depth in Paragraph 6.10.5 of this chapter.

6.6 SAMPLING SIZE

Determining an adequate sample size in quantitative research is ultimately a matter of judgement, as well as experience, in assessing the quality of the information collected against the uses of it (Sandelowski, 1995). Furthermore, a proper sample size selection improves the probability of detecting differences or associations in the research conducted (VanVoorhis & Morgan, 2001), thus drawing apart more explicit findings. It is therefore important to determine the sample size to ensure the external validity of the present study. Nunnally (1967) suggests that a good rule of thumb when conducting SEM analysis is that one should have at least ten times as many subjects as variables. More recent research conducted to determine the suggested sample size in SEM such as that of Wolf *et al.* (2013) stated that sample size requirements can range anywhere from 30 recipients (this being a simple CFA with four indicators and loadings of 0.80) up to 450 recipients for a mediation model. Other studies such as Sideridis *et al.* (2014) found that a sample size of 50-70, involving four to five variables, would be sufficient for a model that attempts to predict something as complex as an individual's brain connectivity. Today, Nunnally's (1967) rule of thumb still prevails as

adequate in application, as Wolf *et al.* (2013) and Sideridis *et al.* (2014) both measure structural models within the range of around 10 recipients per variable. The present study included 44 items or variables that needed to be tested in the conceptual model. Thus, a minimum of 440 respondents needed to be acquired to ensure accurate data processing.

This study had a total of 1 059 respondents. However, a large number of these responses were omitted based on disqualification from the survey, while other respondents did not fully complete the survey. The researcher could only use fully completed surveys for accuracy in result interpretation. Additionally, responses that held a low variance (below 0.7) were considered invalid and were removed, based on Hair *et al.*'s (2006) recommendation. After all the omissions were made, the present study acquired a sample size of 486 valid respondents, who completed the survey fully, and that held a variance of above 0.7. A sample size of 486 is larger than the minimum recommended number of 440 (Nunally, 1967; Wolf *et al.*, 2013; Sideridis *et al.*, 2014), and was thus regarded as a sufficient sample size to collect data that could yield valid conclusions.

6.7 DATA COLLECTION

Data was collected by means of an online survey. Online surveys are often employed in studies on Internet use in order to reach a population with Internet experience (Van Selm & Jankowski, 2006). As the present study involved individuals who used mobile devices to conduct transactions over the Internet, online surveys were deemed an appropriate communication tool to collect the data. Using the Internet for survey purposes may lead to higher response rates compared to paper-and-pencil surveys. Furthermore, surveys on the Internet are efficient as data collection is fast, and it has economic advantage because surveys are inexpensive to deploy (Van Selm & Jankowski, 2006). Evans and Mathur (2005) expand on this by listing more reasons why researchers should make use of online surveys: global reach, flexibility, convenience, ease of data entry and analysis, low administration cost, easy follow-up, controlled sampling, large sample sizes are easier to obtain, control of the order of recipients' answers, and finally the required completion of all questions.

The present study considered the use of the Internet to perform transactions using mobile devices, where the Technology Transfer Theory alluded to in Chapter 3

predicts that the use of similar technologies is highly likely where those technologies fulfil the same goal and/or objectives of other technologies. Thus, individuals who have used the Internet to conduct transactions are more likely to have also used mobile phones to conduct transactions. Therefore, the use of the Internet to distribute the questionnaire was deemed more likely to reach individuals who previously may have engaged in m-shopping as opposed to using traditional methods such as hand-and-foot questionnaire distribution. In addition, individuals who use m-shopping may preferably choose to answer a questionnaire online as this may be their preferred medium of choice given that they choose online shopping over traditional shopping methods.

SurveyMonkey was used for the creation and collection of data in this study. The reason for selecting SurveyMonkey was because the respondents had to respond to all questions, to omit blank answers from the questionnaire, and to consequently gain a higher rate of valid responses. Forced responses are especially useful when respondents miss a question and continue without noticing. Additionally, SurveyMonkey has a built-in IP (Internet Protocol) tracking system, which can track and save a respondent's IP address. Once a respondent had completed the survey, their IP address was saved in SurveyMonkey's database and they could not complete the survey again. This was a useful feature as it prevented a respondent from completing the questionnaire multiple times, ensuring that each response was unique. The online survey that was used in this study can be seen in Annexure A.

6.7.1 Considerations in the development of the online survey

This study had to delineate between the selection of mobile phones or Tablet devices, as well as the selection of mobile reference websites or mobile applications. If phones, Tablets, mobile reference websites and mobile applications were present in the study the data collected would not be confined to a specific purchase method when m-shopping.

Mobile phones were selected as the platform for the study as it has been in the market place for longer than Tablet devices (Meyers, 2011; Bort, 2013), meaning that mobile phones would be more readily available to consumers, and consumers would have had a longer potential period of time to interact with mobile phones than Tablet devices, and were thus more likely to have used mobile phones for online retail

purchases. More importantly, the Pew Researcher Center (2015) reports that 92 per cent of American consumers own a mobile phone, 68 per cent own a Smartphone, and 45 per cent own a Tablet device, which may infer that mobile phones are still the dominant device used to conduct transactions. Furthermore, with the present study, a decision was needed as to whether a mobile reference website or mobile application would be used for the assessment of m-shopping. M-shopping can occur on either one of these platforms, but only one type of device could be selected, therefore the data was related to a specific purchase method.

A focus group was held which consisted of ten technologically competent individuals who provided information that guided the researcher to make decisions about the study. It was discussed in the focus group that the use of a mobile reference website or a mobile application is dependent on the frequency of use, which delineates between an occasional buyer and a seasoned buyer. An occasional, one-time buyer would normally select a mobile reference website, as the purchase transaction with the online retailer will only occur once. However, when a consumer wants to buy from an online retailer multiple times, that consumer would preferably download the mobile application because they require multiple interactions, where a mobile application can facilitate an easier access point for multiple interactions. It was reported in the focus group that consumers do not want mobile applications on their mobile phones from online retailers that they only purchase from occasionally. Consumers also believe that mobile applications waste mobile storage space that could be used for other processes, and are thus cautious to download mobile applications without first knowing that the mobile application will truly provide value.

Another point of contention raised in the focus group was that of technology readiness, where it was noted that individuals who are more technologically advanced would more readily download mobile applications, whereas those individuals who are less technologically advanced would be wary of downloading mobile applications. The focus group also remarked that continents such as Europe and Northern America may have consumers who are more likely and susceptible to downloading mobile applications as they are more technologically advanced than other continents such as Africa, where consumers are generally not as technologically advanced and are less likely to engage with mobile applications. Moreover, mobile reference websites can be accessed regardless of having to download external software for mobile phones, as

mobile reference websites can be accessed through the already built-in mobile Internet browser. Given the aforementioned, it can be expected that mobile reference websites are platforms that have been more widely used on mobile devices to date. This is further supported by the fact that mobile reference websites have existed for a much longer period than mobile applications. Moreover, consumers cannot always be certain as to whether online retailers have mobile applications available for their transaction process, as not all online retailers have adopted these technologies as of yet, and thus consumers would preferably choose to access online retailers on a mobile reference website instead. Thus, when information on m-shoppers behaviour is needed, it is likely that mobile reference websites will offer more opportunities for data collection and analysis.

6.8 MEASUREMENT

Measurement can be defined as the assignment of numbers to objects or events, where a measuring instrument is used to measure a physical quantity (Pedhazur & Schmelkin, 2013). When using concepts as a form of measure they must possess three qualities. First, the concepts must be exhaustive and inclusive. Secondly, the state or levels chosen to represent a concept must be mutually exclusive. Lastly, the concepts precision should be of concern, where there should rather be more than fewer distinctions when feasible (Greenstein & Davis, 2012). To facilitate the collection of high-quality data, the researcher of the present study ensured that each of the eleven constructs in the conceptual model adhered to Greenstein & Davis' (2012) recommendations. More importantly, the concepts that were measured also included an appropriate measurement scale. The following section discusses the construct and scale development of the present study in more detail.

6.8.1 Construct development

Construct development intends to create more relevant and precise tools for measurement. The unavailability of sound data collection instruments constrains further development of knowledge in research streams and compromises the ability to accurately assess phenomena in practice (Lewis, Templeton & Byrd, 2005). Therefore it is important to make use of proper constructs and definitions to accurately measure phenomena.

Construct development methodology has originated from the work of Churchill (1979) and has been further refined by Lewis *et al.* (2005) and Shui, Hair, Bush and Ortinau (2009) in terms of information systems management. Construct development methodology firstly starts with specifying the domain of the construct which entails formulating a definition of the construct that delineates what is included in the definition and what is excluded (Churchill, 1979). Lewis *et al.* (2005) explain that the logical flow in this process moves from a premise which specifies the purpose and/or importance of the construct, to a conceptual definition which explains the construct in general or theoretical terms, to a list of dimensions which are the elements of the concept. The aforementioned deliverables have been identified in the literature review presented in Chapters 2 to 5. The next step in construct development is to generate items which capture the domain as specified (Churchill, 1979; Lewis *et al.*, 2005).

It must be noted that definitions as well as scales from other studies can be used to allow for a more reliable measurement (Hair *et al.*, 2006). In the present study, conceptual definitions were used from other studies concerning technology, m-shopping, m-commerce, and e-commerce so that appropriate definitions could be formulated. Moreover, the theories discussed in Chapter 3 help to explain the antecedents and outcomes of the m-shopping experience, and were also consulted as sources for the generation of potential items. The items that have been selected from previous studies have been adapted so that they are relevant to this study. Table 6.1 displays each construct as well as the definition used in the present study.

Table 6.1
Construct definitions

Construct	Definition
Confirmation	Users' perception of the congruence between the expectation of m-shopping use and its actual performance (Bhattacharjee, 2001a).
Continuance of m-shopping	A consumers' intention to continue using mobile phones to transact online (Bhattacharjee, 2001a).
Customer satisfaction	Satisfaction can be seen as an emotional response occurring post-purchase on mobile platforms (Agrebi & Jallais, 2015).
Hedonic value	Value that results from pleasure, fun, fantasy and activities that involve playfulness (Holbrook & Hirschman, 1982).
Innovativeness	An individual personality variable that reflects a favourable attitude toward the use of new technologies, and is an innate characteristic of that individual (Rogers, 2010).
Perceived ease of use	The degree to which a person believes that using m-shopping would be limited from effort (Davis <i>et al.</i> 1989; Zarpou <i>et al.</i> , 2012).
Perceived usefulness	The degree to which a person believes using mobile services would enhance his or her job performance (Zarpou <i>et al.</i> , 2012).

Self-efficacy	An individual's personal evaluation of their capability to use a system, which emphasises what an individual can achieve in the future regardless of what they have done in the past (Chen <i>et al.</i> , 2011).
Subjective norm	An individual's perception of whether people who are important to him or her think the behaviour should or should not be performed (Ajzen & Fishbein, 1980).
Trust	Trust in e-commerce is the belief that allows consumers to willingly become vulnerable to online retailers after having considered the retailers' characteristics, where it can be assumed that customers expect firms to fulfil their obligations in the transaction process (Pavlou, 2003).
Utilitarian value	Utilitarian value results from the completion of task-orientated activities and involves rational and functional decision-making (Babin <i>et al.</i> , 1994).

6.8.2 The measurement instrument

For the purposes of this study a structured questionnaire was developed and used as a measuring instrument. The measurement instrument consisted of four items per construct. There were 11 constructs present in the study, and thus 44 items were used to test all the constructs. The items were identified from previously developed scales in information systems and marketing literature, while others were formulated based on a construct's specified domain (the way in which it has been operationalised) in the literature. Additionally, the theories discussed in Chapter 3 were also considered when formulating the items. Table 6.2 illustrates each construct and its item code, the items, and the supporting sources from which the items originate.

Table 6.2
Measurement instrument

Construct	Code	Items	Sources
Perceived usefulness	PU1	M-shopping improves my efficiency to shop	Adapted from Hernández <i>et al.</i> (2012)
	PU2	M-shopping is useful because it saves me time	Based on Overby and Lee (2006)
	PU3	Price comparison is a useful feature of m-shopping	Based on Overby and Lee (2006); Charlton (2011)
	PU4	I think m-shopping is useful to purchase goods and services	Gao <i>et al.</i> (2012); Hernández <i>et al.</i> (2011); Also based on Davis (1989); Charlton (2011)
Perceived ease of use	PEOU1	I think m-shopping is easy	Adapted from Zampou <i>et al.</i> (2012)
	PEOU2	Finding my way on m-shopping websites is easy	Based on Tang <i>et al.</i> (2014)
	PEOU3	The payment process on m-shopping websites is easy	Based on Tang <i>et al.</i> (2014)

	PEOU4	Information provided to me on m-shopping websites greatly determines the ease of use	Adapted from Zampou <i>et al.</i> (2012); Gao <i>et al.</i> (2012)
Confirmation	CON1	My experience with m-shopping websites was what I expected	Adapted from Bhattacharjee (2001a)
	CON2	The product and service provided by m-shopping retailers met my expectations	Adapted from Kim, Ferrin and Rao (2009)
	CON3	Overall, most of my expectations when m-shopping were met	Adapted from Bhattacharjee (2001a)
	CON4	The expectations created by m-shopping websites were fulfilled	Adapted from Kim, Ferrin and Rao (2009)
Trust	TR1	I think my information is held confidential by all parties when m-shopping	Adapted from Zampou <i>et al.</i> (2012)
	TR2	When m-shopping I found that retailers are trustworthy	Adapted from Zampou <i>et al.</i> (2012)
	TR3	M-shopping retailers carry out the undertakings they give	Adapted from Zampou <i>et al.</i> (2012)
	TR4	I think m-shopping is secure	Adapted from Zampou <i>et al.</i> (2012)
Self-efficacy	SE1	When m-shopping I achieve what I set out to do	Based on Bandura (1977)
	SE2	I feel capable of buying products through m-shopping	Based on Chen <i>et al.</i> (2011)
	SE3	I feel in control when I am m-shopping	Based on Wu <i>et al.</i> (2007)
	SE4	I am a knowledgeable m-shopper	Based on Li <i>et al.</i> (2012)
Innovativeness	INV1	I was among the first of my family, friends and colleagues to try m-shopping	Adapted from Zampou <i>et al.</i> (2012); San-Martín and López-Catalán (2013)
	INV2	I am willing to take the risk of engaging with new or unfamiliar technologies	Based on Rogers (2010)
	INV3	I am eager to try new technologies	Adapted from Ratchford and Barnett (2012); Zampou <i>et al.</i> (2012)
	INV4	I can figure out m-shopping without the help of others	Adapted from Ratchford and Barnett (2012)
Subjective norm	SN1	Most people who are important to me think that I should use m-shopping	Adapted from Nysveen <i>et al.</i> (2005); Based on Fishbein and Ajzen (1980)
	SN2	The people in my life whose opinions I value would approve of my m-shopping	Based on Ajzen (1991)
	SN3	Most people who are important to me would think that my use of m-shopping is a good idea	Adapted from Al-Maghrabi and Dennis (2011); Based on Ajzen (1991)
	SN4	The people in my life whose opinions I value would approve of my m-shopping	Based on Ajzen (1991)
Customer satisfaction	CS1	Overall, I am satisfied with the m-shopping experience	Adapted from

			San-Martín & López-Catalán (2013)
	CS2	I am satisfied with the purchases that I have made when m-shopping	Based on Agrebi and Jallais (2015)
	CS3	I perceive m-shopping to be a quality experience	Based on Robledo (2001); DeLone and McLean (2003); Terblanche (2006)
	CS4	My evaluation of m-shopping is positive	Based on Oliver (1997)
Hedonic Value	HV1	The m-shopping experience is truly a joy	Adapted from Babin <i>et al.</i> (1994)
	HV2	Compared to the other things I could have done, the time spent m-shopping was truly enjoyable	Adapted from Babin <i>et al.</i> (1994)
	HV3	The m-shopping experience truly feels like an escape	Adapted from Babin <i>et al.</i> (1994)
	HV4	I enjoyed being engaged in exciting new products offered through m-shopping	Adapted from Babin <i>et al.</i> (1994)
Utilitarian Value	UV1	I accomplished just what I wanted to with m-shopping	Adapted from Babin <i>et al.</i> (1994)
	UV2	While m-shopping, I could buy what I really needed	Adapted from Babin <i>et al.</i> (1994)
	UV3	While m-shopping, I found all the item(s) I was looking for	Adapted from Babin <i>et al.</i> (1994)
	UV4	I found that m-shopping retailers offered good financial value	Adapted from Babin <i>et al.</i> (1994)
Continuance of m-shopping	CONT1	I intend to use m-shopping again in the near future	Adapted from Zampou <i>et al.</i> (2012); Hernández <i>et al.</i> (2012)
	CONT2	M-shopping will become a main source of my shopping habits in the near future	Adapted from Hernández <i>et al.</i> (2012)
	CONT3	I believe my interest in m-shopping will increase in the near future	Adapted from Zampou <i>et al.</i> (2012)
	CON4	I intend to use m-shopping as much as possible	Adapted from Zampou <i>et al.</i> (2012)

6.8.3 Scale development

A Likert scale can be defined as a measure of attitudes which is designed for respondents to rate how strongly they agree or disagree with carefully constructed statements, ranging from very positive to very negative attitudes about a subject (Zikmund & Babin, 2010). A Likert scale is an appropriate measurement tool to measure cognitive, affective and behavioural-based attitudes (Cooper and Schindler, 2006) such as beliefs about m-shopping. This scale was used in the present study as an appropriate measurement scale for responses, as the purpose was to gain an

understanding of m-shoppers' evaluative judgements which may have affected their final purchase decision.

For the variables identified in Table 6.2, a ten-point, multiple-item Likert scale was used, with options ranging from 1 (representing “strongly disagree”) to 10 (representing “strongly agree.”). Figure 6.1 illustrates the Likert scale used in this study.

Figure 6.1
Example of Likert scale

	Strongly Disagree	1	2	3	4	5	6	7	8	9	Strongly Agree
Statement	<input type="radio"/>										

Ordinal and nominal scales were used to collect the demographic data of respondents, which included age, gender, the number of times a respondent made a purchase with a mobile phone on a mobile reference website, the single largest amount a respondent spent on a single purchase whilst m-shopping, and a list of product categories that respondents could fill in how many times they had bought each item. It is important to note that items were scrambled in the final questionnaire to avoid order bias. The questionnaire can be seen in Annexure A and illustrates the Likert scale, as well as the ordinal and nominal scales for the collection of the demographic data.

6.9 PILOT TESTING

The purpose of pilot testing was to assess the measurement of properties of the items in the scale before the study was launched. Pilot testing of the questionnaire was carried out by consulting individuals involved in research in the field of m-commerce, e-commerce, and senior academics, to ensure face validity of the measuring instrument before using the questionnaire for data collection. Face validity is the subjective assessment of the correspondence between the individual items and the concept (Hair *et al.*, 2006). The pilot testing of the questionnaire allowed for the removal and adaption of ambiguous, erroneous and awkward-appearing questions so as to refine the measuring instrument to a more accurate and precise tool of measurement.

6.10 DATA ANALYSIS

The purpose of this section is to give an overview of the techniques that were used to analyse the data.

6.10.1 Frequency tables and cross-tabulation

Frequency refers to the number of observed values of a given variable (Colwell & Carter, 2012). A frequency distribution is a summary of the values of a variable based on the frequencies with which they occur, where the researcher is concerned with how the values of the variable are distributed across all the cases in the data. A simple frequency table displays the frequency distribution of one variable at a time, where the variables may be nominal, ordinal, interval or ratio (Colwell & Carter, 2012). To create a frequency table, the researcher lists the possible values the variable can have in one column, and then records the number of times (which is the frequency) that each value occurs in a corresponding column. However, cross-tabulation differs, as it refers to counting the number of cases that have joint characteristics of two or more variables, which included age, gender, experience, most expensive purchase made whilst m-shopping, the number of times an individual made a purchase whilst m-shopping, and the different types of products purchased.

6.10.2 One-way analysis of variance (ANOVA)

When the means of two groups are to be compared, a one-way analysis of variance (ANOVA) is the appropriate statistical tool to use (Zikmund & Babin, 2010). A one-way ANOVA involves only one independent variable, where a categorical independent variable and a continuous dependent variable are tested. An analysis of variance compares variances to make inferences about the means (Zikmund & Babin, 2010).

The ANOVA test assumes that the sample must be normally distributed, the samples must be independent, and that the variances of the population must be equal (Hair *et al.*, 2006). The Levene's test was conducted to assess the homogeneity of variances across the groups. If Levene's test produces an insignificant loading of $p > 0.05$, then it is said that the variances of the population are equal. If Levene's test produces a significant p -value of $p < =0.05$, then variances are not homogeneous and it is suggested by Field (2013) to conduct the Welch and Brown-Forsythe F-tests to assess whether the means differ significantly.

6.10.3 Confirmatory factor analysis (CFA)

Confirmatory factor analysis (CFA) is a method to assess the validity of measures, and is used for four main purposes: psychometric evaluation of measures, construct validation, testing method effects, and lastly testing measurement invariances (Harrington, 2008). A CFA was conducted on the constructs in the conceptual model to ensure their validity as measuring instruments in the m-shopping experience.

Measurement validity consists of three types: content, criterion and construct validity (Harrington, 2008). Construct validity refers to the degree of correspondence between constructs and their measures (Peter, 1981). With construct validity one should be able to measure a construct by using at least two, or preferably more, different methods (Churchill & Gilbert, 1979). Construct validity considers whether the theory supported by the findings provides the best available theoretical explanation of the results (Graziano & Raulin, 1993). When considering construct validity, one should have a solid understanding of the frequency and quality of the constructs of m-shopping, to ensure proper explanations and behaviour occurring from them. Construct validity can be assessed by means of convergent and discriminant validity.

6.10.4 Convergent validity

Convergent validity investigates the extent to which an instrument of the same construct correlates positively with other measures of the same construct (Hawkins & Tull, 1994), or rather a concept that should be related, is in fact related (Zikmund and Babin, 2010). Convergent validity is assessed by means of considering the factor loadings, variances, and construct reliability. It is recommended by Hair *et al.* (2006) that, to meet the criterion of convergent validity, factors should either be significant and load at 0.50 or higher, or factor loadings should be 0.70 or higher. The Average Variance Extracted (AVE) should be 0.5 or higher. The construct reliability was assessed by calculating the composite reliability of each construct in the measurement model. Hair *et al.* (2006) recommend that the composite reliability should be 0.7 or higher.

6.10.5 Discriminant validity

Discriminant validity should be considered in the development of a scale. Discriminant validity is the extent to which a variable such as 'A' discriminates from other variables such as 'B', 'C' and 'D' (Farrell, 2010). Thus, discriminant validity means that a variable is novel and does not replicate another variable (Churchill, 1979). The present study conducted discriminant validity tests to ensure that multicollinearity was not present between the constructs.

Discriminant validity can be assessed by comparing the Average Variance Extracted of each construct with the squared correlations of the constructs (Fornell & Larcker, 1981; Farrell, 2010), where the Average Variance Extracted for paired constructs must be higher than the squared correlations of the constructs. However, when squared correlations are greater than the Average Variance Extracted, it is recommended that a researcher conducts a Paired Construct Test. A Paired Construct Test is a test for discriminant validity where a constrained model is measured against an unconstrained model. The constrained model is set to a fixed correlation of 1.0, and the unconstrained model is freely estimated with the reduction of one degree of freedom. The two models are then measured against each other, where the unconstrained model should have a difference of at least 3.84 in its Chi-square compared to that of the constrained model. If all paired constructs have a difference greater than 3.84 between the unconstrained and constrained model, a two-factor solution provides a better fit to the data, and discriminant validity between each pair is supported.

6.10.6 Structural equation modelling (SEM)

Multivariate measurement is the use of two or more variables as indicators of a single composite measure, where a multivariate analysis simultaneously analyses multiple measurements on the individuals or objects under investigation (Hair *et al.*, 2006). Structural equation modelling (SEM) is a multivariate regression model where variables can influence one another reciprocally, either directly or through intermediaries (Fox, 2002).

SEM stipulates causal relations among multiple variables (Lei & Wu, 2007). General SEM methods include confirmatory factor analysis, path analysis, and latent growth modelling (Kline & Santor, 1999). SEM is a largely confirmatory, rather than

exploratory, technique. That is, a researcher is more likely to use SEM to assess whether a certain model is valid. With SEM, the interest focuses on the latent constructs which are abstract variables, and in the case of the present study, the antecedents and outcomes of m-shopping, as shown in Figure 1.1. SEM seeks to derive unbiased estimates for the relations between latent constructs (Hair *et al.*, 2006). To this end, one of the primary advantages of SEM is that it allows multiple measures to be associated with a single latent construct (Lei & Wu, 2007). Hair *et al.* (2006) explain that SEM allows separate relationships for each set of independent variables, providing an appropriate estimation technique for a series of separate multiple regression equations that are estimated simultaneously. The hypotheses in this study refer to directional relationships, thus the researcher thought it suitable to assign the critical weights as $\alpha=0.05$ (one-tailed).

Hair *et al.* (2006) further define SEM in a six-stage decision process, where stages one to four involve examining the measurement theory, and stages five and six address the structural theory, linking the constructs theoretically to each other. These six stages are dealt with in more detail next.

Stage 1: Defining individual constructs

The process begins with listing the constructs that will comprise the measurement model (Hair *et al.*, 2006). In the present study, a number of constructs were identified from the literature review and a theoretical definition of each is provided in Table 6.1. Next, the researcher had to operationalise each construct by selecting measurement scale items as well as scale types. Compilations of validated scales, as well as newly developed scales can be used in this stage of the process. It was essential that the researcher considered not only the operational requirements such as the number of items and the dimensionality, but also established the construct validity of the newly developed scale (Hair *et al.*, 2006). Content validity was of primary importance and judged both qualitatively by experts in the field of research, and quantitatively through tests that analysed unidimensionality and convergent validity (Hair *et al.*, 2006).

Stage 2: Developing the overall measurement instrument

In this step the researcher considered how all the individual constructs integrated to form an overall measurement model. The researcher identified each latent construct

that was to be included in the model. The researcher then identified the measured indicator variables which were allocated to each latent construct, where measurement items were free to load on only one construct (Hair *et al.*, 2006). It is important to note that within- and between-construct error covariance terms were fixed at zero and not estimated. Hair *et al.* (2006) further explain that it is vital for latent constructs to be indicated by a minimum of three measured variables, but preferably four or more. Table 6.2 displays the number of items per latent construct in this study, where it can be observed that each latent construct was determined by four measured variables.

Stage 3: Designing a study to produce empirical results

In the third stage the researcher's measurement theory was tested. Preliminary analysis on the data was conducted to remove input errors and invalid responses. Once preliminary analysis was conducted, the researcher made key decisions in designing the Confirmatory Factor Analysis (CFA) model. Following this, the measurement model was tested (CFA), which produced satisfactory results, allowing the same sample to be used to test the structural model. The type of data to be analysed such as covariance or correlations had to be determined, where Hair *et al.* (2006) suggest that covariance should be examined thoroughly as covariance matrices provide more flexibility due to holding larger information content. Covariance matrices were thus selected. The sample size was also of importance, because SEM requires a relatively large sample size to conduct a study with sufficient goodness-of-fit. Hair *et al.* (2006) note that smaller sample sizes are unreliable in an SEM analysis. As was explained in Paragraph 6.6 of this chapter, and based on recommendations from the literature (Nunnally, 1967; Wolf *et al.*, 2013; Sideridis *et al.*, 2014), the sample size of the present study was sufficient for a valid model. Furthermore, the Robust Maximum Likelihood Estimation technique was used in accordance with LISREL 8.8 to conduct the SEM analysis in the present study.

Stage 4: Assessing measurement model validity

Once the measurement model was specified correctly, an SEM analysis was estimated to provide an empirical measure of the relationships among variables and constructs represented by the measurement theory (Hair *et al.*, 2006). The results enabled the researcher to compare the theory with reality as represented by the

sample data. Measurement model validity was dependent on two aspects: goodness-of-fit considerations and construct validity. Goodness-of-fit was used to compare theory with reality by assessing similarity of estimated covariance and the observed covariance, where the closer the two were to each other, the better the model fit (Hair *et al.*, 2006). The present study considered various model fit indices, as can be seen in Table 6.3. The model fit indices were calculated using the Chi-square statistic as recommended by Hair *et al.* (2006).

Stage 5: Specifying the structural model

Stage 5 specified the relationships from one construct to another, based on the literature review. The objective of Stage 5 was to establish the dependent relationships among different constructs, which in effect created a structural model that indicated the structural relationships among the different constructs (Hair *et al.*, 2006). After Stage 5, the structural model was ready for empirical assessment.

Stage 6: Assessing structural model validity

Stage 6 consisted of testing the structural model's validity by assessing the structural model's goodness-of-fit. Similarly to that of the measurement model, the structural model's observed data is represented by the observed sample covariance matrix. Thus, a SEM covariance matrix was calculated. The Chi-square statistic was calculated from the SEM model and the goodness-of-fit was analysed using this value. Hair *et al.* (2006) explains that the closer the goodness-of-fit to that of the measurement model, the better the structural model.

a) Model fit indices

Assessing whether the specified model in the present study fitted the data is one of the vital steps in SEM (Yuan, 2005). Researchers have developed ways to ensure improved indices that reflect a facet of model fit that has not been previously accounted for (Hooper, Coughlan & Mullen, 2008). Model fit indices is a calculation that does not rely on comparison with another model but instead is a measure of how well the model fits with no model at all (Jöreskog & Sörbom, 1996).

The following model fit indices were used as per the recommendation of Hooper *et al.* (2008) and Hair *et al.* (2006):

Table 6.3
Model fit indices used in the study

Type of fit indices	Definition	Recommended cut-off value
Chi-square	The traditional measure for evaluating overall model fit, and assesses the magnitude of discrepancy between the sample and fitted covariance matrices.	X ² : Significant p-value X ² degrees of freedom: Between 2.0 – 5.0
Root mean square error of approximation (RMSEA)	Measures how well the model, with unknown but optimally chosen parameter estimates, would fit the population's covariance matrix.	Values above 0.10 indicates poor fit below 0.08 is an indication of good fit
Comparative fit index (CFI)	This statistic assumes that all latent variables are uncorrelated (null/independence model) and compares the sample covariance matrix with this null model.	Above 0.90
Normed-fit index (NFI)	This statistic assesses the model by comparing the X ² value of the model to the X ² of the null model. Values for this statistic range between 0 and 1.	Above 0.90

To improve the model fit the following steps were taken:

- Identifying items that were weak; this was done by finding items with low multiple r^2 , where $r^2 < 0.20$ indicated removal.
- Each item was modelled in conjunction with every other construct in the model to determine whether discriminant validity had been achieved. This was done by evaluating the Phi value between two constructs, where a Phi of 1.0 indicated measurement of the same thing.
- Items with high Lambda-Y were candidates for deletion as they may have caused discriminant validity problems.

6.11 SUMMARY AND IMPLICATIONS OF THIS CHAPTER FOR THE STUDY

This chapter dealt with the research methodology which was followed in the study. The chapter explained that the data was collected by means of an online survey, and how the data was analysed by using structural equation modelling so that the researcher could realise the primary objective of this study. The study used a descriptive research design, where information was collected by means of a self-

administered questionnaire. The target population was defined as any individual who owned a mobile phone that could access the Internet and who had purchased goods or services on a mobile reference website. To collect the data, a non-probability sample was used, of which convenience and judgement sampling were deemed most suitable. The construction of the conceptual model was discussed as well as the development of the scale, of which a Likert scale was deemed most appropriate because of its ability to measure attitudes, behaviour and beliefs about m-shopping. The chapter concluded with an overview of the data analysis techniques that were used in Chapter 7 to analyse the data and test the hypotheses.

CHAPTER 7

EMPIRICAL RESEARCH AND FINDINGS

7.1 INTRODUCTION

The primary objective of this study was to investigate what influenced the customer to continue m-shopping based on the m-shopping experience, where the m-shopping experience consisted of the antecedents and outcomes of m-shopping. The antecedents of m-shopping were identified as perceived usefulness, perceived ease of use, confirmation, subjective norm, self-efficacy and innovativeness. The outcomes of m-shopping were identified as customer satisfaction, hedonic value, utilitarian value, trust and the continuance of m-shopping. To realise the aforementioned objective, data was collected from consumers who had used a mobile phone to make purchases on a mobile reference website. This chapter presents the results of the primary research undertaken in this study. An interpretation and discussion of the profile of the sample involved in the experiment, as well as the data analysis are provided. The chapter is divided into two main sections. The first section pertains to the descriptive statistics of the study. The second section discusses the inferential statistical tests which were conducted to assess specific phenomena. The inferential statistics included the analysis of variance (ANOVA), the analysis of the measurement model, and finally, the analysis of the structural model.

7.2 DESCRIPTIVE STATISTICS

Descriptive statistics are the elementary transformation of raw data which allows the researcher to describe the basic characteristics of the sample. Descriptive statistics can summarise responses from a wide number of respondents into a few simple statistics that are easily interpretable by the reader (Zikmund & Babin, 2010). The sample is presented based on the demographic information that was obtained from the online questionnaire. Frequency tables were used to develop descriptive statistics to describe the sample based on their age, gender, the single largest amount of money spent whilst m-shopping and the items that they purchased most frequently whilst m-shopping. Cross-tabulations were used to develop additional descriptive statistics by tabulating two key variables at a time.

7.2.1 Frequency tables

a) Gender

As shown in Table 7.1, the gender distribution of the sample was evenly distributed, with 48.15 per cent (234 respondents) consisting of males and 51.85 per cent (252 respondents) consisting of females who participated in the study. The distribution of gender was fairly similar in size, and the results could therefore be generalised across both genders.

Table 7.1
Gender of the sample

Gender	n	Percentage
Male	234	48.15%
Female	252	51.85%
Total	486	100%

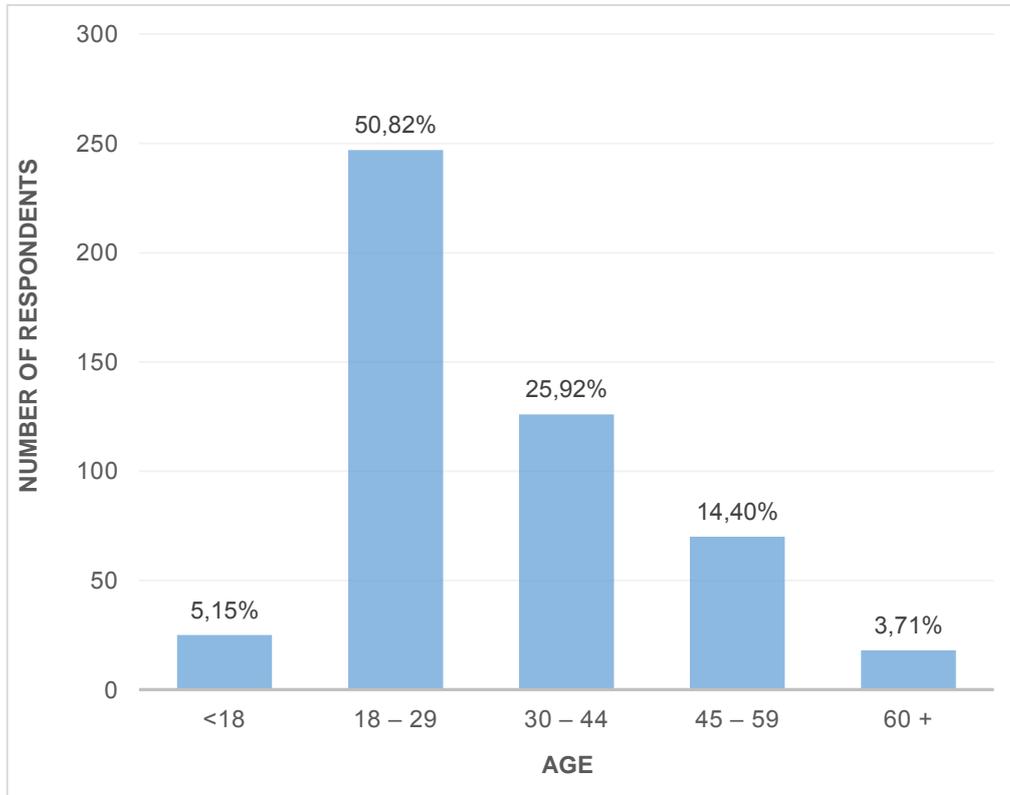
b) Age

As shown in Table 7.2 and Figure 7.1, the sample ranged from respondents younger than 18 years to respondents who were older than 60 years. The most prominent age group were individuals aged from 18-29 years, as 50.82 per cent (247 respondents) were part of this age group. The second largest age group was 30–44 year olds who accounted for 25.92 per cent (126 respondents) of the total sample. Of the remainder of the sample, 14.40 per cent (70 respondents) were between 45–59 years old, individuals younger than 18 accounted for 5.15 per cent (25 respondents), while those who were 60 years and older accounted for 3.71 per cent (18 respondents) of the sample.

Table 7.2
Age of the sample

Age	n	Percentage
<18	25	5.15%
18 – 29	247	50.82%
30 – 44	126	25.92%
45 – 59	70	14.40%
60 +	18	3.71%
Total	486	100%

Figure 7.1
Age of the sample



c) The number of times an individual made a m-shopping purchase

Table 7.3 and Figure 7.2 display the number of times an individual made a purchase whilst m-shopping. As can be observed from Table 7.3 and Figure 7.2, 37.44 per cent (182 respondents) made a purchase more than 15 times whilst m-shopping. The number of individuals who purchased 11 to 15 times, as well as those who purchased 6 to 10 times were equal, namely 19.14 per cent (93 respondents) respectively. Respondents who purchased two to five times whilst m-shopping, accounted for 18.93 per cent (92 respondents), while 5.35 per cent (26 respondents) made a purchase only once using m-shopping and was the least selected option. From Table 7.3 and Figure 7.2 it can be concluded that individuals who participated in this study were experienced m-shoppers, as the majority (182 respondents) of the respondents made a purchase more than 15 times. Moreover, 11 to 15 times, 6 to 10 times, and two to five times were almost evenly split. This indicates that the respondents of the sample were neither first-time nor novice buyers.

Table 7.3**The number of times an individual made a m-shopping purchase**

Number of times purchased via m-shopping	n	Percentage
1 time	26	5.35%
2 to 5 times	92	18.93%
6 to 10 times	93	19.14%
11 to 15 times	93	19.14%
More than 15 times	182	37.44%
Total	486	100%

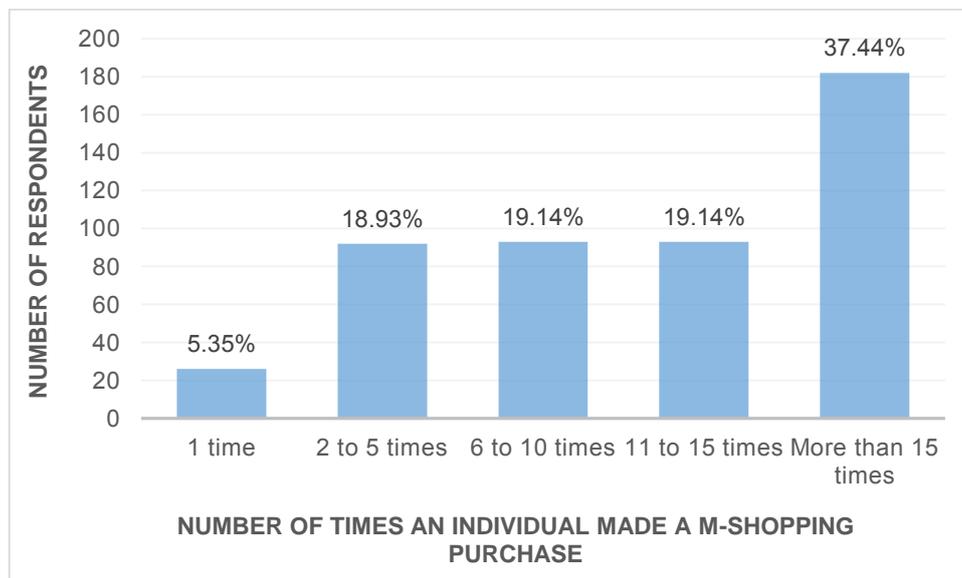
Figure 7.2**The number of times an individual made a m-shopping purchase****d) The single largest amount of money spent on an individual mobile transaction**

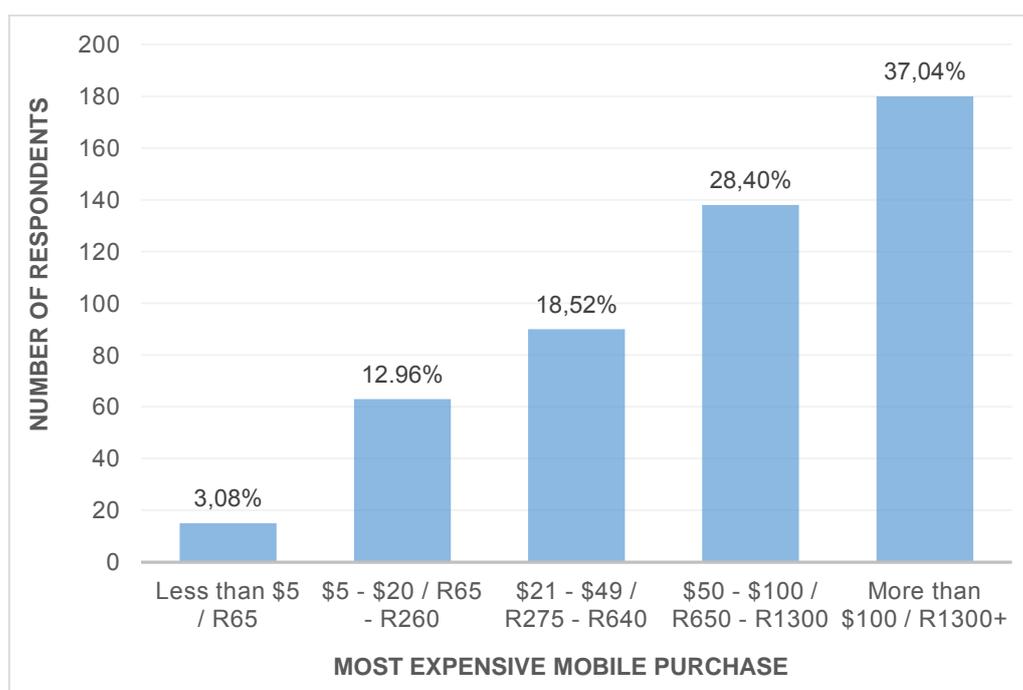
Table 7.4 and Figure 7.3 display the single largest amount of money spent on an individual mobile transaction. As can be seen from Table 7.4 and Figure 7.3, most of the respondents (180 or 37.04%) who participated in the study had made a purchase in excess of \$100 (R1 300). The second largest group was the \$50 - \$100 (R650 - R1 300) option which accounted for 28.40 per cent (138 respondents) of the respondents. Of the sample, 18.52 per cent (90 respondents) made a purchase between \$21 - \$49 (R275 - R640), 12.96 per cent (63 respondents) made a purchase between \$5 - \$20

(R65 - R260), and 3.08 per cent (15 respondents) made a purchase of less than \$5 (R65). The data in Table 7.4 and Figure 7.3 indicate that the majority of the respondents spent more than \$100 (R1 300), followed by those who spent \$50 - \$100 (R650 - R1 300), which cumulatively accounted for 65.44 per cent of the sample. It can thus be concluded from Table 7.4 and Figure 7.3 that the sample in this study was more inclined to buy more expensive goods whilst m-shopping.

Table 7.4
The single largest amount of money spent
on an individual mobile transaction

Most expensive mobile purchase	n	Percentage
Less than \$5/R65	15	3.08%
\$5 - \$20/R65 - R260	63	12.96%
\$21 - \$49/R275 - R640	90	18.52%
\$50 - \$100/R650 - R1300	138	28.40%
More than \$100/R1300+	180	37.04%
Total	486	100%

Figure 7.3
The single largest amount of money spent
on an individual mobile transaction



e) The different types of items bought whilst m-shopping

Table 7.5 and Figure 7.4 illustrate the different types of items bought whilst m-shopping and indicate that a total of 20 602 items were purchased by the 486 respondents who participated in the study.

Table 7.5
The different types of items bought whilst m-shopping

Item purchased	Amount of times an item was purchased	Percentage of total purchases
Tickets for a concert	2 665	12.94%
Air flight tickets	2 469	11.98%
Music	2 452	11.90%
Books	2 259	10.97%
Clothes	2 201	10.68%
Tickets for a bus trip	1 830	8.88%
Shoes	1 593	7.73%
Personal toiletries	1 495	7.25%
Appliances	1 039	5.04%
Computers	1 021	4.96%
Wine	997	4.84%
Cameras	581	2.82%
Total	20 602	100%

Figure 7.4
The different types of items bought whilst m-shopping

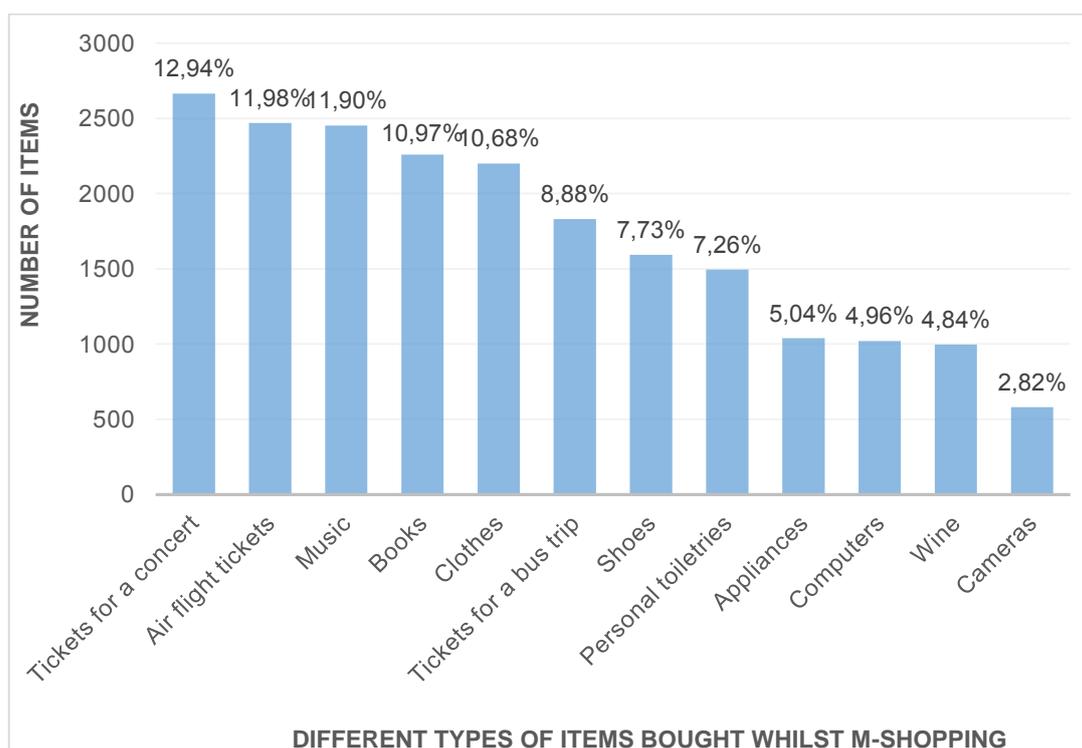


Table 7.5 and Figure 7.4 show that the most popular item that was purchased whilst m-shopping were tickets for a concert, with 2 665 (12.94%) purchases recorded. The second most popular item purchased whilst m-shopping were air flight tickets with 2 469 (11.98%) purchases reported. The third most popular item was music with 2 452 purchases recorded (11.90%). Following this was books with 2 259 purchases recorded (10.97%), and clothes with 2 201 purchases recorded (10.68%). Table 7.5 and Figure 7.4 are organised in descending order from the most purchased (tickets for a concert) to the least purchased items (cameras).

7.2.2 Cross-tabulations

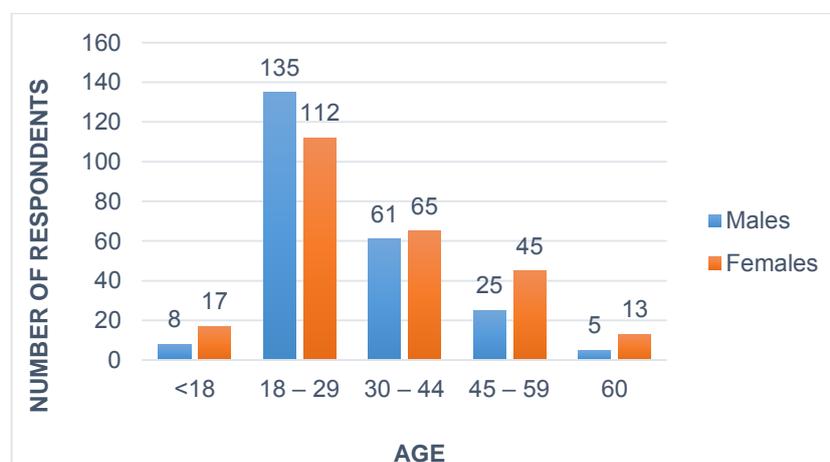
a) Age and gender

Table 7.6 and Figure 7.5 display the cross-tabulation of age and gender in this study.

Table 7.6
Cross-tabulation of age and gender

Age	Gender		Total
	Male	Female	
<18	8	17	25
18 – 29	135	112	247
30 – 44	61	65	126
45 – 59	25	45	70
60	5	13	18
Total	234	252	486

Figure 7.5
Cross-tabulation of age and gender



It can be observed from Table 7.6 and Figure 7.5 that the biggest group of respondents were males aged 18–29 years (135 respondents or 27.77%). The second largest group of respondents were females aged 18–29 years (112 respondents or 23.04%). Respondents aged 30–44 years had an almost similar ratio of males to females (61 males; 65 females), and the smallest category was individuals over 60 years old who were males (5 respondents or 1.03%).

b) Age and the single largest amount of money spent on an individual mobile transaction

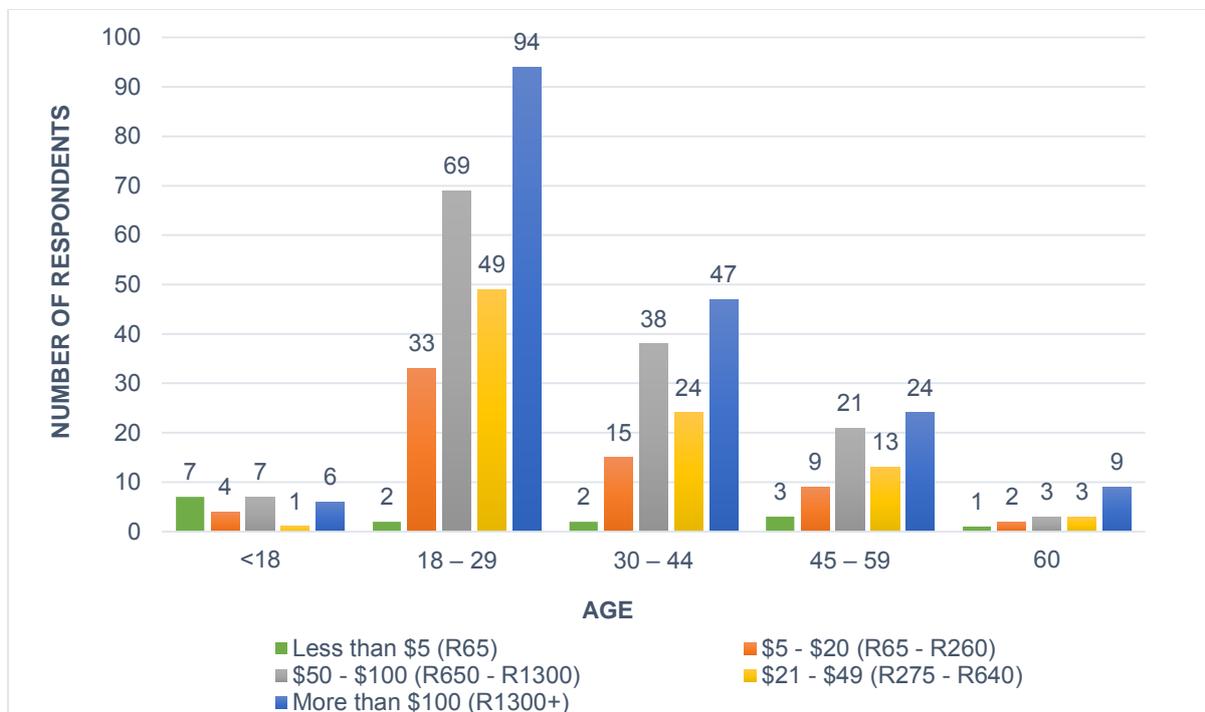
Table 7.7 and Figure 7.6 show the cross-tabulation of age and the single largest amount of money spent on an individual mobile transaction. The 18–29 year old group were the highest spenders, as they were most frequent in the top three expenditure categories (\$21 - \$49/R275 - R640; \$50 - \$100/R650 - R1 300; more than \$100/R1 300). Individuals aged between 30–44 years spent the second most in the top three expenditure categories (\$21 - \$49/R275 - R640; \$50 - \$100/R650 - R1 300; more than \$100/R1 300). Table 7.7 and Figure 7.6 may infer that individuals who were between 18–44 years old may be more ready to spend higher amounts of money on their m-shopping purchases.

Table 7.7
Cross-tabulation of age and the single largest amount of money spent on an individual mobile transaction

Age	Most amount of money spent whilst m-shopping					Total
	Less than \$5/ R65	\$5 - \$20 / R65 - R260	\$21 - \$49 / R275 - R640	\$50 - \$100 /R650 - R1300	More than \$100/ R1300	
<18	7	4	1	7	6	25
18 – 29	2	33	49	69	94	247
30 – 44	2	15	24	38	47	126
45 – 59	3	9	13	21	24	70
60	1	2	3	3	9	18
Total	15	63	90	138	180	486

Figure 7.6

Cross-tabulation of age and the single largest amount of money spent on an individual mobile transaction



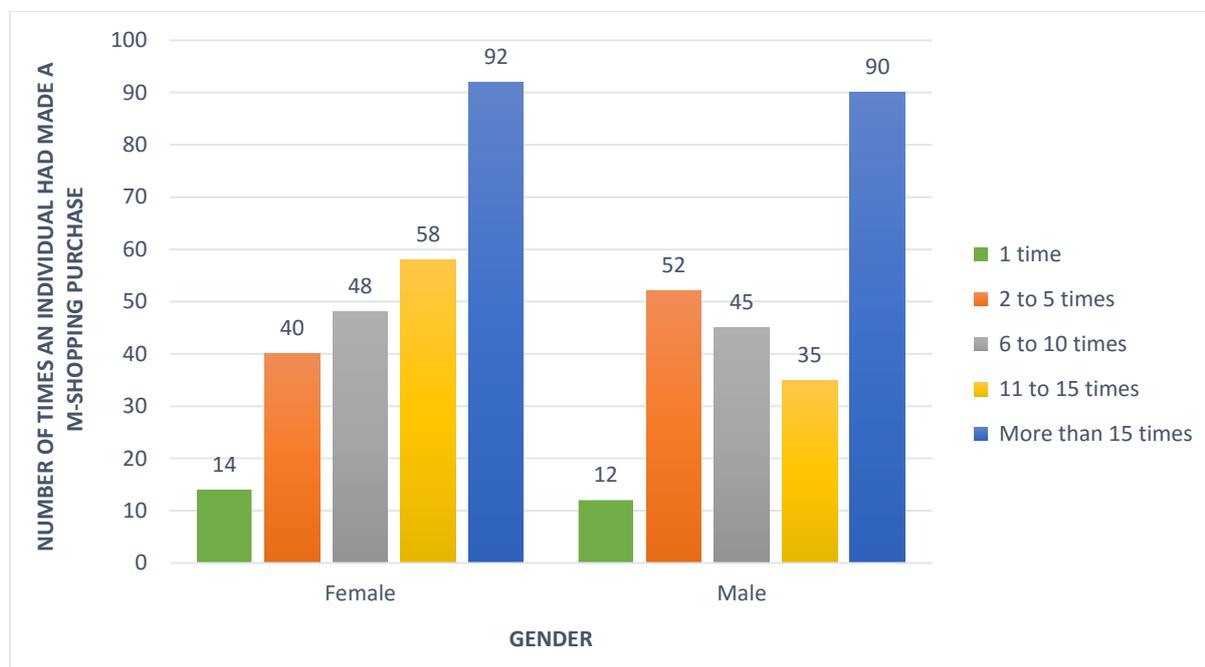
c) Gender and the number of times an individual had made a m-shopping purchase

Table 7.8 and Figure 7.7 demonstrate the cross-tabulation of gender and the number of times an individual made a m-shopping purchase.

Table 7.8

Cross-tabulation of gender and the number of times an individual made a m-shopping purchase

Gender	The number of times an individual had made a m-shopping purchase					Total
	1 time	2 to 5 times	6 to 10 times	11 to 15 times	More than 15 times	
Male	12	52	45	35	90	252
Female	14	40	48	58	92	234
Total	26	92	93	93	182	486

Figure 7.7**Cross-tabulation of gender and the number of times an individual made a m-shopping purchase**

It can be observed from Table 7.8 and Figure 7.7 that both genders scored highest in the more than 15 times category. The frequencies between male and females in each purchase category is fairly equal between the two genders, showing that there may not be a difference in gender and the amount of times an individual makes a mobile purchase.

d) Gender and the single largest amount of money spent on an individual mobile transaction

Table 7.9 and Figure 7.8 display the cross-tabulation of gender and the single largest amount of money spent on an individual mobile transaction. It can be observed from Table 7.9 and Figure 7.8 that both males and females mostly spent more than \$100 (R1 300); with 96 male respondents and 84 female respondents in this category. Males were, however, the largest group of spenders between the two genders in the more than \$100 (R1 300) category. It may indicate that males are willing to spend more than females when m-shopping.

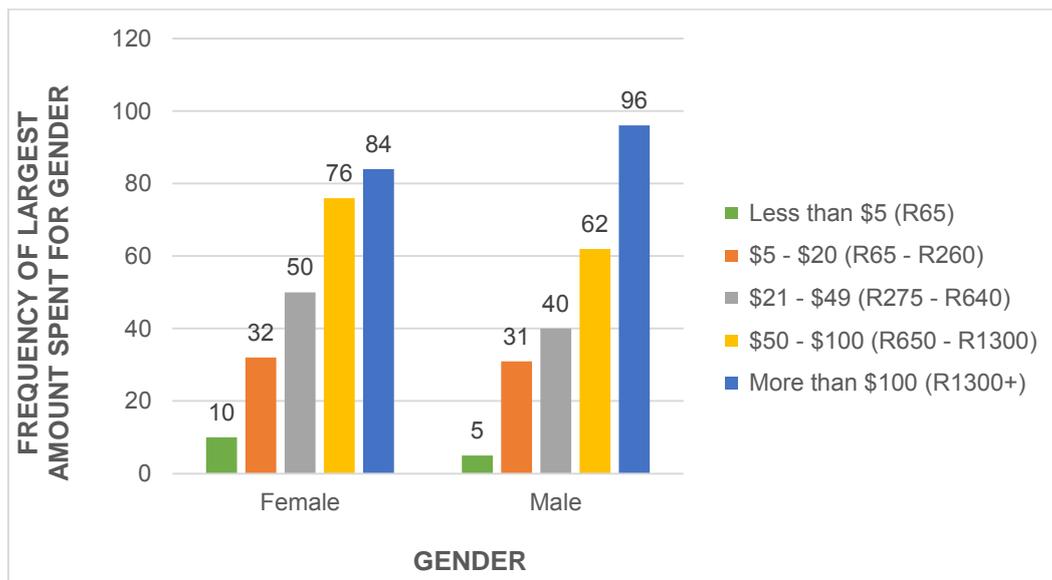
Table 7.9

Cross-tabulation of gender and the single largest amount of money spent on an individual mobile transaction

Gender	Most amount of money spent whilst m-shopping					Total
	Less than \$5 (R65)	\$5 - \$20 / R65 - R260	\$21 - \$49 / R275 - R640	\$50 - \$100 / R650 - R1300	More than \$100 / R1300+	
Male	5	31	40	62	96	234
Female	10	32	50	76	84	252
Total	15	63	90	138	180	486

Figure 7.8

Cross-tabulation of gender and the single largest amount of money spent on an individual mobile transaction



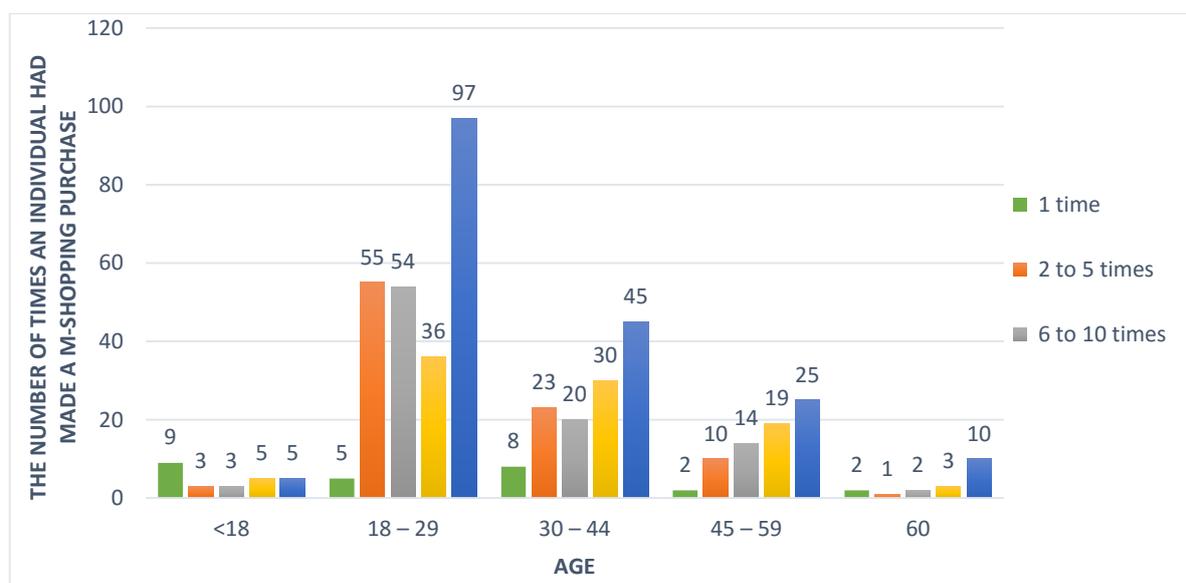
e) Age and the number of times an individual made a m-shopping purchase

Table 7.10 and Figure 7.9 illustrates the cross-tabulation of age and the number of times an individual made a purchase whilst m-shopping, where it can be seen that individuals aged between 18–29 years significantly bought the most with a frequency of 97 respondents in the more than 15 times category. Moreover, individuals aged 18–29 years yielded the highest score in the 11 to 15 times category, 6 to 10 times category, and two to five times category, thus allowing the researcher to conclude that the 18–29 year olds bought the most whilst m-shopping.

Table 7.10
Cross-tabulation of age and the number of times an individual made a m-shopping purchase

Age	The number of times an individual made a m-shopping purchase					Total
	1 time	2 to 5 times	6 to 10 times	11 to 15 times	More than 15 times	
<18	9	3	3	5	5	25
18 – 29	5	55	54	36	97	247
30 – 44	8	23	20	30	45	126
45 – 59	2	10	14	19	25	70
60	2	1	2	3	10	18
Total	26	92	93	93	182	486

Figure 7.9
Cross-tabulation of age and the number of times an individual made a m-shopping purchase



f) Age and different types of products purchased

Table 7.11 and Figure 7.10 illustrate the cross-tabulation of age and different types of products purchased. The most purchased item per age group was tickets for a concert by 18–29 year olds with 1 062 recorded purchases. The second most purchased item per age group was music by 18–29 year olds with 911 recorded purchases. The third most purchased item per age group was again by the 18–29 year old group with 910

recorded purchases of air flight tickets. The conclusion here is that 18–29 year olds make the most purchases, which is further supported by Table 7.10 and the conclusions made in Paragraph 7.2.2. Another assertion that can be made is that tickets bought for a concert, music, and air flight tickets were the most popular products bought by m-shoppers in the age group 18–29 years.

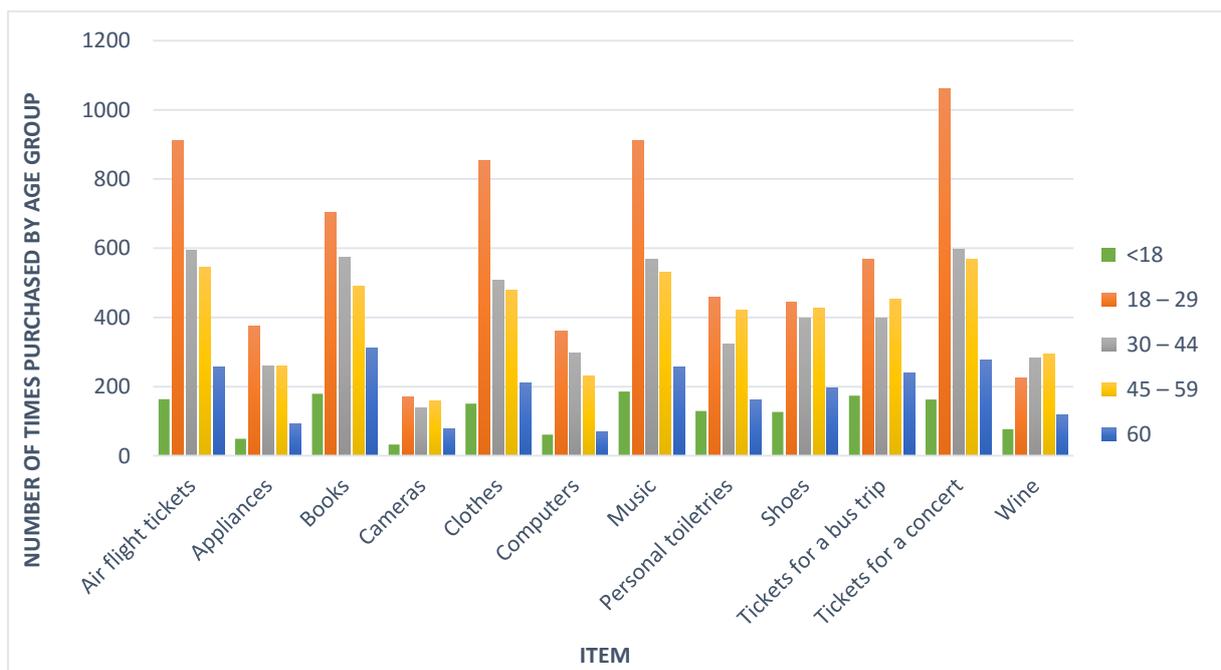
Table 7.11

Cross-tabulation of age and different types of products purchased

Item	Age					Total
	<18	18 – 29	30 – 44	45 – 59	60	
Books	179	704	574	490	312	2259
Music	186	911	568	531	256	2452
Tickets for a concert	163	1062	596	567	277	2665
Tickets for a bus trip	174	567	397	452	240	1830
Air flight tickets	164	910	593	544	258	2469
Personal toiletries	130	457	324	422	162	1495
Clothes	151	852	509	477	212	2201
Shoes	127	445	398	428	195	1593
Wine	77	225	282	295	118	997
Computers	61	361	298	231	70	1021
Cameras	33	170	139	160	79	581
Appliances	49	374	261	261	94	1039
Total	1494	7038	4939	4858	2273	20602

Figure 7.10

Cross-tabulation of age and different types of products purchased



g) Gender and different types of products purchased

Table 7.12 and Figure 7.11 display the cross-tabulation of gender and different types of products purchased.

Table 7.12
Cross-tabulation of gender and different types of products purchased

Item	Gender		Total
	Male	Female	
Books	609	1650	2259
Music	834	1618	2452
Tickets for a concert	930	1735	2665
Tickets for a bus trip	467	1363	1830
Air flight tickets	860	1609	2469
Personal toiletries	371	1124	1495
Clothes	702	1499	2201
Shoes	319	1247	1566
Wine	211	786	997
Computers	459	562	1021
Cameras	167	414	581
Appliances	340	699	1039
Total	6269	14333	20602

Figure 7.11
Cross-tabulation of gender and different types of products purchased

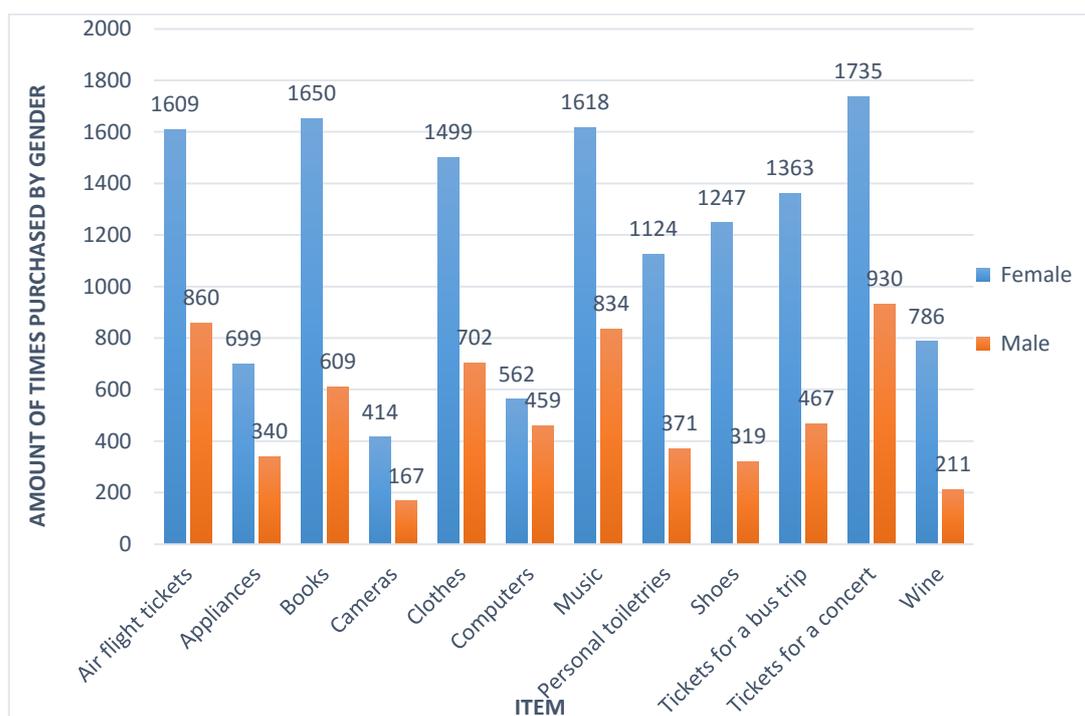


Table 7.12 and Figure 7.11 indicates clearly that every item was bought more by females than by males. In total, females accounted for 69.57 per cent (14 333) of all purchases recorded in this study, whereas males accounted for 30.43 per cent (6 269) of all purchases.

7.3 INFERENCEAL STATISTICS

For the purpose of investigating the hypotheses formulated in Chapter 6, inferential statistics were conducted. A one-way ANOVA (Analysis of variance) test was used to find differences between ordinal and interval data, allowing the researcher to understand if there were differences present in the demographic data and the continuance of m-shopping. Other tests conducted in the inferential statistics involved structural equation modelling (SEM) which comprised a measurement model and a structural model. With the measurement model the researcher could confirm that items loaded correctly and that reliability and validity were present in the scale being used. The structural model allowed the researcher to accept or reject postulated relationships between the antecedents and outcomes of the m-shopping experience based on the t-values.

7.3.1 One-way ANOVA

A one-way ANOVA was conducted to assess whether there was a difference in the continuance of m-shopping and an individual's age. The Test of Homogeneity of Variances showed that the variances of the groups were homogeneous (Levene Statistic = .860, $df_1 = 4$, $df_2 = 481$, $p=0.488$), and the researcher was thus able to apply the ANOVA test.

Table 7.13
One-way ANOVA of the continuance of m-shopping and age

	Sum of Squares	df	Mean Square	F	Significance
Between groups	20.852	4	5.213	1.369	.224
Within groups	1831.630	481	3.808		
Total	1852.482	485			

As can be seen from Table 7.13, the difference in the means proved to be insignificant with a p -value of .224. Thus, there was no difference between an individual's age and their continuance of m-shopping. It can thus be assumed that age does not influence a person's intention to continue m-shopping.

A one-way ANOVA was conducted to investigate whether gender influenced the continuance of m-shopping. The Test of Homogeneity of Variances showed that the variances of the groups were not homogeneous (Levene Statistic = 19.072, $df_1 = 1$, $df_2 = 484$; $p=0.000$). Due to the assumption of homogeneity not being met, the Welch and Brown-Forsythe tests were used instead of the ANOVA test. The results of the Welch and Brown-Forsythe tests are shown in Table 7.14, where the group means differed significantly with a p -value of .001 for both tests.

Table 7.14
The Welch and Brown-Forsythe tests of significance of the continuance of m-shopping and gender

	Statistic^a	df1	df2	Sig.
Welch	10.490	1	454.520	.001
Brown-Forsythe	10.490	1	454.520	.001

a. Asymptotically F distributed

As can be seen from Table 7.15, the mean for continuance of m-shopping for males was 6.965 and for females 7.538. These figures indicate that there is a greater likelihood for females to continue m-shopping.

Table 7.15
Means and standard deviation of the continuance of m-shopping and gender

Gender	n	Mean	Std. Deviation	Std. Error	Minimum	Maximum
Male	234	6.965	2.11090	.13799	2.00	10.00
Female	252	7.538	1.75653	.11065	1.00	10.00
Total	486	7.252	1.95437	.08865	1.00	10.00

A one-way ANOVA was conducted to ascertain whether the number of times an individual had m-shopped influenced their continuance of m-shopping. The Test of Homogeneity of Variances showed that the variances of the groups were not

homogeneous (Levene Statistic = 5.802; df1 = 4; df2 = 481; $p=0.000$). Due to the assumption of homogeneity not being met, the Welch and Brown-Forsythe tests were used instead of the ANOVA test. The results of the Welch and Brown-Forsythe tests are shown in Table 7.16, where it can be seen that the group means differed significantly with a p -value of .000 for both tests.

Table 7.16

The Welch and Brown-Forsythe tests of significance of the continuance of m-shopping and the number of times an individual m-shopped

	Statistic ^a	df1	df2	Sig.
Welch	18.356	4	134.862	.000
Brown-Forsythe	20.765	4	312.903	.000

a. Asymptotically F distributed

Due to the significance of the Welch and Brown-Forsythe test conducted (the results are illustrated in Table 7.16), a Tukey Post-hoc test was conducted to identify where the differences in the means lied. As can be seen from Table 7.17, there were three groups that had substantial differences in their continuance with m-shopping, where Group one consisted of one time, and two to five time buyers. Group two consisted of 6 to 10 times buyers. Group three consisted of 11 to 15 times and more than 15 time buyers. The mean values in Table 7.17 indicate the more times an individual m-shopped, the more likely it was that they would continue m-shopping.

Table 7.17

Tukey Post-hoc test for the analysis of difference in means between the continuance of m-shopping and the number of times an individual m-shopped

Amount of times that an individual had m-shopped	n	Subset for alpha = 0.05		
		1	2	3
2 to 5 times	92	5.951		
1 time	26	6.509		
6 to 10 times	93		7.045	
11 to 15 times	93			7.755
More than 15 times	182			7.892
Sig.		.396	.439	.059

A one-way ANOVA was conducted to investigate whether the continuance of m-shopping was influenced by the single largest amount of money spent on an individual mobile purchase. The Test of Homogeneity of Variances showed that the variances of the groups were homogeneous (Levene Statistic = 0.322; df1 = 4; df2 = 481; $p=0.863$). The results of the ANOVA are depicted in Table 7.18, where it can be seen that continuance is affected by the single largest amount of money spent on an individual mobile purchase. The group means differed significantly with a p -value of .000.

Table 7.18

One-way ANOVA of the continuance of m-shopping and the single largest amount of money spent on an individual mobile purchase

	Sum of Squares	df	Mean Square	F	Significance
Between groups	76.145	4	19.036	5.155	.000
Within groups	1776.337	481	3.693		
Total	1852.482	485			

Owing to the significance of the one-way ANOVA, shown in Table 7.18, a Tukey Post-hoc test was conducted to identify where the differences in the means were. As can be interpreted from Table 7.19 there were two groups that held substantial differences in their continuance with m-shopping and the single largest amount of money spent on an individual mobile purchase. A general trend can be observed in Table 7.19 where the more money that was spent, the more likely it was that the individual was willing to continue m-shopping.

Table 7.19

The Tukey Post-hoc test for the analysis of difference in means between the continuance of m-shopping and the single largest amount of money spent on an individual mobile purchase

Single largest amount of money spent	N	Subset for alpha = 0.05	
		1	2
Less than \$5 / R65	15	5.6167	
\$5 - \$20 / R65 - R260	63		6.8571
\$21 - \$49 / R275 - R640	90		7.0194
\$50 - \$100 / R650 - R1300	138		7.3714
More than \$100 / R1300+	180		7.5806
Sig.		1.000	.361

7.3.2 Assessment of the measurement model

The measurement model was assessed by means of confirmatory factor analysis (CFA), which allowed the researcher to analyse the goodness-of-fit indices. As mentioned in Chapter 6, the goodness-of-fit compares theory with reality by assessing similarities in an estimated covariance matrix (theory) to an observed covariance matrix (reality). The closer the two are aligned, the better the model fit (Hair *et al.*, 2010).

The Santorra-Bentler Scaled Chi-square, df, X^2/df , the RMSEA, the 90 per cent confidence interval for RMSEA, the CFI and NFI are all reported in Table 7.20. The cut-off values for the aforementioned model fit indices can be seen in Table 6.3 in Chapter 6 for reference with regard to what values qualify as a good fit. As can be observed from Table 7.20, the RMSEA for the measurement model was 0.068, which is below the cut-off point of 0.08 (Hair *et al.*, 2006), which qualifies the model as having an acceptable fit. The 90 per cent confidence interval for RMSEA further perpetuates the measurement model's acceptable fit with a loading of 0.065 (Hair *et al.*, 2006). Furthermore, the CFI and NFI values were 0.98 respectively, which further represents an acceptable fit (Hair *et al.*, 2006; Hooper *et al.*, 2008). The X^2/df was calculated as 3.23 where a good fit is seen to be within the range of 2.0 to 5.0 (Hooper *et al.*, 2008), thus further supporting the model fit.

Table 7.20
Model fit indices of the measurement model

Model fit indices	Results of measurement model
Santorra-Bentler scaled Chi-square	2736.74
df	847
X^2/df	3.23
RMSEA	0.068
90 Per cent confidence interval for RMSEA	(0.065; 0.071)
CFI	0.98
NFI	0.98

The construct reliability and validity are reported in Tables 7.21, 7.22, 7.23 and 7.24. Table 7.21 displays the standardised item loadings, the composite reliability of each

latent variable, as well as the Average Variance Extracted (AVE) of each latent variable. The composite reliability and the AVE were calculated using the standardised item loadings and error variance. Composite reliability is a measure of each construct's internal consistency in the measurement model, where the composite reliability should be above 0.7 for the measurement to be deemed reliable. As one can see from Table 7.21, no construct loads below 0.8 for composite reliability, thus deeming the constructs used in the measurement model as reliable. The AVE is a measure of convergent validity and assesses the extent to which a construct and its items measure what it is supposed to, where all constructs should be above 0.5 (Hair *et al.*, 2006). As can be seen in Figure 7.21, all items have an AVE of above 0.5 and therefore the measurement model has sufficient convergent validity.

Table 7.21
Construct reliability and validity of the measurement model

Construct	Item	Standardised item loading	Composite reliability	Average Variance Extracted (AVE)
Confirmation	CON1	0.72	0.868	0.642
	CON2	0.80		
	CON3	0.83		
	CON4	0.85		
Continuance	CONT1	0.72	0.876	0.639
	CONT2	0.79		
	CONT3	0.81		
	CONT4	0.87		
Customer satisfaction	CS1	0.74	0.862	0.611
	CS2	0.66		
	CS3	0.84		
	CS4	0.87		
Hedonic value	HV1	0.82	0.885	0.658
	HV2	0.87		
	HV3	0.79		
	HV4	0.76		
Innovativeness	INV1	0.65	0.830	0.551
	INV2	0.76		
	INV3	0.80		
	INV4	0.75		
Perceived ease of use	PEOU1	0.56	0.810	0.529
	PEOU2	0.80		
	PEOU3	0.81		
	PEOU4	0.69		
Perceived usefulness	PU1	0.73	0.810	0.517
	PU2	0.78		
	PU3	0.66		

	PU4	0.70		
Self-efficacy	SE1	0.68	0.832	0.553
	SE2	0.77		
	SE3	0.72		
	SE4	0.80		
Subjective norm	SN1	0.69	0.837	0.563
	SN2	0.82		
	SN3	0.67		
	SN4	0.81		
Trust	TR1	0.75	0.890	0.670
	TR2	0.82		
	TR3	0.85		
	TR4	0.85		
Utilitarian value	UV1	0.71	0.803	0.505
	UV2	0.68		
	UV3	0.76		
	UV4	0.69		

Moreover, Cronbach's coefficient alpha was calculated for all eleven latent variables and their relevant items to further ensure that measures were reliable. The Cronbach's coefficient alpha was done in SPSS and the results are displayed in Table 7.22. As one can see from Table 7.22, similar to the composite reliability test shown in Table 7.21, all Cronbach coefficient alphas are above 0.7, and are thus deemed reliable.

Table 7.22
Cronbach's coefficient alpha

Construct	Number of items	Cronbach's alpha
Confirmation	4	0.874
Continuance	4	0.871
Customer satisfaction	4	0.860
Hedonic value	4	0.877
Innovativeness	4	0.793
Perceived ease of use	4	0.807
Perceived usefulness	4	0.829
Self-efficacy	4	0.802
Subjective norm	4	0.886
Trust	4	0.822
Utilitarian value	4	0.827

Farrell (2010) reports that researchers should compare the AVE with the squared correlations between each pair of constructs, where the squared correlations should be higher than the AVE to indicate discriminant validity. Table 7.23 displays the AVE compared with squared correlations between each pair of constructs. As can be observed from Table 7.23, some paired constructs' squared correlations loaded higher

than that of the Average Variance Extracted. It is recommended by Farrell (2010) that one should then adopt the Paired Constructs Test to assess all constructs in question.

Table 7.23

Average Variance Extracted (AVE) compared with squared correlations

	CON	CONT	CS	HV	INV	PEOU	PU	SE	SN	TR	UV
CON	0.642										
CONT	0,539	0.639									
CS	0,697	0,612	0.611								
HV	0,599	0,687	0,613	0.658							
INV	0,378	0,295	0,389	0,251	0.551						
PEOU	0,511	0,462	0,624	0,408	0,381	0.529					
PU	0,613	0,570	0,661	0,546	0,381	0,615	0.517				
SE	0,643	0,542	0,623	0,518	0,457	0,527	0,567	0.553			
SN	0,511	0,575	0,466	0,594	0,265	0,334	0,425	0,500	0.563		
TR	0,618	0,523	0,521	0,534	0,345	0,398	0,410	0,524	0,516	0.670	
UV	0,651	0,546	0,650	0,581	0,285	0,493	0,518	0,590	0,501	0,539	0.505

Key: CON: Confirmation; CONT: Continuance; CS: Customer satisfaction; HV: Hedonic value; INV: Innovativeness; PEOU: Perceived ease of use; PU: Perceived usefulness; SE: Self-efficacy; SN: Subjective norm; TR: Trust; UV: Utilitarian value.

The Paired Constructs Test is a test for discriminant validity where a constrained model is measured against an unconstrained model. The constrained model is set to a fixed correlation of 1.0, and the unconstrained model is freely estimated by decreasing the degrees of freedom by one. The two models are then measured against each other, where the unconstrained model should have a difference of at least 3.84 in its Chi-square compared with that of the constrained model.

Table 7.24 shows the results for the Paired Constructs Test of all paired constructs that were in question given the results of Table 7.23. As shown in Table 7.24, all paired constructs have a difference greater than 3.84 between the unconstrained and constrained model, thus a two-factor solution provides a better fit to the data, and discriminant validity between each pair of constructs is supported.

Table 7.24

Results of Paired Constructs Test in delineating the difference of Chi-square

Paired constructs	Constrained X ² model (df)	Unconstrained X ² model (df)	X ² difference test		
			Δ X ²	Δdf	ρ
Confirmation - Customer satisfaction	73.55 (20)	47.61 (19)	25.94	1	<0.001

Continuance - Hedonic value	155.79 (20)	123.13 (19)	32.66	1	<0.001
Customer satisfaction - Hedonic value	213.86 (20)	126.24 (19)	87.62	1	<0.001
Customer satisfaction – Perceived ease of use	72.87 (20)	58.95 (19)	13.92	1	<0.001
Customer satisfaction - Perceived usefulness	65.21 (20)	49.18 (19)	16.03	1	<0.001
Customer satisfaction - Self-efficacy	56.56 (20)	40.56 (19)	16	1	<0.001
Customer satisfaction - Utilitarian value	61.63 (20)	42.11 (19)	19.52	1	<0.001
Perceived ease of use - Perceived usefulness	52.48 (20)	42.89 (19)	9.59	1	<0.001
Perceived usefulness - Self-efficacy	65.54 (20)	43.65 (19)	21.89	1	<0.001
Perceived usefulness - Utilitarian value	135.18 (20)	57.24 (19)	77.94	1	<0.001
Self-efficacy - Utilitarian value	77.95 (20)	67.04 (19)	10.91	1	<0.001

Based on the values in Table 7.21, 7.22, 7.23, and 7.24 construct reliability, convergent validity and discriminant validity can be claimed for the measurement model.

7.3.3 Assessment of the structural model

After the measurement model, the structural paths were indicated between latent variables based on theoretical hypotheses based on evidence from the literature review. The following section reports the results of the structural model. Table 7.25 displays the paths that were stipulated in the structural equation model, as well as the t-values that were generated, where a t-value above 1.96 indicates a significant positive relationship, below -1.96 indicates a significant negative relationship, and in-between -1.96 and 1.96 indicates a neutral relationship. As shown in Table 7.25, the structural model confirmed twelve of the thirteen paths as positively significant, where perceived ease of use to customer satisfaction was the only insignificant path that loaded on a neutral value (-0.56).

Table 7.25
Empirical results of the structural model

Path	t-value	Path estimate	p-value
Self-efficacy -> Perceived ease of use	12.51	0.60	***
Self-efficacy -> Perceived usefulness	13.74	0.85	***
Perceived ease of use -> Perceived usefulness	3.13	0.22	**
Perceived ease of use -> Customer satisfaction	-0.56	-0.02	N.S

Perceived usefulness -> Customer satisfaction	3.21	0.23	**
Confirmation -> Customer satisfaction	11.95	0.82	***
Customer satisfaction -> Utilitarian value	26.52	0.95	***
Customer satisfaction -> Hedonic value	32.14	1.01	***
Utilitarian value -> Trust	3.67	0.31	***
Hedonic value -> Trust	7.22	0.55	***
Trust -> Continuance of m-shopping	7.44	0.38	***
Subjective norm -> Continuance of m-shopping	6.07	0.41	***
Innovativeness -> Continuance of m-shopping	3.71	0.24	***

Significance level * : $\rho < 0.05$ ** : $\rho < 0.01$ *** : $\rho < 0.001$; N.S.: Not significant

For ease of reading, Table 7.25 has been reproduced in Figure 7.12 where the t-values and path estimates between structural paths are shown.

As one can see from Figure 7.12, self-efficacy positively influences perceived ease of use and perceived usefulness. Perceived ease of use positively influences perceived usefulness. Both confirmation and perceived usefulness positively influence customer satisfaction. However, perceived of use has a neutral influence on customer satisfaction. Customer satisfaction positively influences utilitarian and hedonic value. Utilitarian and hedonic value positively influence trust. Trust positively influences the continuance of m-shopping. Finally, subjective norm and innovativeness also positively influence the continuance of m-shopping.

Figure 7.12

Structural model paths, t-values and path estimates

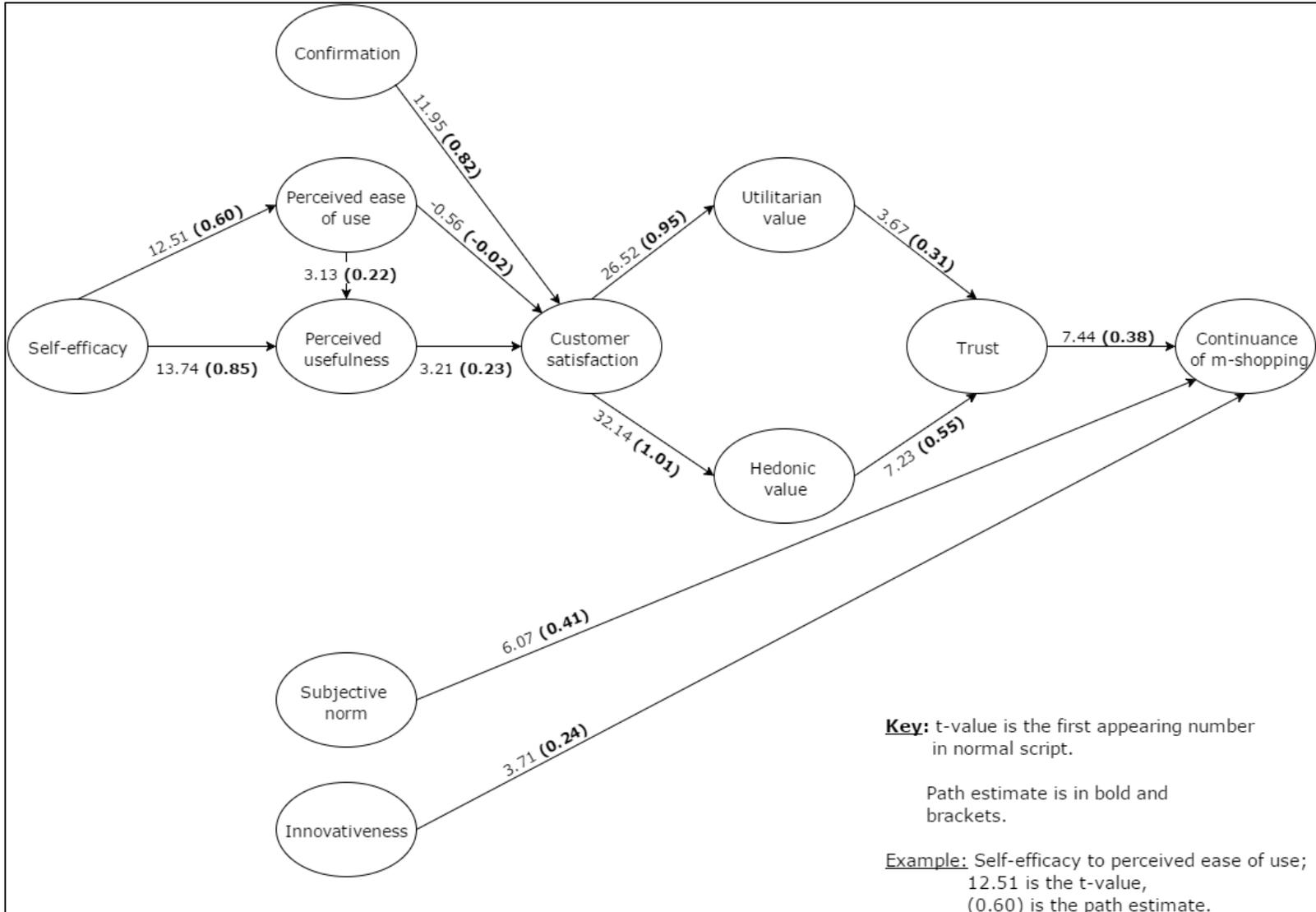


Table 7.26 displays the model fit indices for the structural model. The Santorra-Bentler Scaled Chi-square, df, X^2/df , RMSEA, 90 per cent confidence interval for RMSEA, the CFI and NFI are reported in Table 7.26. As can be observed from Table 7.26, the RMSEA for the structural model was 0.075, which is below the cut-off point of 0.08 (Hair *et al.*, 2006) to qualify the model as possessing an acceptable fit. The 90 per cent confidence interval for the RMSEA further perpetuates the measurement model's acceptable fit with a loading of 0.072 (Hair *et al.*, 2006). Moreover, the CFI loaded at 0.98, and the NFI loaded at 0.97, which further represents an acceptable fit (Hair *et al.*, 2006; Hooper *et al.*, 2008). The X^2/df was calculated as 3.74 where a good fit is seen to be within the range of 2.0 to 5.0 (Hooper *et al.*, 2008), thus further supporting the model's fit.

Table 7.26
Model fit indices for the structural model

Model fit indices	Results of structural model
Santorra-Bentler Scaled Chi-square	3303.29
df	883
X^2/df	3.74
RMSEA	0.075
90 per cent confidence interval for RMSEA	(0.072; 0.078)
CFI	0.98
NFI	0.97

Table 7.27 displays the hypotheses that were formulated from the literature review and were tested in the primary research phase of this study using structural equation modelling. A hypothesis is accepted based on the t-values shown in Table 7.25, where the t-value has to be above 1.96 for the hypothesis to be accepted. As illustrated in Table 7.27, all hypotheses were accepted except for Hypothesis 3 (H3).

Table 7.27
Summary of the hypotheses tested in the structural model

Hypotheses	Hypothesis Accepted/Rejected
H1: Perceived usefulness has a positive relationship with a customer's satisfaction of m-shopping	Accepted
H2: Perceived ease of use has a positive relationship with a consumer's perceived usefulness	Accepted

H3: Perceived ease of use has a positive relationship with a customer's satisfaction of m-shopping	Rejected
H4: Confirmation has a positive relationship with a customer's satisfaction of m-shopping	Accepted
H5: Subjective norm has a positive relationship with a consumer's continuance of m-shopping	Accepted
H6: Self-efficacy has a positive relationship with a consumer's perceived ease of use of m-shopping	Accepted
H7: Self-efficacy has a positive relationship with a consumer's perceived usefulness of m-shopping	Accepted
H8: Innovativeness has a positive relationship with a consumer's continuance of m-shopping	Accepted
H9: Customer satisfaction has a positive relationship with utilitarian value	Accepted
H10: Customer satisfaction has a positive relationship with hedonic value	Accepted
H11: Trust has a positive relationship with a consumer's continuance of m-shopping	Accepted
H12: Utilitarian value has a positive relationship with a consumer's trust	Accepted
H13: Hedonic value has a positive relationship with a consumer's trust	Accepted

7.4 SUMMARY AND IMPLICATIONS OF THIS CHAPTER FOR THE STUDY

This chapter discussed the results that were obtained during the primary research phase of this study. The first section of this chapter provided an insight into the characteristics of the sample data by means of descriptive statistics. The second section of the chapter provided an analysis of the data by means of inferential statistics. Frequency tables and cross-tabulations were done to explain the demographic profile of the sample in more detail. The most important results reported in this chapter were those of the hypotheses testing, where twelve of the thirteen hypotheses were accepted. The final structural model depicted in Figure 7.12 shows the positive significant relationships between the antecedents and outcomes of the m-shopping experience. Additionally, the results of the measurement model allowed the research to claim construct reliability, convergent validity and discriminant validity of the constructs and items used in the structural model. Moreover, ANOVAs were calculated to determine whether the number of times a consumer had m-shopped, the amount of money a consumer had spent, their age and lastly their gender, played a role in the continuance of m-shopping. Significant differences were detected in the number of times a consumer had m-shopped, the amount of money a consumer had spent, as well as their gender, meaning that all three played a role in a consumer's continuance of m-shopping.

CHAPTER 8

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

8.1 INTRODUCTION

This chapter addresses the empirical results presented in Chapter 7. These results are discussed in greater detail and conclusions are drawn. The first section of this chapter provides a synopsis of the study, followed by a summary and interpretation of the empirical results, which includes conclusions and an analysis of the hypotheses that were formulated in the study. Managerial implications are provided which include practical considerations and strategies for firms. The chapter concludes with the limitations of the study and suggestions for possible future research.

8.2 SYNOPSIS OF THE STUDY

The primary objective of this study was to investigate what influenced the customer to continue m-shopping based on the m-shopping experience, where the m-shopping experience consisted of the antecedents and outcomes of m-shopping. A conceptual model for the m-shopping experience was developed based on theories of the TRA, the TPB, the TAM, the Technology Transfer Theory, the Diffusion of Innovations Theory, the TRI, the SET, the UMT, Status Quo Bias and supporting literature. Eleven latent variables were identified, which included the most important antecedents and outcomes of the m-shopping experience (ten were antecedents and outcomes, and the eleventh was continuance of m-shopping). Each latent variable was measured with four items, which resulted in 44 items that measured the factors that could influence a customer's continued use of a mobile phone to shop on mobile reference websites. Unlike other studies, this study was based on a model that showed the relationships of the antecedents and outcomes, which have not yet been reported in total in recent m-shopping literature. This study investigated a range of factors that could influence continued m-shopping and is therefore useful to firms and researchers to gain a deeper understanding of the m-shopping experience. Moreover, m-shopping literature has been reported to be in its infancy (Yang & Kim, 2012; Groß, 2015a), and thus the present study makes a contribution to the knowledge in this domain. Another noteworthy aspect of this study is the demographic data that displayed the m-

shoppers' age, gender, purchases and spending habits with their continuance of m-shopping. Thus, the structural model and results of the demographic data may assist marketers and firms to obtain a better insight into m-shoppers and their buying behaviour, and to produce more focused commercial and marketing strategies.

Chapter 1 provided a broad overview of the study and explained the research problem and research methodology that was undertaken in the study. Chapter 2 laid the foundation for the domain of the study, following a chronological time line of the use of the Internet to facilitate transactions among businesses and consumers. Chapter 2 illustrated the current natural progression towards the use of mobile technology to facilitate buying and the importance of the mobile phone as a medium for firms to communicate and successfully transact with consumers. Chapter 3 discussed the theories that are relevant to information technology and its use by consumers, which gave more insight into the m-shopping experience. Chapter 4 investigated the antecedents of m-shopping in-depth and provided a sound conceptualisation of each antecedent. Chapter 5 explained the outcomes of m-shopping in detail and allowed for a thorough conceptualisation of each outcome. Chapter 6 further outlined the methodology of the study and Chapter 7 presented the empirical findings of the survey conducted among m-shoppers to understand the antecedents and outcomes of m-shopping. The purpose of Chapter 7 was to test the conceptual model with the data collected. Chapter 8 draws conclusions from the empirical findings presented in Chapter 7.

8.3 SUMMARY AND INTERPRETATION OF THE EMPIRICAL RESULTS

In this section the findings of the antecedents and outcomes of the m-shopping experience are reported and explained. Paragraphs 8.3.1 to 8.3.13 present the results that were generated from the assessment of the structural model.

8.3.1 The influence of self-efficacy on perceived ease of use

A positive relationship was expected between self-efficacy and perceived ease of use. Results from the structural model indicate that there was indeed a positive significant relationship between these two antecedents with a t-value of 12.51 ($p < 0.001$).

The positive significant relationship with self-efficacy and perceived ease of use means that consumers' assessment of their competencies and capabilities, as well as the extent to which they believe they can complete a task such as m-shopping, has an impact on the consumer's perception of how easy they think it is to use m-shopping. Thus, when a consumer believes that they are more confident and capable with m-shopping, the consumer will perceive the m-shopping experience to be easier. This perception is thus determined by the consumer's level of self-efficacy. This result is consistent with the literature, where it has been reported by Li *et al.* (2012) that consumers with high levels of self-efficacy have a greater inclination towards the use of information technology and may be more flexible in its use, such as finding it easier to conduct transactions online by means of a mobile phone.

8.3.2 The influence of self-efficacy on perceived usefulness

A positive relationship was expected between self-efficacy and perceived usefulness. Results from the structural model indicate that there was indeed a positive significant relationship between these two antecedents with a t-value of 13.74 ($p < 0.001$).

The positive significant relationship between self-efficacy and perceived usefulness means that consumers' assessment of their competencies and capabilities, as well as the extent to which they believe they can complete a task such as m-shopping has an impact on the consumers' perception of the usefulness of m-shopping. Thus, when a consumer believes they are more confident and capable at undertaking m-shopping, the consumer will perceive the m-shopping experience to be more useful. This is consistent with the literature where Li *et al.* (2012) note that a consumer with higher levels of self-efficacy may exhibit greater control in conducting purchases over the internet whilst feeling safe and comfortable, thus finding better use of m-shopping.

8.3.3 The influence of perceived ease of use on perceived usefulness

A positive relationship was expected between perceived ease of use and perceived usefulness. Results from the structural model indicate that there was indeed a positive significant relationship between these two antecedents with a t-value of 3.13 ($p < 0.01$).

The positive significant relationship between perceived ease of use and perceived usefulness illustrates the subsidiary relationship that perceived ease of use is reported to have with perceived usefulness in the literature (Venkatesh & Davis, 2000; King & He, 2006). Furthermore, the positive significant relationship between perceived ease of use and perceived usefulness indicates that the perceived ease of use of m-shopping contributes to the perceptions that a consumer holds about the usefulness of m-shopping. Bruner and Kumar (2005) explain that users are likely to consider a technology useful when they perceive the technology as easy to use. Consumers who perceive that m-shopping requires little effort would thus perceive it to be useful, which concurs with the findings reported by Ramayah and Ignatius (2005).

8.3.4 The influence of perceived ease of use on customer satisfaction

A positive relationship was expected between perceived ease of use and customer satisfaction. However, the results of the structural model indicate that there was not a significant relationship between these two antecedents as the t-value was -0.56.

The non-significant relationship between perceived ease of use and customer satisfaction indicates that perceived ease of use has an inconsequential effect on customer satisfaction. The reason for this relationship indicated in the structural model may be explained by demographic characteristics of the sample of this study. The majority of the respondents were experienced m-shoppers. Experienced m-shoppers are already aware of how to use a mobile phone to conduct m-shopping activities, and thus the ease at which m-shoppers do it could be irrelevant to how satisfied they are with m-shopping purchases. They are also proficient and/or familiar with the navigation and payment processes, and the general m-shopping interface. Thus, perceived ease of use does not affect m-shopper's level of satisfaction with the m-shopping experience.

8.3.5 The influence of perceived usefulness on customer satisfaction

A positive relationship was expected between perceived usefulness and customer satisfaction. Results from the structural model indicate that there was indeed a positive significant relationship between these two antecedents with a t-value of 3.21 ($p < 0.01$).

The positive significant relationship between perceived usefulness and customer satisfaction suggests that when a consumer perceives m-shopping to be useful, they will in turn be satisfied with m-shopping. Thus, perceived usefulness of m-shopping creates customer satisfaction when m-shopping. The reason for this can be explained by the fact that perceived usefulness increases consumers' overall online buying performance (Mahmood *et al.*, 2000), and thus consumers may feel more satisfied with what they have achieved during the purchasing process. In a similar vein, if consumers perceive a mobile phone to improve their shopping performance, productivity, and efficiency in the buying process, they are more likely to be satisfied with the overall m-shopping experience.

8.3.6 The influence of confirmation on customer satisfaction

A positive relationship was expected between confirmation and customer satisfaction. Results from the structural model indicate that there was indeed a positive significant relationship between these two antecedents with a t-value of 11.95 ($p < 0.001$).

The positive significant relationship between confirmation and customer satisfaction indicates that when a consumer's expectations are met when m-shopping, they are in turn satisfied with m-shopping. Thus, increased fulfilment of expectations when m-shopping will result in increased customer satisfaction of m-shopping. This conclusion is in line with Bhattacharjee's (2001a) Expectation-Confirmation Theory that denotes that consumers experience satisfaction based on their confirmation level, and their expectations on which that confirmation was based.

8.3.7 The influence of customer satisfaction on utilitarian value

A positive relationship was expected between customer satisfaction and utilitarian value. Results from the structural model indicate that there was indeed a positive significant relationship between these two antecedents with a t-value of 26.52 ($p < 0.001$).

The positive significant relationship between customer satisfaction and utilitarian value indicates that customer satisfaction of m-shopping derives utilitarian value. This finding is in line with Gale and Wood's (1994) explanation of customer value management, which illustrates that customer satisfaction is an antecedent of value creation. Thus,

customer satisfaction can lead to utilitarian value in task completion and fulfilment of goal-orientated objectives. Utilitarian value incorporates the quick selection and purchasing of products, easy product and price comparison, and enabling consumers to shop when they have limited time and resources. A customer may feel fulfilled with their mobile purchases, where time, convenience and money-saving are present. Owing to these specific types of satisfaction, the consumer obtains utilitarian value.

8.3.8 The influence of customer satisfaction on hedonic value

A positive relationship was expected between customer satisfaction and hedonic value. Results from the structural model indicate that there was indeed a positive significant relationship between these two antecedents with a t-value of 32.14 ($p < 0.001$).

The positive significant relationship between customer satisfaction and hedonic value indicates that a customer's satisfaction with m-shopping results in hedonic value. This finding concurs with Gale and Wood's (1994) explanation of customer value management, which illustrates that customer satisfaction is an antecedent of the creation of value. Thus, customer satisfaction can create a sense of pleasure, play, flow, fantasy and fun when m-shopping. For example, when a consumer is satisfied with the aesthetics of the m-shopping experience, such as the interface, colour schemes, and any other possible facet that could generate pleasure, they obtain hedonic value from the m-shopping experience.

8.3.9 The influence of utilitarian value on trust

A positive relationship was expected between utilitarian value and trust. Results from the structural model indicate that there was indeed a positive significant relationship between these two antecedents with a t-value of 3.67 ($p < 0.001$).

The positive significant relationship between utilitarian value and trust indicates that utilitarian value will generate trust. This finding is in line with Karjaluoto *et al.* (2014) and Cazier *et al.* (2006), who found that value is a central antecedent of the creation of trust. Thus, an increase in utilitarian value will also increase trust among consumers when m-shopping. The reason for this relationship may be rooted in the fact that utilitarian value may provide a sense of security and safety because utilitarian value

permits functionality and goal completion, thus assuring customers that the processes in the m-shopping experience are sufficient and effective. Thus, utilitarian value may facilitate consumer assurance based on process and purchase completion which, in turn, increases a consumer's level of trust.

8.3.10 The influence of hedonic value on trust

A positive relationship was expected between hedonic value and trust. Results from the structural model indicate that there was indeed a positive significant relationship between these two antecedents with a t-value of 7.22 ($p < 0.001$).

The positive significant relationship between hedonic value and trust indicates that hedonic value will generate trust. This finding corresponds with findings by Karjaluoto *et al.* (2014) and Cazier *et al.* (2006), where it is explained that value is a central antecedent of the creation of trust. Thus, an increase in hedonic value will increase trust among consumers when m-shopping. The reason for this relationship may be rooted in the fact that hedonic value is an emotive construct, which comprises a consumer's emotional connection and pleasure with m-shopping. Thus, when the emotional deliverables are present (hedonic value), consumers may trust the system (m-shopping) more.

8.3.11 The influence of trust on the continuance of m-shopping

A positive relationship was expected between trust and the continuance of m-shopping. Results from the structural model indicate that there was indeed a positive significant relationship between these two antecedents with a t-value of 7.44 ($p < 0.001$).

The positive significant relationship between trust and the continuance of m-shopping indicates that trust has the ability to generate continuance, where a positive direction indicates that the more a consumer trusts m-shopping, the more likely it is that the particular consumer is willing to continue m-shopping. This finding is in line with those of Anthony and Mutalemwa (2015) and Gefen *et al.* (2003), who confirm that trust is associated with heightened levels of intended use. The reason for this is because trust nurtures assurance, safety, security, and the reduction of risk. If consumers trust m-shopping more, they are more comfortable to make purchases, which may result in

the continuance of m-shopping. On the other hand, a consumer who does not trust m-shopping and who believes that purchasing products and using the system is risky, will result in the consumer avoiding m-shopping.

8.3.12 The influence of subjective norm on the continuance of m-shopping

A positive relationship was expected between subjective norm and the continuance of m-shopping. Results from the structural model indicate that there was indeed a positive significant relationship between subjective norm and continuance of m-shopping with a t-value of 6.07 ($p < 0.001$).

The positive significant relationship between subjective norm and the continuance of m-shopping indicates that an increased subjective norm towards m-shopping results in the increased continuance of m-shopping. This finding is in line with Venkatesh and Davis (2000) TAM 2 model. Thus, social and peer pressures do play a part in the continuance of m-shopping where consumers' social circles, such as their immediate friends and family, have the ability to influence whether consumers will choose to continue to m-shop. The reason why subjective norm affects the continuance of m-shopping positively is because immediate friends and family have the ability to sway consumers' opinions about what they are doing and why they are doing it, especially if those individuals are important to the consumer in question. When a person whose opinion matters positively reinforces the idea of m-shopping in the consumer's mind, the latter's behaviour with regard to m-shopping will be strengthened, and as a result, the likelihood of the continuance of m-shopping will also increase.

8.3.13 The influence of innovativeness on the continuance of m-shopping

A positive relationship was expected between innovativeness and continuance of m-shopping. Results from the structural model indicate that there was indeed a positive significant relationship between these two antecedents with a t-value of 3.71 ($p < 0.001$).

The positive significant relationship between innovativeness and the continuance of m-shopping indicates that a consumer's level of innovativeness influences their continuance of m-shopping. This finding is in line with the literature of Aldás-Manzano *et al.* (2009), Zampou *et al.* (2012) and Zhao *et al.* (2012). Thus, the extent to which

a consumer is technologically ready, technologically adept and willing to take risks in engaging with technology, determines their continuance of m-shopping. Thus, a more innovative consumer is believed to be more inclined to continue m-shopping. More innovative consumers may also find the use of technology easier, they learn systems faster, and are able to optimise their use quickly, which in effect increases their chance of continuing m-shopping. For example, if a consumer can readily learn and understand how to conduct purchases on their mobile phone they are more inclined to continue using their mobile phone to facilitate purchasing processes. However, if an individual is not innovative and reluctant to learn or use new technology, and therefore struggles with engaging with mobile devices and m-shopping portals, they will be less inclined to continue using the mobile phone to conduct transactions.

8.4 MANAGERIAL IMPLICATIONS AND RECOMMENDATIONS

The following section addresses the managerial implications of the results that were generated by the study. The section considers how the results may affect firms and what firms can do to align their strategies accordingly. Recommendations are made given the findings of the primary research, while the section also synthesises the secondary research to make further recommendations.

8.4.1 Managerial implications of the structural model

The structural model produced in this study shows the importance of the relationships in the m-shopping experience, where each relationship has the potential to facilitate the next. It was shown that customer satisfaction has a positive relationship with hedonic and utilitarian value, hedonic and utilitarian value has a positive relationship with trust, and trust has a positive relationship with the continuance of m-shopping. The aforementioned is important to firms as it means that no outcome should be disregarded when creating and nurturing the m-shopping experience. Each outcome contributes to the dependent variable, namely the continuance of m-shopping. It is thus recommended that firms ensure that they first satisfy their customers on m-shopping portals so that consumers can experience sufficient hedonic and utilitarian value. Once both these value sets are in place, it may allow consumers to generate feelings of trust for the firm, and once this is true, a more comfortable and assured consumer would be more likely to continue m-shopping. The continuance of m-

shopping should generate greater revenue streams for firms, and is thus considered the ultimate outcome after addressing consumers' satisfaction, value, trust and other concerns.

However, the question arises as to what initially establishes customer satisfaction to offset the chain of relationships explained earlier? As shown in the structural model, confirmation was the strongest antecedent of customer satisfaction with a t-value of 11.95 ($p < 0.001$). Thus, it is recommended that firms concentrate on meeting customers' expectations on m-shopping platforms. Where promises are made by firms they should deliver accordingly, which includes not merely selling goods and/or services, but ensuring timely delivery and post-purchase dialogue to make sure the customer's requirements have been met during the entire m-shopping process. Perceived usefulness was also seen to positively influence customer satisfaction, with self-efficacy as a strong precursor of customer satisfaction. Thus, it is recommended that firms address users' beliefs about their competencies and capabilities with regard to m-shopping, which can be done by means of educational m-shopping programs. An example of this would be a website that interactively displays to consumers how to navigate, search for, and buy products using a help function. Potential consumers should be shown how useful the m-shopping process can be, and in turn this may result in a greater perceived usefulness of the mobile phone for m-shopping, leading to an increase in self-efficacy and perceived usefulness, and eventually better customer satisfaction.

Furthermore, the importance of subjective norm in the continuance of m-shopping was illustrated in the structural model. Firms should take this relationship into account, as it means that peers and social groups, to a certain extent, do determine the continued use of m-shopping portals. Firms should thus not only communicate with m-shoppers, but also to a wider audience, by portraying that it is acceptable to m-shop according to family and friends (people that matter). The acceptance from extended circles has the potential to facilitate the continuance of current m-shoppers as well as to attract potential new m-shoppers.

In the structural model, it could be seen that innovativeness also positively influenced the continuance of m-shopping. Firms should thus take into account the level of technology readiness of their potential consumers before entering into potential m-

shopping endeavours. This can be done by assessing a consumer's characteristics, such as whether consumers are risk-takers, ready learners and future thinkers. A consumer's level of innovativeness further perpetuates the previous point made about m-shopping education programs, where educated consumers can become more empowered with using m-shopping, and in turn increase their intentions to use m-shopping, or continue using m-shopping.

As previously mentioned, the outcomes addressed in this research are vital in stimulating the continuance of m-shopping: customer satisfaction, utilitarian value, hedonic value, and trust. But what should firms do to ensure that they can achieve these outcomes with their m-shopping endeavours?

As previously mentioned, customer satisfaction in m-shopping should be addressed based on fulfilling customer expectations (confirmation). Moreover, customer satisfaction should also be nurtured by delivering quality goods and services that are true to their online descriptions and also in the timeframe promised. Competitively priced products and quick price comparison are also predecessors in establishing customer satisfaction.

Ensuring utilitarian value is present within a firm's m-shopping model should consist of creating m-shopping systems that are functional, objective and goal orientated. A recommendation in achieving this would be to create mobile reference websites that are clear and concise, while the purchasing process should be understandable. Another recommendation based on nurturing utilitarian value for firms would be to implement an algorithm on m-shopping portals that records the searches of each unique consumer, and that delivers products and services on the home page that are related to previous searches. The aforementioned would make the searching and buying process more relative to each unique consumer's needs and may generate greater functional value.

To ensure that hedonic value is present and effective in a firm's m-shopping strategy, m-shopping systems should be pleasure-orientated, provide fun and fantasy, and include a sense of flow and escapism. This can be achieved by addressing the aesthetic design of the mobile reference website. The aesthetic design includes the colour scheme, pictures of each item, the way in which the shopping cart loads and

ads items, and the general feel of the overall experience. Ismail, Malone, van Geest and Diamandis (2014) explain that an important facet of empowering people to feel good is rooted in gamification. Ismail *et al.* (2014) explain gamification as the use or integration of games that consumers may interact with in digital buying processes. Ismail *et al.* (2014) further assert that gamification concentrates on making a consumer feel good, and should assist consumers in making progress towards the things that matter most to them. According to Ismail *et al.* (2014) gamification has three techniques: firstly, dynamics, where consumers are motivated through scenarios, rules and progression, secondly, mechanics, where consumers achieve goals through teams, competitions, rewards and feedback, and thirdly, components, where consumers' progress is tracked by quests, points, levels, badges and collections. Firms could consider including gamification in the searching and/or buying process, where consumers can play a dynamic, mechanic or component-based game with potential rewards and discounts on those items that they are interested in. This may stimulate a greater sense of fun and playfulness, as well as escapism. However, integrating gamification on mobile reference websites should be done with the consideration that the initial purpose of the m-shopping effort is to buy items, and not to play games. Thus, the firm should make the game as least time-consuming as possible, as well as to place it in an area where it is an optional part of the purchasing process, allowing consumers to overlook it if they are just there to buy.

Ensuring that trust is present in a firm's m-shopping model considers two important facets: privacy and security. To make sure that privacy in m-shopping is guaranteed, the firm should allow personal information to be optional in registration processes (aside from the information required to make purchases). Moreover, firms should reiterate to their customers that they will not sell their customers' information to third parties. Privacy also takes into account the level of direct communication the firm has with the m-shopper, where the firm should not force sales onto the consumer, but rather allow them to opt-in for buying information. Security considers the protection of consumers' information that consumers regard as highly sensitive. Consumers do not want to shop on mobile reference websites that could potentially result in the leaking of their credit card or other information. Firms should put in place smart buying procedures that reduce the need for constant providing of sensitive information.

Furthermore, purchase checks should be made with buyers to ensure the person buying the items is in fact who he or she claims to be. An example of a purchase check would be to use an SMS confirmation that is sent to the account holder's mobile phone number. This should contribute to consumers feeling safer when m-shopping and generate a greater overall trust.

It is suggested that firms who use m-shopping as a means to facilitate purchases with consumers should make use of the structural model in this study, and ensure that they understand the antecedents that are required to achieve the specific outcomes. More importantly, firms should ensure that each of the abovementioned outcomes are present and provided for in their own m-shopping experiences.

8.4.2 Managerial implications of the ANOVA tests

The following section provides managerial implications of the results from the ANOVA tests that were discussed in Chapter 7.

a) The continuance of m-shopping and age

It was found that there was no difference between the age of a respondent and their intention to continue m-shopping. Thus, firms do not need to focus on specific age groups when attempting to enhance the continuance of m-shopping on mobile reference websites.

b) The continuance of m-shopping and gender

It was found that there is a significant difference in males and females and their intention to continue m-shopping. Firms should thus consider which gender buys or is interested in their product(s). As can be seen from Table 7.12 and Figure 7.11, females were reported to have bought the most in every item category, which supports the findings of the ANOVA test. Thus, it would be recommended that firms who wish to stimulate the continuance of m-shopping should make a focused effort to target female m-shoppers. A detailed analysis of the typical female shopping basket can be of great assistance to firms. Pursuing female m-shoppers can be done by offering gender-specific products.

c) The continuance of m-shopping and the number of times an individual had m-shopped

It was found that there is a significant difference in the number of times an individual had m-shopped and their intention to continue m-shopping. Thus, firms who stimulate a first-time purchase, may encourage consumers to continue to a second-time purchase, and so forth. A ripple effect could occur from successful previous purchases, and therefore firms should take note that creating successful first-time interactions may be crucial in stimulating continued purchase intentions of m-shopping. The aforementioned may also indicate that consistency in delivering successful purchases is a strong predecessor in creating the intention to make more mobile purchases.

d) The continuance of m-shopping and the single largest amount of money spent on an individual mobile purchase

A significant difference was found in the continuance of m-shopping and the single largest amount of money spent on an individual mobile purchase. Thus, the more money that is spent on a mobile purchase, the more likely it is that a consumer will continue m-shopping. Higher priced goods may demand more trust from consumers, as there is greater risk on their part when engaging with high-priced goods and/or services. However, when the purchase proves successful, consumers may feel that they can trust the retailer, and will in turn have an increased likelihood of continuing to m-shop. Firms should thus ensure that all items that can be seen as expensive on m-shops are prioritised and that quality-checking procedures are implemented to decrease purchase and/or delivery failure. Decreasing the chance of failure in transactions of expensive items may in turn increase the chance of consumers' intention to continue m-shopping.

8.4.3 General managerial implications and recommendations for firms

M-marketing needs to be exploited for its unique capabilities by marketers by making use of databases for opt-in methods, use its highly responsive and accurate targeting methods, and finally manipulate the mobile device that is used to communicate with friends and family, and communicate with consumers in a similar fashion. Moreover,

mobile marketers should exploit the fact that mobile phones provide convenience, low cost and compulsive use, and integrate these features into marketing campaigns.

Marketers should focus on understanding a customer's behaviour before making the communication attempt, to deploy a marketing effort that is truly time- and space-specific. Marketers should pursue social networking opportunities, where one can embed messages strategically in the mobile phone's newsfeed of potential customers. Marketers should also consider the dynamic location tracing abilities of a mobile device, where marketers should tie a campaign to a location-based benefit, which can allow the consumer to feel more involved, send a message that is more applicable, and communicate an idea that holds the potential to enrich the consumers' current time and space.

Providers of m-shopping facilities need to be aware of the fact that consumers can easily switch from one website to another with a few clicks, meaning their service offering needs to be optimised at all times. System providers of m-shopping should invest substantially in mobile Internet infrastructures as well as web-dedicated hardware and software.

Retailers should begin to look at their buying and selling processes in terms of an omni-channel shopping experience, where mobile devices and m-shopping should be integrated with the use of other retail channels as a complete complementary support system. M-shopping has the ability to act as a conduit to shape retailing experiences based on the information available on the mobile device, as well as information available in retail settings that mobile devices can manipulate.

Marketers should consider ways in which mobile devices can enable experiences that are bridged between the online and offline world. A current example is observed by the use of QR codes, which facilitate purchases, information acquisition, and information-sharing with a two-dimensional bar code that is frequently placed in print media for consumers to scan with their mobile devices.

Marketers should realise that information sources and channels are becoming more intelligent and powerful with the use of technology and mobile interfaces. Marketers should integrate these devices with their communication efforts, as consumers will use them as their primary means of information extraction. Marketers should also deploy

strategies that allow themselves to become part of the consumer's knowledge base rather than being an external agent. This can be achieved by means of adopting an intermediary role in the consumption process as a digital assistant that is interactive, immediate and personal.

Brands and retailers should engineer serendipity in shopping by the use of the mobile device. This can be realised by gathering marketing metrics on consumers' shopping behaviour and transactions, of which individual consumer preferences can be learnt over time, allowing for truly tailored communication efforts that integrate themselves into consumer habits and behaviour. The virtual m-shopping experience should look towards delivering immerse content, adhere to consumer's personal requirements, and generate opportunities for social engagement.

8.5 CONTRIBUTIONS OF THE STUDY TO THE UNDERSTANDING OF M-SHOPPING

This study is a pioneering endeavour as it offers the first structural model where the identified antecedents and outcomes have not yet all been studied in one comprehensive model. As such, the structural model in this study examined relationships in m-shopping that have not been reported in the literature before. It is hoped that this study will be seen as valuable because of the number of latent constructs and the various relationships studied. The model may assist both researchers and firms in understanding the overall m-shopping experience, where paths between antecedents and outcomes illustrate important synergy in that each relationship is beneficial to the next. Moreover, the structural model generated in this study helps to better explain m-shoppers behaviour, and illustrates causal relations between constructs, allowing researchers and firms to understand reasons as to why m-shoppers would continue m-shopping.

This study is not industry-specific nor is it product- or service-specific, and thus gives an overall view of the m-shopping experience. This study's broad and generic nature may allow for further research to be conducted in the field of m-shopping. The findings in respect of different demographic characteristics produced by the study allow researchers and firms to better understand the types of consumers that are m-shopping, as well as their specific buying behaviour. This buying behaviour was

particularised by item category, where results illustrated the most popular m-shopping items. The demographic findings also illustrated differences in gender, age, the number of times an individual had m-shopped, and the amount of money spent in accordance with the continuance of m-shopping, which further assisted in contributing to managerial implications and considerations for firms and marketers.

Although with caution, the results in this study can be generalised across industries given the broad product categories included in the questionnaire. Moreover, the demographic profile of the sample was equally split between males and females, and thus the results may be generalised across both gender groups.

8.6 LIMITATIONS OF THE PRESENT STUDY

A limitation of the study was that it was confined to mobile phones and mobile reference websites, and that Tablets and mobile applications were excluded due to the required large sample size.

A further limitation was that a convenience sample was used due to limited resources and time constraints. The limitation in using a convenience sample in this study is that the researcher cannot be certain as to why some respondents pre-selected for the study did not respond to the survey sent to them by email, or why they chose to leave out certain questions in the survey. There may be many factors indicating to the aforementioned, however, potential respondent bias cannot be known for certain unless directly investigated for.

Additionally, the present study included various industry types, and product and service types. The broad inclusion of industry types and product and service types means that the findings are more generic. However, the aforementioned was intentional so as to generate an overall model for the m-shopping experience.

8.7 POSSIBLE AREAS FOR FUTURE RESEARCH

The first area for possible future research is to extend the present study by conducting the same research but with Tablet devices, as well as mobile applications. The research can measure the results of Tablet devices and mobile applications against

the results generated in this study, and compare the differences between the two cohorts to highlight the differences between the different types of m-shopping.

Table 8.1 illustrates the possibility for a future study that could consist of all four different types of m-shopping groups that include mobile phones, Tablets, mobile reference websites, and mobile applications. Researchers could test all four groups against each other and measure the differences in the results of each structural model. However, a study of this large number of different groups would require exceptionally large sample sizes, as the present study required the input of 440 respondents.

Table 8.1
Possible future study with four different m-shopper groups

	Group 1	Group 2	Group 3	Group 4
Device	Mobile phone	Tablet	Mobile phone	Tablet
Mobile portal	Mobile reference website	Mobile reference website	Mobile application	Mobile application

Another area for possible future research would be to exclude perceived ease of use as an antecedent, as it had no effect on customer satisfaction, and to determine whether similar results will be produced as that of the present study.

Additionally, it is recommended that researchers further analyse the demographics that influence m-shopping, as this study produced very definitive results with regard to age groups, gender and purchasing behaviour. Researchers should take the most popular products reported in this study and undertake studies restricted to only those items. For instance, re-conducting this study but considering only tickets for a concert as a reference point, as this was the most purchased item in this study's sample. The possibility of having a specific item in mind whilst answering the questionnaire may change the results and be more specific to certain industries, rather than the holistic m-shopping experience (as was the case in the present study). To state otherwise, researchers can revise this study or the suggested study in Table 8.1 with application to product confinement, industry confinement, as well as investigation into specific target markets, where researchers could look for differences within those markets.

Finally, researchers can focus on specific m-shopping firms, such as takealot.com, loot.com and amazon.com to frame a point of reference in the consumer's mind when

answering the questionnaire, and in turn measure the firm's m-shopping performance. This can be achieved by using the structural model in the present study and any m-shopping firm.

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ANNEXURE A: QUESTIONNAIRE



UNIVERSITEIT • STELLENBOSCH • UNIVERSITY

Mobile Shopping Survey

Welcome

We are undertaking research to investigate people's continued use of shopping with mobile phones on websites.

Thank you for taking the time to fill out this questionnaire. All information provided by you will be treated with the utmost standard of privacy and confidentiality. No information will be disclosed to any other party and no information will be reported on an individual basis.

This study forms a part of a Student's work for a Master's degree in Marketing and the questionnaire will take less than 6 minutes to complete. Your participation is voluntary and you can stop at any time should you feel uncomfortable. Your information, identity and responses will remain anonymous.

It is important to note that to qualify for this study you need have made a mobile purchase on a mobile reference website using a mobile phone. This excludes the use of a Tablet device to perform transactions. This also excludes the use of mobile Apps (Applications) to perform transactions.

If you have any questions regarding this survey please contact us at: Mshoppingsurvey@gmail.com

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Mobile Shopping Survey

Qualification question

*** 1. Have you made a purchase on a mobile reference website using a mobile phone?**

- Yes
- No

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Mobile Shopping Survey

* 2. Rate each statement from **1 to 10**, where **1** indicates that you **'Strongly Disagree'**, and **10** indicates that you **'Strongly Agree'**.

	Strongly Disagree										Strongly Agree
	1	2	3	4	5	6	7	8	9	10	
M-shopping improves my efficiency to shop	<input type="radio"/>										
I think m-shopping is easy	<input type="radio"/>										
My experience with m-shopping websites was what I expected	<input type="radio"/>										
Overall, I am satisfied with the m-shopping experience	<input type="radio"/>										
I think my information is held confidential by all parties when m-shopping	<input type="radio"/>										
The m-shopping experience is truly a joy	<input type="radio"/>										
I accomplished just what I wanted to with m-shopping	<input type="radio"/>										
I intend to use m-shopping again in the near future	<input type="radio"/>										
Most people who are important to me think that I should use m-shopping	<input type="radio"/>										
When m-shopping I achieve what I set out to do	<input type="radio"/>										
I was among the first of my family, friends and colleagues to try m-shopping	<input type="radio"/>										

Mobile Shopping Survey

* 3. Rate each statement from **1 to 10**, where **1** indicates that you **'Strongly Disagree'**, and **10** indicates that you **'Strongly Agree'**.

	Strongly Disagree										Strongly Agree
	1	2	3	4	5	6	7	8	9	10	
M-shopping is useful because it saves me time	<input type="radio"/>										
Finding my way on m-shopping websites is easy	<input type="radio"/>										
The product and service provided by m-shopping retailers met my expectations	<input type="radio"/>										
I am satisfied with the purchases that I have made when m-shopping	<input type="radio"/>										
When m-shopping I found that retailers are trustworthy	<input type="radio"/>										
Compared to the other things I could have done, the time spent m-shopping was truly enjoyable	<input type="radio"/>										
While m-shopping, I could buy what I really needed	<input type="radio"/>										
M-shopping will become a main source of my shopping habits in the near future	<input type="radio"/>										
The people in my life whose opinions I value would approve of my m-shopping	<input type="radio"/>										
I feel capable of buying products through m-shopping	<input type="radio"/>										
I am willing to take the risk of engaging with new or unfamiliar technologies	<input type="radio"/>										

Mobile Shopping Survey

* 4. Rate each statement from **1 to 10**, where **1** indicates that you **'Strongly Disagree'**, and **10** indicates that you **'Strongly Agree'**.

	Strongly Disagree	1	2	3	4	5	6	7	8	9	Strongly Agree	10
Price comparison is a useful feature of m-shopping		<input type="radio"/>										
The payment process on m-shopping websites is easy		<input type="radio"/>										
Overall, most of my expectations when m-shopping were met		<input type="radio"/>										
I perceive m-shopping to be a quality experience		<input type="radio"/>										
M-shopping retailers carry out the undertakings they give		<input type="radio"/>										
The m-shopping experience truly feels like an escape		<input type="radio"/>										
While m-shopping, I found all the item(s) I was looking for		<input type="radio"/>										
I believe my interest in m-shopping will increase in the near future		<input type="radio"/>										
Most people who are important to me would think that my use of m-shopping is a good idea		<input type="radio"/>										
I feel in control when I am m-shopping		<input type="radio"/>										
I am eager to try new technologies		<input type="radio"/>										

Mobile Shopping Survey

* 5. Rate each statement from **1 to 10**, where **1** indicates that you **'Strongly Disagree'**, and **10** indicates that you **'Strongly Agree'**.

	Strongly Disagree	1	2	3	4	5	6	7	8	9	Strongly Agree	10
I think m-shopping is useful to purchase goods and services	<input type="radio"/>											
Information provided to me on m-shopping websites greatly determines the ease of use	<input type="radio"/>											
The expectations created by m-shopping websites were fulfilled	<input type="radio"/>											
My evaluation of m-shopping is positive	<input type="radio"/>											
I think m-shopping is secure	<input type="radio"/>											
I enjoyed being engaged in exciting new products offered through m-shopping	<input type="radio"/>											
I found that m-shopping retailers offered good financial value	<input type="radio"/>											
I intend to use m-shopping as much as possible	<input type="radio"/>											
The people in my life whose opinions I value would approve of my m-shopping	<input type="radio"/>											
I am a knowledgeable m-shopper	<input type="radio"/>											
I can figure out m-shopping without the help of others	<input type="radio"/>											

Mobile Shopping Survey

*** 6. What is your age in years?**

- <18
- 18 - 29
- 30 - 44
- 45 - 59
- 60+

*** 7. What is your gender?**

- Female
- Male

*** 8. What is the total number of times you have made a purchase through a website on a mobile phone?**

- 1 time
- 2 to 5 times
- 6 to 10 times
- 11 to 15 times
- More than 15 times

*** 9. What is the most amount you have spent on one item when m-shopping?**

- Less than \$5 / R65
- \$5 - \$20 / R65 - R260
- \$21 - \$49 / R275 - R640
- \$50 - \$100 / R650 - R1300
- More than \$100 / R1300+

Mobile Shopping Survey

* 10. Please indicate the amount of times you have bought each item listed below

Amount of times purchased

Books	<input type="text"/>
Music	<input type="text"/>
Tickets for a concert	<input type="text"/>
Tickets for a bus trip	<input type="text"/>
Air flight tickets	<input type="text"/>
Personal toiletries	<input type="text"/>
Clothes	<input type="text"/>
Shoes	<input type="text"/>
Wine	<input type="text"/>
Computers	<input type="text"/>
Cameras	<input type="text"/>
Appliances	<input type="text"/>

Other (please specify what item and how many times)

11. Email address (optional)

Prev

Done