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An investigation into the effects that internet user experience, payment reliability and delivery reliability have on e-Commerce use in South Africa

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Abstract

This research investigates the extent of retail e-commerce use in South Africa with respect to the reliability of payments and the delivery system. This is aligned to the consumer's internet experience. The Technology Acceptance Model and e-Service Quality Model provide a framework for this research.

This investigation has focussed on the use of e-commerce through various distribution channels, such as services (e-Tickets or flights), delivered goods, downloaded media and auction sites.

This quantitative research was conducted through a survey of internet users (within LSM 9 and 10) and the findings compared the respondents' internet experience with their use of e-commerce.

It was found that e-commerce adoption is related to the years of internet use and degree of internet utilisation. Furthermore, the amount spent by consumers through the internet increases with more frequent e-commerce use. The findings also reveal that a high proportion of respondents were tentative, to some degree, about online payments. In addition, the delivery of items through the postal services was considered to be unreliable, compared to courier services that were perceived to be reliable. These factors align with previous research and have an influence over the acceptance and growth of e-commerce in South Africa.

Declaration

I declare that this project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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Chapter 1 – Introduction

The research has evaluated the effects that the reliability of the delivery systems and the risk associated with internet payments have on the use of e-commerce within South Africa. Both of these aspects form part of the e-commerce process for purchasing products or services from internet retailers, and hence the growth of the industry relies on the acceptance and use of these supporting services. This research specifically focuses on business-to-consumer (B2C) e-commerce (retail) in combination with the acceptance of auction sites within South Africa. In addition, the use of e-commerce has been measured against the internet experience of users with respect to years of use and levels of use. For the purpose of this report, e-commerce is defined as the selling of goods and services over the Internet (Guay and Ettwein, 1998) and the supporting mechanisms that enable these transactions.

1.1. Research Objectives and Scope

The aim of the research has been to identify perceptions held by South African internet users about retail e-commerce. It has been specifically focussed at internet users falling within the Living Standards Measure (LSM) nine and ten classifications (SAARF, 2008). It is intended that this research will highlight areas of focus, so that the perceptions of e-commerce can be improved in the future to enlarge the market place for more open trade. This research has focussed on the perceived reliability of the payment system and the reliability of

the correct delivery of the product to the purchaser (Murillo, 2001). Reliability has been measured through the perceptions held by the target sample group towards e-commerce use. The findings are ultimately directed towards e-commerce stores, and supporting services, in order that they may deliver improved services to customers, thus encouraging industry use and growth.

The research has not focussed on the specific details of a particular internet site, but rather has determined the general attitude towards e-commerce of individuals falling into the target market. The report makes use of the Technology Acceptance Model (TAM) (Davis, 1989) in combination with attributes from the e-Service Quality framework, to understand users' general perceptions towards first time, and repeated, use of e-commerce.

1.2. Industry Context to Research

Goldstuck (2007a) has described how internet retail sales within South Africa increased to R929 Million for 2007 — a 36% increase on the 2006 performance. Although the market has increased, it is dwarfed by the online sales of airline tickets that were expected to reach R3 billion for 2007. Two reasons, proposed by Goldstuck (2007b), for growth, were the increased use of broadband in South Africa, together with a growing internet user base that had shown signs of passing an experience threshold, and was making more use of the internet.

Goldstuck proposed that from a total of 3.85 million internet users, an experienced market of 2.8 million users has been using the internet for more

than six years, and is expected to increase the online retail market as it becomes more comfortable with the e-commerce purchasing environment. The research aims to address this by measuring the acceptance of e-commerce against the frequency and experience of internet use.

The South African Telecommunications Sector Performance Review (Esselaar, Gillwald and Stork, 2006) illustrated an increase in the internet market, with the entry of Vodacom, MTN and iBurst capturing 53.2% of the broadband market, which was previously dominated by Telkom. This increased competition resulted in a more flexible, and better quality, system allowing even more South Africans to access the internet.

Within the South African context, it is evident that internet sales have been active, though dominated by the airline industry, with flights being purchased through e-Tickets. Although e-commerce in South Africa has grown over the last three years, it appears that the retail section, which requires goods to be delivered or downloaded, has seen staggered growth in comparison to services such as flights.

To highlight this problem, Amazon.com has stated that it will no longer deliver products using the South African Postal Service, making only courier services available (Naidu, 2008). As a result, it now costs an additional R400 for delivery of an item ordered from Amazon.com, depending on the exchange rate. In this case, the associated costs with the delivery will restrict users from making use of such international internet sites. This problem is not only limited to physical

goods, as currently, it is not possible to download mp3 music from Apple's i-tunes store using a South African credit card. This reveals the limitations of South Africa's delivery channels, which in turn detrimentally impacts on the growth of the e-commerce industry.

Goldstuck (2007a) indicated that 498 new stores opened in 2007, replacing the 310 stores that have closed since 2005. Therefore, the industry appears still to be growing in the country, although at the expense of other failed internet businesses. The E-Commerce Survey (Bredenhann, 2007), that was conducted by an online shopping mall site (www.Jump.co.za), illustrated that the greatest concerns of e-commerce stores were around deliveries and customer support, including the delivery of returned items.

This research investigated the factors that contributing towards the use or non-use of internet retail sites in the South African context. The Nielsen reports (Neilsen, 2007, 2008b), which list the top 10 most popular sites in South Africa, reveal that the most popular sites are dominated by information and communication. However, in the United States of America, eBay and Amazon both feature as retail sites within the top 10 most popular sites (Neilsen, 2008a). This is echoed in the UK, with eBay being in the top 3 sites (Neilsen, 2008c). Therefore, it appears that South Africa is trailing first world countries in terms of e-commerce popularity amongst the internet using public. If e-commerce was more active, one would expect to see Amazon.com, eBay.co.za, or their South African equivalents within the top 10 visited sites.

Most popular South African Websites: Mar 2008

Rank	Website*	Unique Browsers Mar 08	Unique Browsers Mar 07	% Unique Browsers growth since Mar 07	Publisher
1	news24	1,127,796	782,835	44%	Media24
2	MSN	747,371	-	-	MSN
3	MWeb	618,133	578,139	7%	MWEB
4	Webmail	599,584	503,793	19%	Interface
5	Hotmail	597,854	-	-	MSN
6	iol	585,374	509,422	15%	Independent Online
7	24.com	516,903	-	-	Media24
8	CareerJunction	310,710	231,136	34%	CareerJunction
9	SuperSport	290,290	143,340	103%	SuperSport Zone
10	Yellow Pages	262,340	174,220	51%	Yellow Pages South Africa

FIGURE 1-1 – MOST POPULAR SOUTH AFRICAN WEBSITES – MAR 2008

Source - Neilsen (2008b)

Table 1. Top 10 Parent Companies, Combined Home & Work (U.S.)

Parent	Unique Audience (000)	Time Per Person (hh:mm:ss)
1. Google	128,188	1:46:39
2. Microsoft	122,059	2:17:01
3. Yahoo!	117,065	3:08:40
4. Time Warner	105,566	3:40:04
5. News Corp. Online	76,453	1:49:21
6. eBay	67,047	1:52:41
7. InterActiveCorp	64,098	0:21:27
8. Wikimedia Foundation	56,259	0:17:51
9. Amazon	55,677	0:26:30
10. Walt Disney Internet Group	49,721	0:43:05

FIGURE 1-2 – TOP 10 USA PARENT COMPANIES

Source - Neilsen (2008a)

Similar results are shown in Appendix A, for the amount of time spent by South Africans in the various categories (Neilsen, 2008b, 2007).

1.3. Framework of the Research

The research focuses on the development of service quality, from the purchase of a particular item through to the delivery of the correct product to the customer. This includes the return and refund policies of incorrect deliveries. This is correlated with the levels of internet experience a user requires before making online purchases. Measurements used include the years of internet use, the levels of use, and the frequency with which the internet is used by the sample group.

The focus is not on the use of a particular delivery mechanism, but rather on comparing the purchasing preference of the delivery channels available for services and products. It is evident from the use of internet banking and online

flight tickets (e-tickets), that South Africans are using the internet to purchase specific types of items. Factors that restrict the sale of products where delivery is necessary, are highlighted. These products and services are summarised into the following subsets of e-commerce:

- Service or e-ticket purchases (B2C)
- Digitised goods (software or media that is downloaded – B2C)
- Products that are delivered to the purchaser (B2C)
- The usage of auction sites such as eBay or BidorBuy.co.za as a common market place (C2C – Consumer to Consumer)

With specific reference to South African business, the internet provides a potential market place for many entrepreneurs and small businesses, by exposing them to a wider audience. Furthermore, auction sites like eBay and BidorBuy enable individuals to sell their goods, encouraging financial growth with limited investment in online capabilities. If this market place was made more attractive, to the levels shown in the UK, where eBay is amongst the top 3 internet sites, it would allow individuals to sell their produce to a wider audience through lower barriers of entry (Neilsen, 2008c). Ultimately, if the acceptance of e-commerce is expanded to a larger population of internet users, through more reliable and cost-effective delivery channels, it promotes and supports entrepreneurship. In turn, it enables the potential spread of wealth across communities, allowing individuals to utilise e-commerce channels to close the digital division.

The research illustrates the ability for e-commerce stores within South Africa to attract and retain new customers. It highlights the perceived risks that need to be overcome, before users feel comfortable making purchases on-line. This includes the respondents' views towards online payments and the perceived reliability of the delivery services used for e-commerce. The principles of attracting new customers are outlined with the Technology Acceptance Model (TAM), (Davis, 1989), and the retention of customers is described using the framework of e-service quality. Both these concepts are discussed in the literature review in Chapter 2. This forms the basis for the research design and framework in which the results have been analysed.

Chapter 2 - Literature

This literature review addresses the foundations of the e-commerce sector, and the logistics of supply networks that are extended to provide the expected service quality to consumers. The individual's perspective is looked at and reasons why people choose to shop online are identified. The review also examines the development of trust that is required to entice first time users and to encourage repeat purchases, and looks at factors affecting this.

The review is framed around the Technology Acceptance Model (TAM), in combination with the service quality of e-commerce purchases. The Technology Acceptance Model (TAM) identifies usefulness and ease of use as two determinants for the utilisation of a system (Davis, 1989), addressing first time users of new e-commerce sites, and the re-use of that e-commerce system by experienced users (Lederer, Maupin, Sena, and Zhuang, 2000). The service quality of e-commerce systems extends these aspects to address delivery fulfilment, encouraging or discouraging consumers to make repeat purchases this way. Components of these two frameworks have been used throughout to design the research and frame the results. The TAM and e-service quality framework contextualise the perceived reliability of payments, and the delivery of products and services.

2.1. Technology Acceptance Model (TAM)

Davis (1989) applied the Technology Acceptance Model (TAM) towards the use of information technology, based on the perception of its usefulness and perceived ease of use. The TAM bases an individual's decision to utilise a system on the:

Perceived usefulness of the system that addresses the benefit, or efficiency, that will be enabled through the use of the system.

Perceived ease of use of technology that describes the user's ability to effectively interact with the system, in order to achieve the desired results within the system.

Originally, this was taken in the context of the work environment and was extended by Lederer *et al.* (2000) to focus on the overall use of the internet. The model identifies the intrinsic dimensions that deal with the availability of information and navigation within a specific web site. This correlates to the perceived ease of use. Therefore, if a user is able to easily navigate and retrieve the required information, they are more easily able to make a purchasing decision.

Tasks such as purchasing items or services through the internet (e-commerce) comprise the extrinsic factors. In this case, the technology is seen as a mechanism for completing a specific task. These extrinsic characteristics drive the usefulness of the technology, illustrated by Gefen and Straub (2000).

Thus, the effectiveness, reliability, and security of the payment system, and the expectation associated with the reliability of the delivery system, encourages or discourages use of the system. Zemke and Connellan (2001) point out that 63% of e-commerce shopping carts are abandoned by customers before the purchase is completed. This reflects on the ease of use for a particular site, and possibly the associated trust when payments are required. Unlike traditional physical stores, an e-commerce shopper is able to leave the shopping process at any stage, without any degree of commitment.

Liu and Wei (2003) used the Technology Acceptance Model to show that e-commerce products and services are adopted through different criteria. It was shown that the perceived risk associated with purchase fulfilment effects the decision to purchase goods. In comparison, the ease of use associated with the services was considered to be a determining factor for the adoption of e-commerce services.

Within this research, the TAM is used as a framework to evaluate the perceived benefits or usefulness of e-commerce, from payment to delivery within South Africa. The ease of use is used to measure the reliabilty of the delivery system. Although the delivery system is not considered a new technology, it is a vital part of the supply chain that is utilised within e-commerce transactions. This model focusses on the first time users of particular channels of e-commerce.

2.2. E-Commerce Service Quality

The levels of service quality are given as levels of excellence or quality, evaluated by the consumer's experience when compared to his/her levels of expectation. This is evaluated at the point of purchase delivery fulfilment (Santos, 2003), and can be a determinant of the loyalty developed with a particular customer through a number of interactions. As more product and service information becomes available through an increasing e-commerce marketplace, it is evident that internet stores are required to compete through service quality, rather than price (Wolfinbarger and Gilly, 2003). Those companies that choose to compete only on price have little strategic advantage and are easily copied, resulting in a zero sum game. This emphasises the requirements for strong e-Service quality. In Porter's (2001) view of the competitive forces within the e-commerce industry, he points out the low barriers to entry, and the ease with which customers can easily move, to other competitors, creating a strongly competitive industry.

Through a review of the literature, Parasuraman, Zeithaml and Berry (1985) put forward the following criteria for the measurement of service quality for traditional stores:

1. Access
2. Communication
3. Competence
4. Courtesy

5. Credibility
6. Reliability
7. Responsiveness
8. Security
9. Tangibles
10. Understanding and knowing the customer

This was later reviewed by Zeithaml, Parasuraman and Malhotra (2002) for e-commerce and the following criteria were identified as components of e-service quality:

1. Customization or personalization
2. Security/privacy
3. Responsiveness
4. Assurance or trust
5. Price knowledge
6. Site aesthetics
7. Reliability
8. Flexibility
9. Efficiency

This was after Parasurama and Grewal (2000) had reviewed criteria of how technology had impacted on the elements of the supply chain, identifying specific areas of research with regards to service quality.

Santos (2003) followed by defining the factors of e-service quality as being the following:

1. Reliability
2. Efficiency
3. Support
4. Communication

5. Security
6. Incentive

Wolfinbarger *et al.* (2003), through their research, identified the factors of e-service quality as being consolodated to the following:

1. Fulfilment or Reliability
2. Website Design (associated Trust)
3. Privacy and Security
4. Customer Service

In contrast, Janda, Trocchia and Gwinner (2002) suggest that the product offering does not interfere with the customer's perceptions of e-satisfaction. Rather, they depend more on the accuracy of product delivery and easy-to-use return policies, supported by email confirmation and tracking of orders. Product information and support, together with other sensory features, offered reassurance of quality and credibility, to users making purchase decisions. The results from this research suggest that customers are more concerned with the company's ability to timeously provide the correct product that met their expectations, than with financial and personal information security. Huarng and Christopher (2003) added to this concept by showing that post-purchase assistance and reviews helped build relationships.

In terms of loyalty development, Zemke *et al.* (2001) illustrate that when a user's experience of the purchasing outcomes are exceeded, the user moves towards developing loyalty. This happens despite the occurrence of occasional

delivery errors. However, the opposite is equally true, with unmet expectations resulting in customer defections. This is represented in FIGURE 2-1.

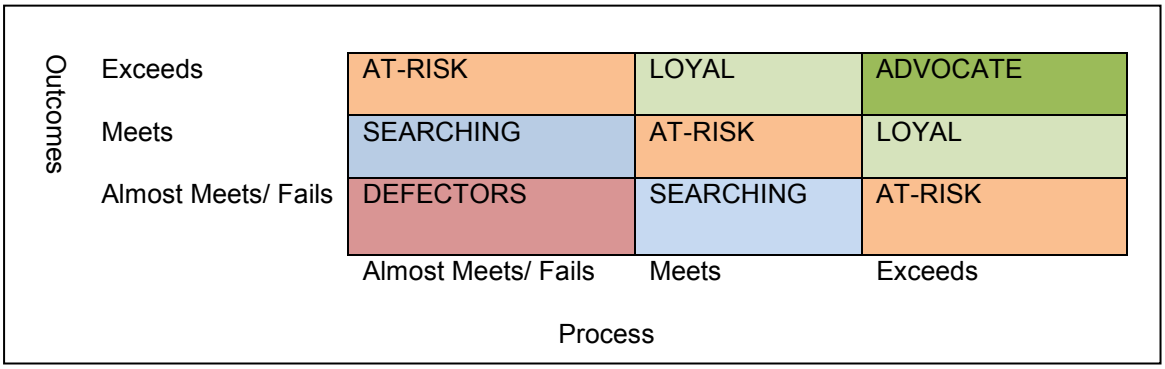

FIGURE 2-1 – CUSTOMER EXPERIENCE GRID

Source – Zemke and Connellan (2001). p 28

Through analysis of this literature, the following characteristics of e-Service quality have been summarised as -

- Fulfilment or Reliability (of service and product delivery)
- Customer Service (responsiveness)
- Security and Privacy (with regard to payment and user information)
- Website Design (navigation and ease of use)
- Trust (this has been shown to be inferred from the aesthetics of the internet site)

This summary focuses on the e-commerce process, and not necessarily the satisfaction or value associated with the use of the product or service.

2.3. Drivers of e-Commerce Use

Gounaris, Dimitriadis, and Stathakopoulos (2005) have identified that the drivers for use of e-commerce and derived e-Service Quality are:

- The user's general characteristics of internet familiarity
- Degree of e-commerce use
- Previous experience with e-commerce
- Reasons to use e-commerce
- Excitement with e-commerce

This is combined with the user's specific degree of trust in the company and past experience with it. The basis for this is that the user's technology readiness and shopping behaviour contributes to the user's positive or negative perceptions of e-Service Quality. Rust and Kannan (2002) point out that technology readiness is not purely a function of education, but rather a factor of the exposure to the respective technologies.

Using the Technology Acceptance Model (for first time users) and the model of e-Service Quality (for regular e-commerce users), this research aims to identify the perceived unreliability associated with e-commerce payments and delivery within South Africa. This unreliability in the fulfilment of the purchase is considered to be a risk to the user when deciding to make a purchase. The following sections address aspects of internet use in South Africa, as a developing economy, and identify user traits that contribute towards the use of e-commerce.

2.4. e-Commerce in Developing Countries

Molla and Licker (2005) identified the reasons for the lack of e-commerce adoption as being due to quality, availability and the cost of information and communications technology (ICT) infrastructure. This resulted in a lack of diffusion of e-commerce awareness through the various economic strata of the country. Murillo (2001) had previously defined the following six foundational structures that needed to be in place for an economy to effectively grow e-commerce -

- Electronic network infrastructure
- Transportation infrastructure
- Institutional infrastructure
- Cultural, educational and demographic factors
- Commercial, banking and accounting infrastructure
- Minimum disposable income

Murillo (2001) proposed that as an economy develops these foundations, it moves from informational e-commerce, through to fledgling Business-to-Consumer (B2C) e-commerce, and finally through to predictable profitability with Business-to-Business e-commerce (B2B). The auction sites are seen to be either flea-market type commerce (Consumer-to-Consumer C2C) or structured public bidding market places (Consumer-to-Business C2B) that come with an extensive foundation. This is summarised in TABLE 2-1.

Factors versus Stages in the Evolution of e-Commerce			
Factors	**E-Commerce incipiency of informational**	**E-Commerce dissemination or B2C**	**E-Commerce profitability or B2B**
E-network infrastructure	Limited	Extensive	Extensive
Transportation infrastructure	Limited	Extensive	Extensive
Commercial, banking, accounting infrastructure	Limited	Adequate	Extensive
Institutional infrastructure	Not Important	Important	Very Important
Cultural, demographic educational factors	Not Important	Important	Very Important
Costs and minimum disposable income	Not Important	Important	Very Important

TABLE 2-1 FACTORS VERSUS STAGES IN THE EVOLUTION OF E-COMMERCE

Source –Murillo (2001), p 373

In addition, Murillo (2001) pointed out that in developing countries the postal service is often state owned, as is the case in South Africa. The research continued to state that the postal services were seen as a hindrance to e-commerce.

Specific to South Africa's economy, as a developing country, the report from Roos and Jordaan (2006) indicated that internet usage could most likely be correlated to the ownership of a personal computer. Other factors such as education and disposable income added to the internet usage calculation, yet they concluded that individuals would spend on other items, before spending on internet access for information requirements. This situation is worsened by the high cost of internet usage. Therefore, this ties up with Murillo's (2001) model where the internet in South Africa is mainly perceived to be used for information

purposes. This is re-iterated by the Nielsen report (2008b), given in section 1.2, that showed the dominance of news and information sites in the top 10 ratings.

Roos *et al.* (2006) illustrated that men are the majority of internet users, and mainly in the work place. In addition, men were more likely to make internet purchases, combined with internet banking [(Webchek, 2000c) in Roos *et al.*, (2006, p9)]. This study also pointed to the digital divide occurring between rural and urban areas, where there was less ICT infrastructure and the average disposable income (in the rural areas) did not allow for the high costs of the internet. This contributed to the worsening digital divide, making it more difficult for rural markets to make use of, and sell into, e-commerce markets.

2.5. Factors that Attract Users to Internet Sites

Monsuwe, Dellaert and Ruyter (2004) highlighted in their literature review that “usefulness” and “ease of use”, in line with the Technology Acceptance Model, were two key drivers encouraging users to utilise the internet for purchasing. Cheng, Sheen and Lou (2006) reiterated this, adding that product information and features enhanced the user experience. The demographics of the user, such as age, gender, education, and income, affected the rates of use, together with the need to use the internet shopping media. As illustrated in a previous section, this should be combined with user-readiness and exposure. This is reflected in the fact that of greatest importance to online shoppers is convenience and accessibility.

Martı´nez-Lo´pez, Luna, and Martı´nez (2005) proposed that web site design had the greatest influence on customers' attitudes, compared to earlier studies pointing to the speed of navigation and web site delivery. This may not be the case in developing countries where there may be limited ICT (Electronic Network) infrastructure. Martı´nez-Lo´pez *et al.* (2005) showed that, in order for a customer to start using it, the perceived benefits of the internet and e-commerce needed to outweigh the perceived risks (where users are required to disclose personal and financial information). This aligns to the technology acceptance model, where the benefits should outweigh the risks of using the technology.

2.6. Trust Associated with Internet Purchases

Pennanen, Tiainen and Luomala (2007) proposed that the development of trust in e-commerce was orientated around the perceived risks being outweighed by the value extracted from the product or service. The trust of an e-commerce site can be developed through referrals from friends, and pre-testing of goods or service. Furthermore, the disposition of an individual to overcome the perceived risk is dependent on the degree of excitement mindedness of the individual balanced with their security orientation. .Demographics are suggested to have an influence on the perceived risk of e-commerce sites; however, this could probably be linked to the technology readiness of individuals. The perceived risk is also differentiated according to specific sites.

The users' perceived trust with the online shopping process can be summed up through their past experiences and "computer efficacy" (Marakas, Yi and Johnson, 1998 in Monsuwe *et al.*, 2004). Huff, Wade, Parent, Schneberger, and Newton (2000) illustrate through early case studies of e-commerce, that users are sometimes reluctant to make use of online payments, preferring to use more traditional avenues such as bank transfers and faxes. Since 2000, there has been greater acceptance of online payments, although first time users are still somewhat reluctant. Recommendations from peers who have already had experience with e-commerce systems can help reduce this risk perception. Ha (2004) discussed the effectiveness of word-of-mouth recommendations in encouraging the use of e-commerce. In addition, he commented on the use of customer feedback on e-commerce sites.

The actual characteristics of the product also play a part in reducing the perceived risks of purchasing online. For example, CDs, books and flowers, are of a known standard to the buyer and there is little need to physically see, touch or smell the product before purchasing it. Associated brand knowledge and sufficient product information can reduce customers' anxiety. This was reflected in the findings of Phai and Poon (2000), that were aligned Peterson, Balasubramanian and Bronnenberg's (1997) results.

Many e-commerce sites use third party approval seals (such as VeriSign) on their sites to address the perceived risks of providing personal and financial information. Seals like VeriSign and Thawte are used to promote the authentication of the payment for users and the e-commerce site. However,

Head and Hassanein (2002) concluded that the level of trust is not always enhanced through this mechanism, as users are often unaware of the seals-of-approval. It is suggested that greater visibility and awareness is required to address users' confidence.

Certain auction sites such as eBay rely on their reputation to act as a determinant of reliability and trust. Standifird (2001) pointed to the fact that an online reputation is more affected, during online auctioning, by a negative reputation than by a positive one. The importance of reputation is critical to the consumer, because of the separate nature of the purchasing act and the delivery of the product. Therefore, sellers with a positive reputation are able to charge a premium based on prior auction performances. Houser and Wooders (2006) echo this point, adding that the seller's reputation is more critical than that of the buyer's in completing an auction transaction.

To conclude, the trust associated with any e-commerce transaction, whether from a reputable company or through an auction site, is dependent on a number of factors. The more users trust and are comfortable with the reliability of the system, the more they will use e-commerce. As this general acceptance increases, the industry, in turn, will expand.

2.7. Distribution Channels for B2C e-Commerce

According to Mentzer, Flint and Hult (2001), the quality of the e-commerce process is most significantly influenced by the personal contact that customers

experience. Therefore, these personal contact points are greatly impacted by the service quality of the logistics. The process begins with the first time the customer makes contact, through to the ease of use when placing an order, and continues on to when the customer receives the complete, correct order. It is expected that the product be in good condition, with all order discrepancies having been addressed. This implies that the process of how the job gets done, as opposed to what gets done, is more important from a logistics service quality perspective. The research evaluated each of the components of logistics for different industries.

Zemke *et al.* (2001) came to similar findings and identified the fulfilment of product delivery, or the service, as one of six factors that contribute to user satisfaction, thus improving the chances of a repeat purchase. They showed that return policies and ease of problem resolution contributed towards the loyalty or satisfaction shown by customers. The authors found that problem resolution, although not desirable, could be a point of developing customer relations, if done effectively and in accordance with the customers' expectations. However, if this problem resolution is poorly done, it certainly detracts from the e-commerce reputation. In addition, a poor e-service quality experience is more likely to be spread by word-of-mouth than a good service experience. This aligns with the findings for the auction site reputations of buyers and sellers.

Xing and Grant (2006) illustrated that the supply chains of e-commerce Business-to-Consumer (B2C) companies are required to include the delivery of

goods to the purchaser. They concluded that this forms the most significant component of the post-purchase service quality. This differs from the usual brick and mortar retail outlets, where the consumer is responsible for movement the product from the outlet. This adds to the complexity of running a “pure-player” company, compared with running a physical retail store. The multi-channel outlets (“brick and click”) have to deal with a similar complexity in order to manage additional distribution channels. However, there is a potential for buffer capacity in the physical outlets that may not exist for pure-player e-commerce companies.

From the research review, it is clear that e-commerce has a distinct reliance on the foundations and supply chain systems to provide the expected service quality. These, together with product information and specific internet site features, improve the consumer’s trust and provide an environment where he/she is comfortable to purchase items online.

2.8. Literature Summary

In summary, the review of the literature has highlighted the use of the technology acceptance model to determine the risks associated with first time e-commerce use. Therefore, one would expect to see that as a user’s experience improved, the perceived risks of e-commerce would be reduced. In addition, the review outlined factors that would attract users to make use of e-commerce.

The e-Service Quality highlighted the importance of e-service quality exceeding the user's expectation, in order to encourage loyalty and repeat purchases. The importance of purchase fulfilment was highlighted and this, in turn, was linked to the importance of effective supply chains to ensure the expected service.

This was reviewed in comparison to other developing countries, showing how e-commerce relies on specific infrastructure. Furthermore, the drivers of e-commerce use were illustrated, together with the social components that should be in place to encourage e-commerce.

In Chapter 3, the research questions will utilise this review to identify the perceived risks associated with the use of e-commerce in South Africa, through different supply chain channels and through the risks of payment.

Chapter 3 – Research Questions

These hypotheses have been used to determine the extent to which the South African e-commerce infrastructure encourages or discourages South African internet users to participate in internet transactions. There is particular reference to the perceived reliability of the online payment system, and the delivery system, within the South African context. This is linked to the users' experience of utilising the internet and his/her acceptance of e-commerce. These hypotheses are applied to the target group that consists of LSM 9 and 10 candidates, which is a limited population that does not comprise the entire South African internet using public. In each hypothesis, the experience of the internet user is measured through the years of internet use, the frequency of use and the level of internet use. This final component, level of internet use, is measured through the number of internet applications that the respondent usually makes use of.

3.1. Research Question 1 – Experienced Internet Users Make Greater Use of e-Commerce

The null hypothesis (H_0) states that there is not a relationship between the experience of South African internet users and the frequency of e-Commerce use. The alternative hypothesis (H_A) states that there is a relationship between the experience of South African internet users and the frequency of e-Commerce use.

3.2. Research Question 2 – Experienced Internet Users Spend More Through the Use of e-Commerce

The null hypothesis (H_0) states that there is not a relationship between the experience of South African internet users and the amount they spend through e-commerce. The alternative hypothesis (H_A) states that there is a relationship between the experience of South African internet users and the amount they spend through e-commerce.

3.3. Research Question 3 - Online Payments

The null hypothesis (H_0) states that South African internet users do not perceive a security risk when making payments over the internet. The alternative hypothesis (H_A) states that South African internet users do perceive a security risk when making payments over the internet.

3.4. Research Question 4 – Reliability of Deliveries

The null hypothesis (H_0) states that South African internet users do doubt the reliability of order fulfilment of products purchased through the internet. The alternative hypothesis (H_A) states that South African internet users do not doubt the reliability of order fulfilment or products purchased through the internet.

In order to measure the effectiveness of purchase fulfilment, this research investigates the use of the following e-commerce channels -

- Services or e-Ticket Purchases such as flights or movie tickets
- Digitised goods (software or media downloads)
- Products that are delivered to the purchaser
- The usage of auction sites as a market place

These channels of distribution are used to effectively test the acceptance of online payments for items that do not require delivery, such as e-tickets, versus those that require physical delivery or product downloads. The results from the e-ticket questions are used as a control for those survey questions requiring delivered products.

The research methodology in chapter 4 describes the process that was taken to collect the responses, and describes the analysis that was used to answer the research questions.

Chapter 4 - Research Methodology

This chapter outlines the research methodology that was used with respect to the type of research, and the design of the instrument to sample the target population. This research aimed to illustrate a relationship between the use of e-commerce with the internet experience of the sample group. This experience was measured through the years of internet use, the level of internet use and the frequency of internet use. Age and education were also included as factors. Furthermore, this research aimed to identify the willingness of users to make payments over the internet, and tested their confidence in the delivery of items purchased through internet retail outlets. As illustrated in Chapter 1, the South African e-commerce market is dominated by online ticket purchases (Goldstuck, 2007), especially for flights, and there have also been concerns raised about the effectiveness of the postal service (Naidu, 2008). Therefore, this research was designed to measure how this lack in delivery confidence affects the consumer's purchase decision. In addition, the research was limited to B2C commerce and was not aimed at investigating the e-commerce of Business-to-Business (B2B) or Government-to-Business (G2B).

4.1. Research Approach

Through the literature review, the research identified that acceptance of a technology is determined by its perceived usefulness and its ease of use. In

addition, it showed that delivery fulfilment contributed to the overall service quality. This research applied these concepts to the South African context, measuring this reality through empirical data that was “verifiable by experience or observation” (Zikmund, 2003, p. 42). The research results should reflect the current situation and is not causal in nature. Therefore, the research has been deductive as the expected results validate aspects of the TAM and e-service quality concepts.

Throughout the literature review, both qualitative and quantitative research was conducted. In terms of the concepts presented, there has been exploratory research conducted to identify key factors that affect e-service quality and user acceptance. As this research is descriptive and applies the concepts identified in the exploratory research, it is best to use a quantitative method to measure the “quantity or extent of the” described “phenomenon in the form of numbers” (Zikmund, 2003, p. 111). Although it is not feasible to do qualitative exploratory research on every individual, this research is focussed at the e-Commerce industry and requires public descriptors.

Therefore, this research was conducted through quantitative analysis of a sample group using an internet survey questionnaire and non-random sampling. This was used to identify the extent that delivery and payment risks hinder the adoption and use of retail e-commerce within South Africa. The perceived unreliability associated with internet payments and delivery fulfilment were measured against the candidate’s experience of internet use This experience was determined by the period of internet use , the frequency and level of

internet use. This was investigated in the South African environment, and targeted at individuals living in urban areas, within the Living Standards Measure (LSM) 9 and 10 categories (SAARF, 2008).

4.2. Population

The population is considered to be the 3.85 million people that utilise the internet in South Africa, either through personal computers or mobile devices (Goldstuck, 2007). The target group of this population is composed of those individuals who fall within LSM 9 and 10. Monsuwe, Dellaert and Ruyter (2004) indicated that education, age and income are seen as key determinants of internet usage. Additional determinants are used to measure the LSM of the candidates, together with their age and education.

The group is limited to those people who make use of the internet, either for email, information, social networks or e-commerce. This target group was selected because LSM 9-10 comprises 62% of the South African internet using population (SAARF, 2007) illustrated in Appendix FIGURE B-2. In addition, it was assumed that these individuals have a higher income as part of LSM categories 9 and 10 — the highest ratings for the measure. To a certain extent this limits the impact of income on the respondent's decision when considering to make an e-commerce purchase. The design of the research has limited this scope.

4.3. Sample of the Target Group

The sample group was surveyed from a list of email contacts that filled the target group criteria. This was done using a non-random snowball survey and requested individuals who had completed the survey to forward it onto their associates who also made use of the internet. Age and gender are used as key demographic details to align with those of the AMPS survey (SAARF, 2007). As shown in the AMPS report, the greatest increase in internet use has appeared in urban areas. This was, therefore, one of the determinants questioned in the survey, also working as a proxy for the LSM indicator.

The candidates were selected from a compiled email list that included professional people who were working for corporate institutions or were self employed. These candidates represented a number of industries and held a variety of tertiary qualifications, amongst them, current and past MBA students.

4.4. Instrument

An electronic survey was utilised through a survey provider called SurveyMonkey.com. The questions for the survey are given in Appendix C and the aim was to measure the perceived risks associated with the reliability of online payments and delivery, or fulfilment of purchases. These questions were taken from the referenced research and aimed to address the driving factors of e-commerce use.

An ordinal scale was used for most of the questions, to test for respondents' attitudes towards payments and deliveries. Before the questionnaire was distributed, it was tested by an online researcher and then distributed a pre-test survey to a group of internet users that fitted the demographics. This ensured that the questions were valid and represented the data accurately — in accordance with the findings of Boudreau, Gefen and Straub (2001). The final survey was distributed through an email that contained a link to the online survey.

Various questions acted as control measures for other questions. For example, users were asked if they had purchased an e-Ticket recently, indicating that they were comfortable with, and were willing to pay for, services over the internet. However, if the same user had not purchased a delivered product over the internet, it could point to a reluctance to utilise that delivery channel. Likewise, other questions aimed to balance the information received from the candidates.

The survey questions progressed from e-Tickets (where transactions are mostly electronic) to transactions that require items to be delivered from commercial e-commerce stores (using either postal or courier services). It concluded with questions about the use of auction sites that require individuals to ensure the delivery of items. These aspects were questioned to identify the perceived risk of delivery within the local e-commerce industry. Furthermore, it was assumed that the responses about when e-commerce was last used by the sample group would reflect the average frequency of use over.

4.5. Unit of Analysis

The perceptions towards the internet and e-commerce, displayed by each individual, were considered a unit of analysis, as their perceptions should reflect the perceptions or behaviours of the target group. The independent variable was measured by the internet experience of the individual and defined as the number of years they had used the internet, and associated frequency and level of internet use. This relationship was investigated in terms of frequency and the amount spent through e-commerce.

4.6. Limitation of the Research

The research has made use of convenient non-random sampling due to time and survey distribution constraints. The snow ball sampling was used to specifically focus on the target group, LSM 9 and 10. This scope may be expanded with future research. The income of individuals was not requested in the survey, to encourage respondents to complete the survey without revealing potentially sensitive information. Instead the inputs for the LSM calculation were questioned through the survey and this was used as a qualifier.

The survey was specifically designed to be completed within ten minutes, to encourage more respondents to participate. However, this limited the detail that could be covered in the survey. The internet format of the survey did not allow

for the environment to be controlled or for respondents' questions to be resolved during the survey.

4.7. Analysis of the Data

The research questions 1 and 2 were analysed through Chi-Square analysis to determine the relationships between the various categories. This analysis was done using a matrix of results to indicate where valid relationships were present in each of the distribution channels. In order for the Chi Square test to be valid, the categories from the survey were logically collapsed so that none of the categories had a frequency of 0 and all the expected frequencies were kept above 5. Where this was not possible, the Chi-Square analysis was marked as not reliable. Using these results the null hypothesis could be rejected or not.

For research questions 3 and 4 descriptive statistics were used to highlight the perceptions of the sample group. In order to test the null hypothesis, a proportional t-test was used to determine if the majority proportion, from the sample group, considered payments and delivery reliable.

The results were analysed to indicate if there was an increase in internet experience (measured through period of use, level of use or frequency of internet use) and if there was an increase in the frequency of e-commerce purchases. In addition, the analysis of the results was tested to measure the perceived reliability of the payment system and the delivery system. This was

measured against the frequency of e-commerce use and the amount spent through e-commerce.

4.8. Overview of Survey

Over a 5 week period (from 19 August to 22 September, 2008), 435 responses were received from the original 300 emails that had been sent out to the target group. Of the known responses that provided either their name or email details, it was confirmed that at least 103 email correspondents (35%) completed the internet survey from the direct email. Using the snowball survey technique, this email was forwarded in turn to other candidates who also completed the form. This resulted in the email being forwarded by the initial recipients to, on average, another 4.22 candidates who either completed the form or forwarded it onto other potential candidates.

During the research, each candidate who was part of the original email correspondence and who successfully completed the survey, was thanked via email and encouraged to forward the survey onto other potential candidates, thereby increasing distribution. FIGURE 4-1 below illustrates the period in which the responses were completed. The majority of the responses were received within the first two weeks.

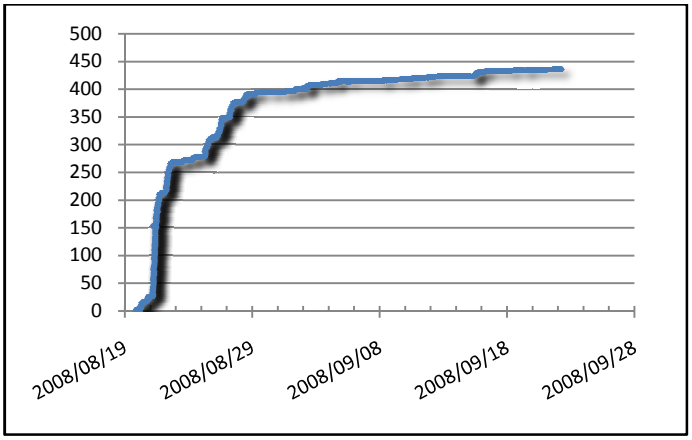

FIGURE 4-1 – REVIEW OF SURVEY PROGRESS

Chapter 5 – Results

Within this chapter, survey results are represented and results from the statistical analysis are given for each of the research questions. The demographic information is given to show the representation of the 435 respondents.

5.1. Demographic details

From a total of 435 responses, the following LSM distribution was recorded. It resulted in 95% of the responses (417) representing the target sample group of LSM 9 and 10.

LSM Group	Count	% of all responses
LSM 10	378	86.0%
LSM 9	39	9%
LSM 8	11	3%
LSM 7	3	1%
Less than LSM 7	4	1%

TABLE 5-1 - LSM (LIVING STANDARDS MEASURE) FOR SAMPLE GROUP

The 4 responses that were recorded to be less than LSM 7 were the result of incomplete surveys and these were discarded. From the target group, the following descriptive demographic information was collected according to the distribution given in FIGURES 5-1, 5-2 and 5-3 and TABLES 5-2 and 5-3.

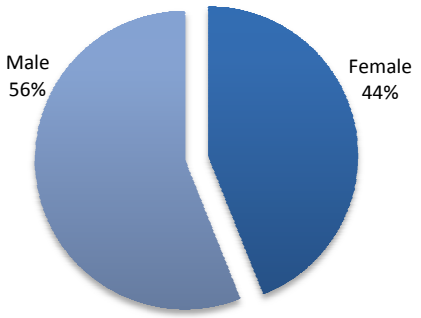

FIGURE 5-1 GENDER DISTRIBUTION

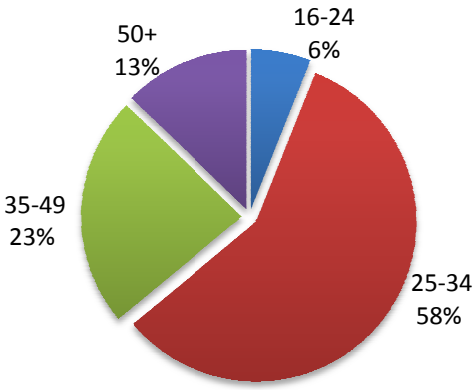

FIGURE 5-2 AGE DISTRIBUTION

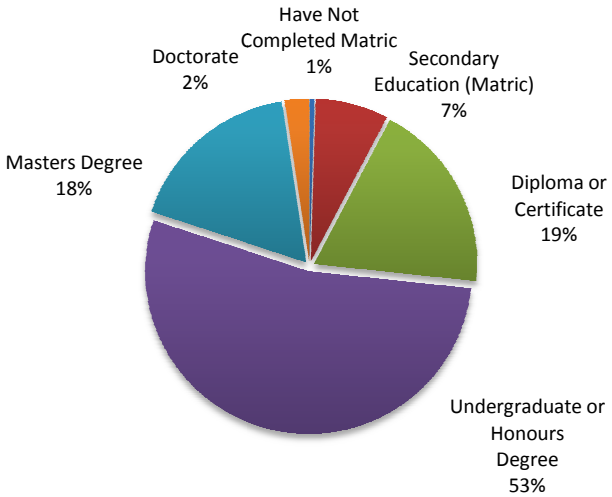

FIGURE 5-3 DISTRIBUTION OF EDUCATION LEVELS

Urban versus Rural

	Count	% of Responses
Urban	404	96.88249 %
Rural	10	2.39808 %
Missing	3	0.71942 %

TABLE 5-2 URBAN VERSUS RURAL DISTRIBUTION

	Count	% of Responses
Eastern Cape	11	2.63789 %
Gauteng	316	75.77938 %
Western Cape	69	16.54676 %
KwaZulu Natal	8	1.91847 %
Mpumalanga	9	2.15827 %
Limpopo	1	0.23981 %
Northern Cape	1	0.23981 %
North West	1	0.23981 %
Free State	1	0.23981 %

TABLE 5-3 PROVINCIAL DISTRIBUTION FOR SAMPLE GROUP (IN ORDER OF QUESTIONNAIRE)

5.2. Overall Review of Internet User Trends

The survey questioned the respondents on the extent to which they used the internet. This information was used to correlate with the level of e-Commerce use within the sample group.

The top internet uses amongst the sample group are given below, of which the top uses were shown to be Email (92.65%), Information Searches (92.16%) and Internet Banking (91.42%).

Internet Use	Count	% of Sample
News, Sport, Weather	262	64.22%
Internet Banking	373	91.42%
Social Networking (e.g. Facebook, MySpace)	206	50.49%
Instant Messaging	106	25.98%
Email	378	92.65%
Music or Media downloads	94	23.04%
Games or Software downloads	52	12.75%
Information searches (e.g. Google, Yahoo)	376	92.16%
Booking online tickets (e.g. Movies, flights)	303	74.26%
Purchasing items (e.g. Amazon, Kalahari)	206	50.49%
Buying through auction sites (e.g. eBay, BidorBuy)	26	6.37%
Selling on auction sites (e.g. eBay, BidorBuy)	13	3.19%
Watching TV or listening to radio	23	5.64%
Share Trading	45	11.03%
Gambling or online betting	10	2.45%
Other (please specify)	25	6.13%

TABLE 5-4 TOP INTERNET USES (IN ORDER OF SURVEY QUESTIONS)

These internet uses were aggregated to form a score of internet use and this was used as the independent variable when testing for a relationship with the use of e-commerce. The level of internet use was calculated by counting each of the components used, shown in TABLE 5-4, yet excluding those items that would be considered retail e-commerce. Therefore, the internet uses that made up the score were –

- Email
- News, Sport and Weather
- Internet Banking
- Social Networking
- Instant Messaging
- Information searches
- Watching TV or listening to radio

- Gambling or online betting

The second indicator that was used to measure internet use was the level of frequency that individuals made use of the internet. These results simply illustrated that 96.4% of the sample group had used the internet within the last week and the majority (87%) within the last 2 days.

Last Used the Internet (Before Today)	Count	%
1: Yesterday	364	87.3%
2: In the last 7 days	38	9.1%
3: In the last 2 weeks	2	0.5%
4: In the last 4 weeks	1	0.2%
6: In the last year	1	0.2%
7: More than a year ago	2	0.5%

TABLE 5-5 PERIOD SINCE PREVIOUS INTERNET USE

This result shows a strong use of the internet, with the sample being heavily grouped around using the internet within the last week. With the statistical Chi Squares analysis, this resulted in a drop in resolution and associations with other measures.

The final question that was used to illustrate internet experience was the length of internet use (in years). This is represented in the FIGURE 5-4.

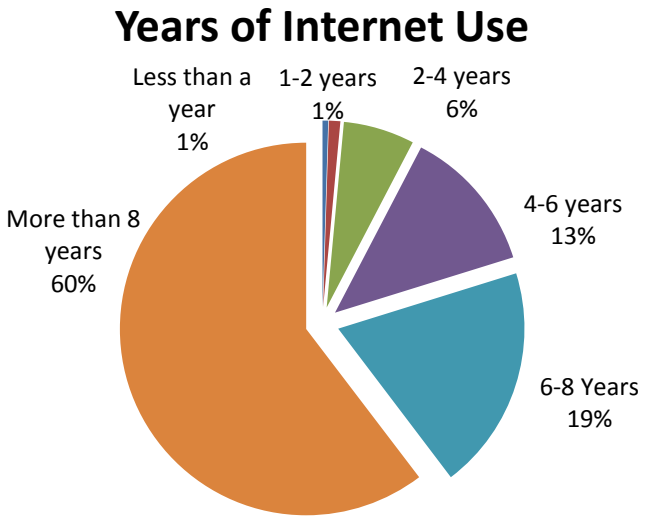

FIGURE 5-4 YEARS OF INTERNET USE

5.3. Research Question 1 – More Experienced Internet Users Make Greater Use of e-Commerce

The frequency of e-commerce use was measured by asking the respondents when they had last purchased an item or service through the internet (e-commerce), followed questions on specific categories –

- Services acquired through the internet (flights or movie tickets)
- Media downloads
- Items that required delivery
- Items purchased or sold through auction sites such as BidorBuy.co.za

The following tables reflect the summarised responses from the sample group.

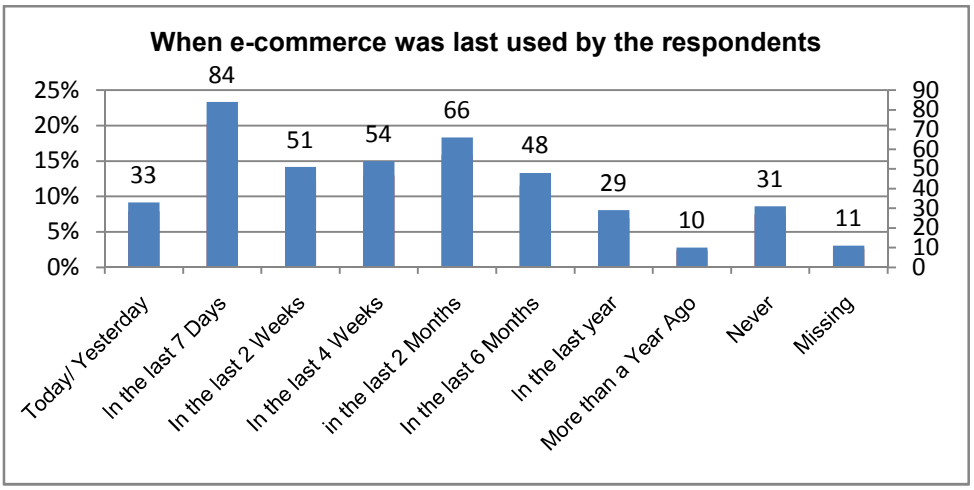

FIGURE 5-5 TIME SINCE E-COMMERCE WAS LAST USED

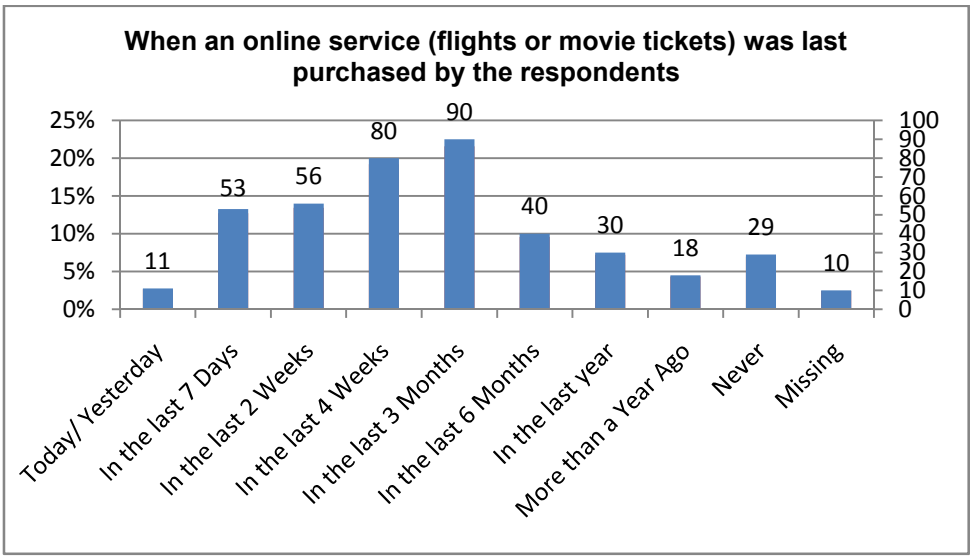

FIGURE 5-6 TIME SINCE THE LAST SERVICE (E-TICKET) WAS PURCHASED

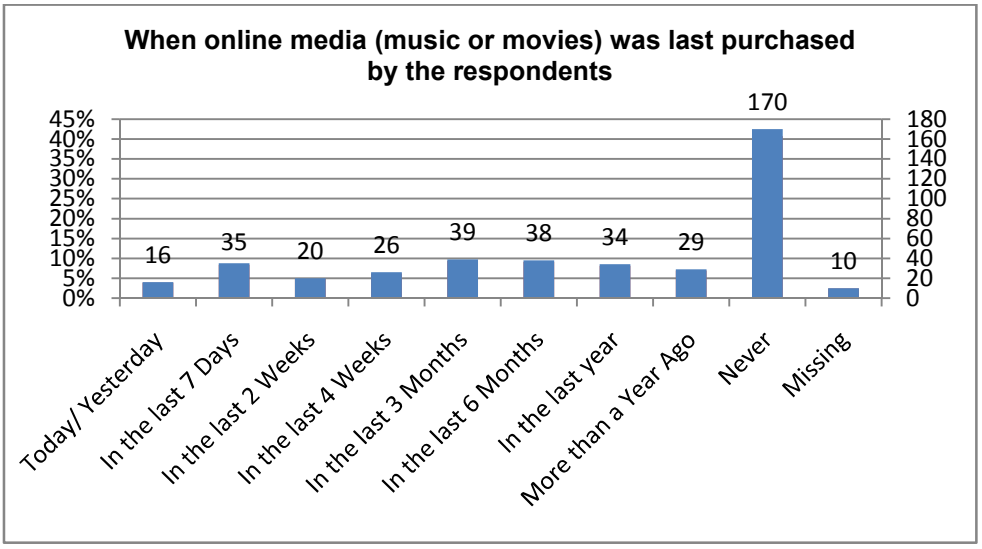

FIGURE 5-7 TIME SINCE THE LAST MEDIA WAS PURCHASED

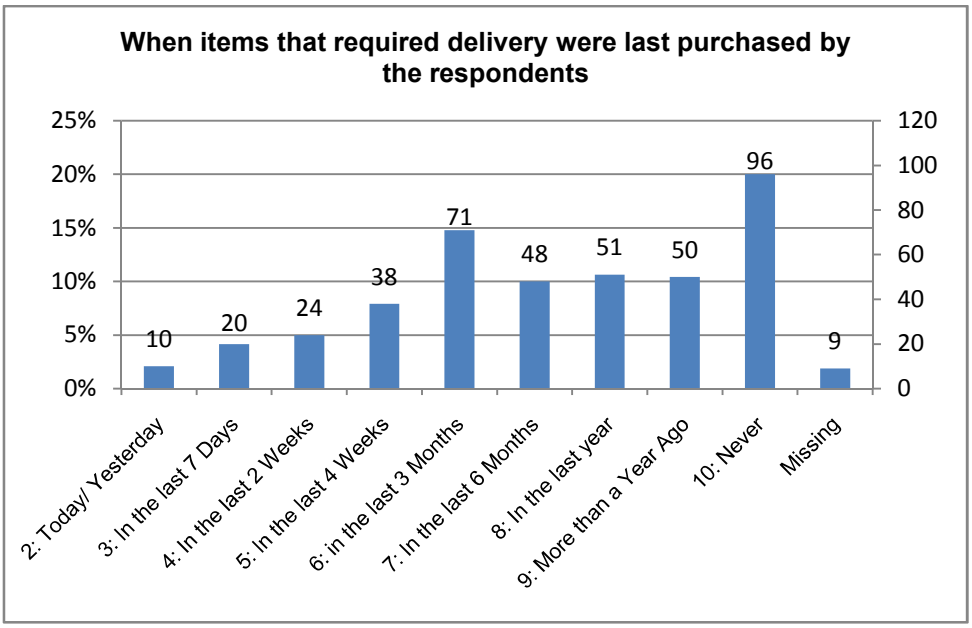

FIGURE 5-8 TIME SINCE THE ITEM THAT REQUIRED DELIVERY WAS PURCHASED

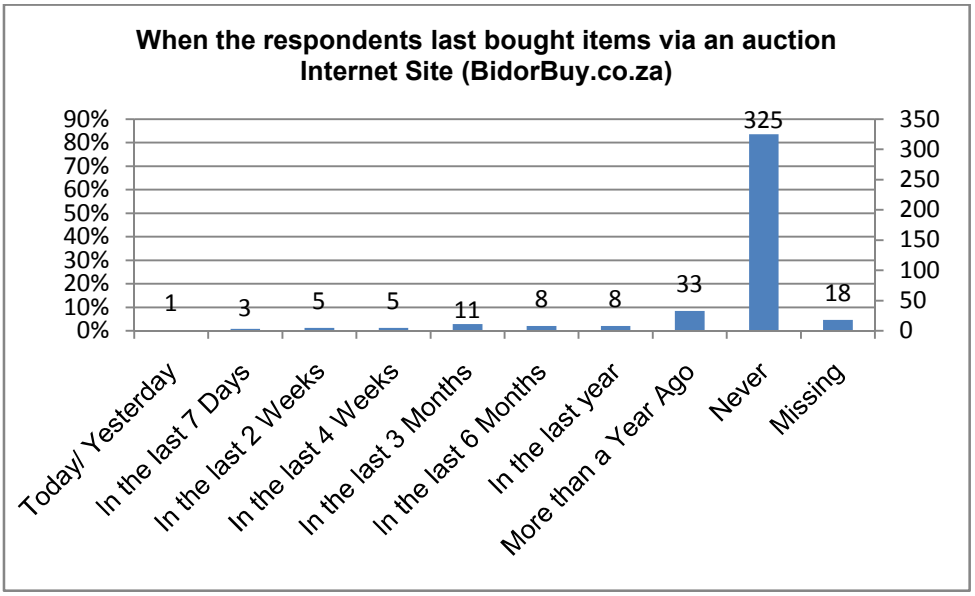

FIGURE 5-9 - TIME SINCE THE AUCTION ITEM WAS PURCHASED

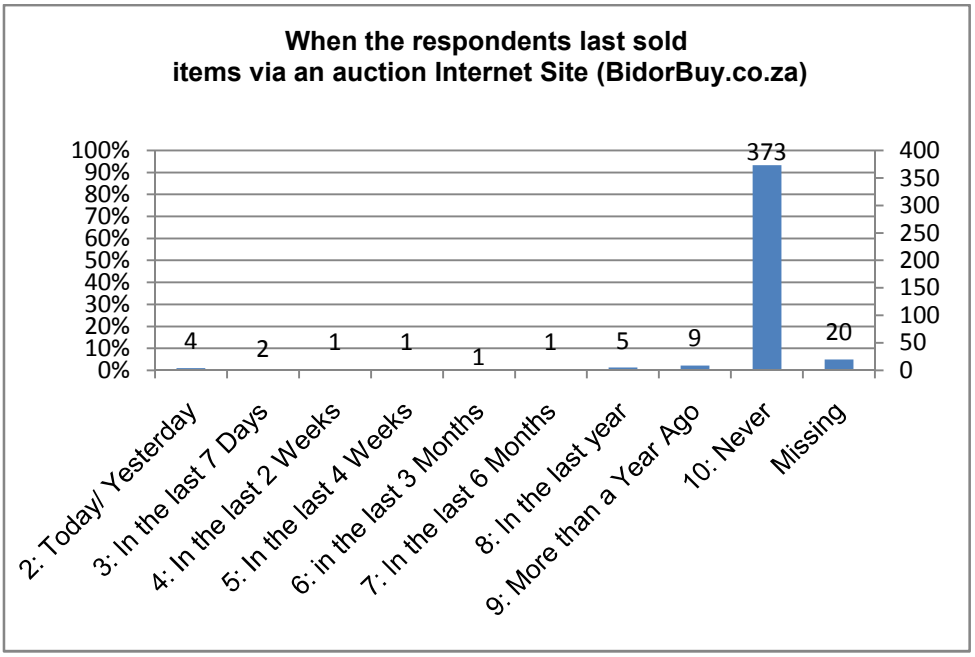

FIGURE 5-10 - TIME SINCE THE AUCTION ITEM WAS SOLD

In order to determine the use of e-commerce, it was measured against the frequency of use and compared with the candidate's experience. Years of Internet use, level of internet use and rrequency of internet use were used as indicators of experience. This was coupled with additional aspects of age and education as potential determinants. For each of the research question the

statistical analysis was done using StatSoft (2008) with references to Albright, Wayne & Zappe (2006).

Internet Usage vs. Frequency of e-Commerce Use

	E-Commerce Overall	e-Ticket	Media Downloads	Delivered Items	Auction Purchase	Auction Sale
Peasons Chi Square	41.017	7.905	29.553	39.078	18.280	5.923
Probability	0.000	0.544	0.003	0.000	0.006	0.115
Contingency coefficient	0.303	0.139	0.260	0.296	0.209	0.271
Minimum Frequency	8.985	7.619	7.096	8.941	6.203	4.534
Degrees of Freedom	9	9	12	12	6	3
Appendix						
	E.1.1	*E.1.2*	*E.1.3*	*E.1.4*	*E.1.5*	*E.1.6*
Accept/Reject H0 Alpha =0.01	*Reject H0*	*Cannot Reject H0*	*Reject H0*	*Reject H0*	*Reject H0*	*Not Reliable*
Accept/Reject H0 Alpha =0.05	*Reject H0*	*Cannot Reject H0*	*Reject H0*	*Reject H0*	*Reject H0*	*Not Reliable*

TABLE 5-6 INTERNET USAGE VS. FREQUENCY OF E-COMMERCE USE

Years of Use vs. e-Commerce Frequency

	E-Commerce Overall	e-Ticket	Media Downloads	Delivered Items	Auction Purchase	Auction Sale
Peasons Chi Square	10.000	15.229	21.025	13.157	6.155	1.130
Probability	0.040	0.019	0.007	0.107	0.046	0.568
Contingency coefficient	0.155	0.190	0.222	0.177	0.124	0.053
Minimum Frequency	22.879	7.802	7.319	9.145	14.353	4.618
Degrees of Freedom	4	6	8	8	2	2
Appendix						
	E.2.1	*E.2.2*	*E.2.3*	*E.2.4*	*E.2.5*	*E.2.6*
Accept/Reject H0 Alpha =0.01	*Cannot Reject H0*	*Cannot Reject H0*	*Reject H0*	*Cannot Reject H0*	*Cannot Reject H0*	*Not Reliable*
Accept/Reject H0 Alpha =0.05	*Reject H0*	*Reject H0*	*Reject H0*	*Cannot Reject H0*	*Reject H0*	*Not Reliable*

TABLE 5-7 YEARS OF USE VS. E-COMMERCE FREQUENCY

Internet Frequency vs. e-Commerce Frequency

	E-Commerce Overall	e-Ticket	Media Downloads	Delivered Items	Auction Purchase	Auction Sale
Peasons Chi Square	13.980	11.598	7.002	17.084	5.904	1.047
Probability	0.003	0.009	0.136	0.002	0.015	0.306
Contingency coefficient	0.182	0.166	0.130	0.200	0.121	0.051
Minimum Frequency	5.084	4.226	4.015	5.059	7.789	2.479
Degrees of Freedom	3	3	4	4	1	1
Appendix						
	E.3.1	*E.3.2*	*E.3.3*	*E.3.4*	*E.3.5*	*E.3.6*
Accept/Reject H0 Alpha =0.01	*Reject H0*	*Not Reliable*	*Not Reliable*	*Reject H0*	*Cannot Reject H0*	*Not Reliable*
Accept/Reject H0 Alpha =0.05	*Reject H0*	*Not Reliable*	*Not Reliable*	*Reject H0*	*Reject H0*	*Not Reliable*

TABLE 5-8 INTERNET FREQUENCY VS. E-COMMERCE FREQUENCY

Age vs. e-Commerce Frequency

	E-Commerce Overall	e-Ticket	Media Downloads	Delivered Items	Auction Purchase	Auction Sale
Peasons Chi Square	26.195	11.037	17.911	20.609	4.504	2.024
Probability	0.000	0.087	0.022	0.008	0.105	0.364
Contingency coefficient	0.246	0.163	0.206	0.220	0.106	0.071
Minimum Frequency	6.044	5.025	4.773	6.015	9.482	3.030
Degrees of Freedom	6	6	8	8	2	2
Appendix						
	E.4.1	*E.4.2*	*E.4.3*	*E.4.4*	*E.4.5*	*E.4.6*
Accept/Reject H0 Alpha =0.01	*Reject H0*	*Cannot Reject H0*	*Not Reliable*	*Reject H0*	*Cannot Reject H0*	*Not Reliable*
Accept/Reject H0 Alpha =0.05	*Reject H0*	*Cannot Reject H0*	*Not Reliable*	*Reject H0*	*Cannot Reject H0*	*Not Reliable*

TABLE 5-9 AGE VS. E-COMMERCE FREQUENCY

Education vs. e-commerce Frequency

	E-Commerce Overall	e-Ticket	Media Downloads	Delivered Items	Auction Purchase	Auction Sale
Peasons Chi Square	20.880	24.717	12.076	9.952	8.564	2.901
Probability	0.002	0.000	0.148	0.268	0.014	0.234
Contingency coefficient	0.221	0.240	0.170	0.154	0.145	0.085
Minimum Frequency	9.600	7.980	7.581	9.553	14.837	4.836
Degrees of Freedom	6	6	8	8	2	2
Appendix						
	E.5.1	*E.5.2*	*E.5.3*	*E.5.4*	*E.5.5*	*E.5.6*
Accept/Reject H0 Alpha =0.01	*Reject H0*	*Reject H0*	*Cannot Reject H0*	*Cannot Reject H0*	*Cannot Reject H0*	*Not Reliable*
Accept/Reject H0 Alpha =0.05	*Reject H0*	*Reject H0*	*Cannot Reject H0*	*Cannot Reject H0*	*Reject H0*	*Not Reliable*

TABLE 5-10 EDUCATION VS. E-COMMERCE FREQUENCY

The categories for each of the sections were collapsed to give the best levels of Contingency Coefficient to be used across categories. For example, the Internet Usage was aggregated to 5 categories and compared to the frequency of use for –

- Overall e-commerce use
- e-Ticket or services
- Media downloads
- Delivered items (requiring delivery)
- Items purchased or sold through auction sites such as BidorBuy.co.za

The details of each of the categories can be found in the appendix listed in the tables.

	Probability	Reject H0 Alpha = 0.01	Reject H0 Alpha = 0.05
Internet Usage vs. Frequency of e-Commerce Use			
E-Commerce Overall	0.000005	Reject H0	Reject H0
e-Ticket	0.543783	Cannot Reject H0	Cannot Reject H0
Media Downloads	0.003263	Reject H0	Reject H0
Delivered Items	0.000102	Reject H0	Reject H0
Auction Purchase	0.005572	Reject H0	Reject H0
Auction Sale	0.115418	Not Reliable	Not Reliable
Years of Use vs. e-Commerce Frequency			
E-Commerce Overall	0.040428	Cannot Reject H0	Reject H0
e-Ticket	0.018552	Cannot Reject H0	Reject H0
Media Downloads	0.007085	Reject H0	Reject H0
Delivered Items	0.106586	Cannot Reject H0	Cannot Reject H0
Auction Purchase	0.046074	Cannot Reject H0	Reject H0
Auction Sale	0.568337	Not Reliable	Not Reliable
Internet Frequency vs. e-Commerce Frequency			
E-Commerce Overall	0.002934	Reject H0	Reject H0
e-Ticket	0.008897	Not Reliable	Not Reliable
Media Downloads	0.135774	Not Reliable	Not Reliable
Delivered Items	0.001863	Reject H0	Reject H0
Auction Purchase	0.015106	Cannot Reject H0	Reject H0
Auction Sale	0.30622	Not Reliable	Not Reliable
Age vs. e-Commerce Frequency			
E-Commerce Overall	0.000205	Reject H0	Reject H0
e-Ticket	0.087242	Cannot Reject H0	Cannot Reject H0
Media Downloads	0.021914	Not Reliable	Not Reliable
Delivered Items	0.008267	Reject H0	Reject H0
Auction Purchase	0.105183	Cannot Reject H0	Cannot Reject H0
Auction Sale	0.363584	Not Reliable	Not Reliable
Education vs. e-commerce Frequency			
E-Commerce Overall	0.00193	Reject H0	Reject H0
e-Ticket	0.000386	Reject H0	Reject H0
Media Downloads	0.147884	Cannot Reject H0	Cannot Reject H0
Delivered Items	0.268399	Cannot Reject H0	Cannot Reject H0
Auction Purchase	0.013815	Cannot Reject H0	Reject H0
Auction Sale	0.234494	Not Reliable	Not Reliable

TABLE 5-11 SUMMARY OF RESULTS FOR FREQUENCY OF E-COMMERCE USE

From these results, it can be seen that the degree of internet use has the greatest Contingency Coefficient, or strongest relationship with the use of overall e-commerce, media downloads and delivered items. The use of e-Ticket e-commerce has the strongest relationship to years of internet use. Although these results are significant, they show a medium relationship between internet use and the use of e-commerce, and its various sub sets (shown in TABLE 5-11).

FIGURE 5-11 represents the significance of recommendations in encouraging e-commerce use. From the results, it is evident that the majority of users (55%) would prefer to receive recommendations before making a purchase from a particular site. This reflects a relatively tentative group in terms of purchasing from new sites with recommendations. It should be noted that the next dominant group, of 28%, choose to make purchases without recommendations.

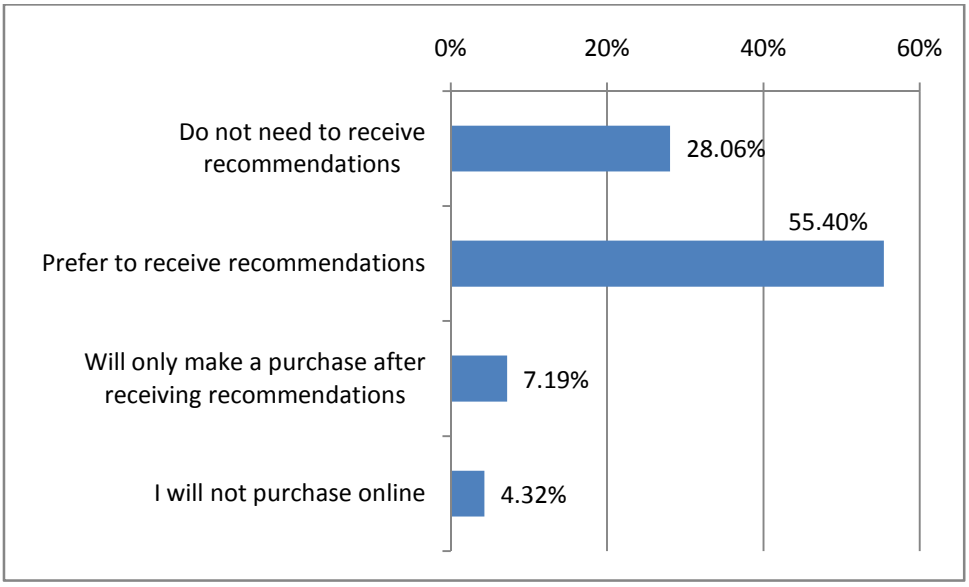

FIGURE 5-11 RECOMMENDATIONS REQUIRED BEFORE PURCHASING

The frequency of internet use has not been a good determinant of internet use due to the fact that most of the sample group used the internet very frequently,

in contrast to the AMPS study (SAARF, 2007) in Appendix B. The distribution of the categories did not suit the Chi-Square analysis, thus limiting the analysis.

The auction sections of purchasing and selling did not provide a sufficient level of positive answers, making it impossible to meet all the requirements of the Chi-Square analysis, as the categories could not be collapsed sufficiently.

5.4. Research Question 2 – More Experienced Internet Users Spend More on e-Commerce

This section questioned the amount that candidates had paid for e-commerce and was measured by the maximum amount that they had paid in previous transactions. This was done for each of the categories given in the previous section and is summarised in the figures that follow.

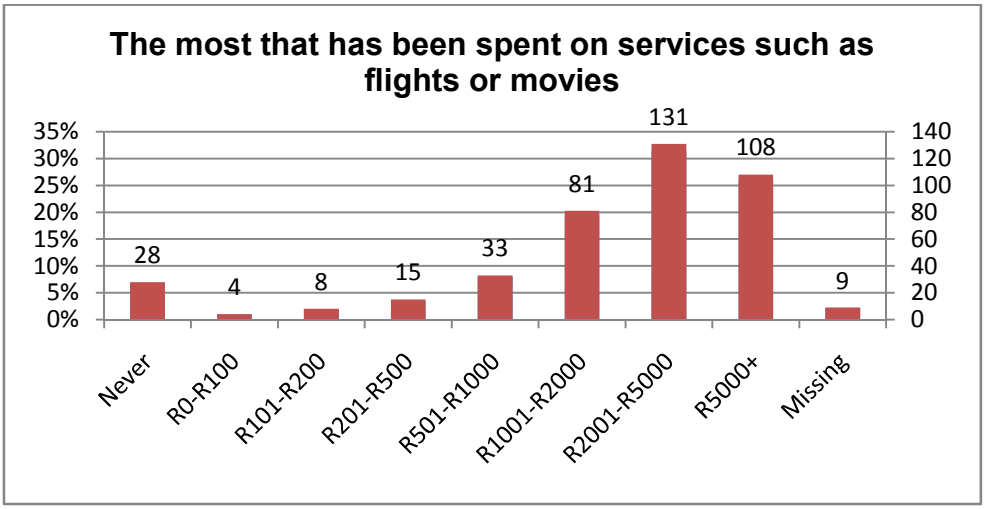

FIGURE 5-12 MOST SPENT ON E-TICKETS

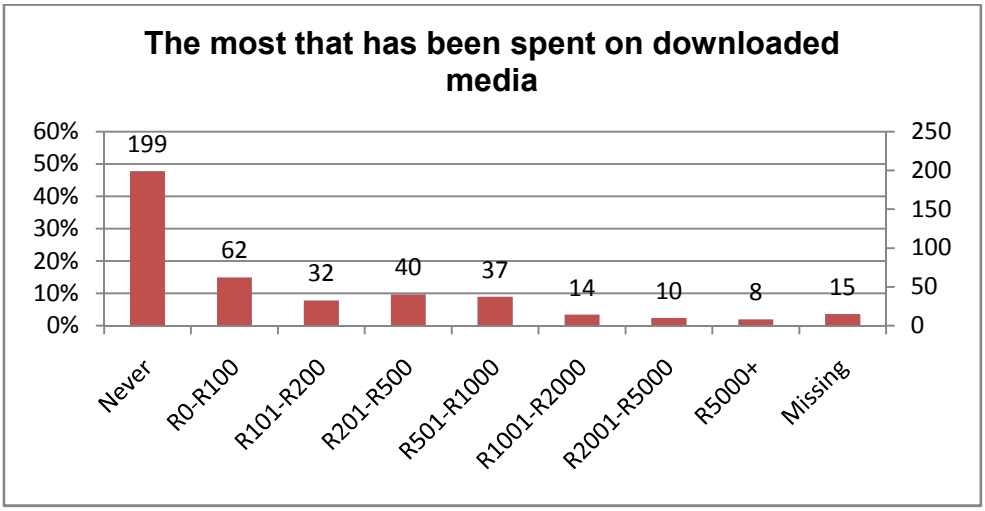

FIGURE 5-13 MOST SPENT ON DOWNLOADED MEDIA

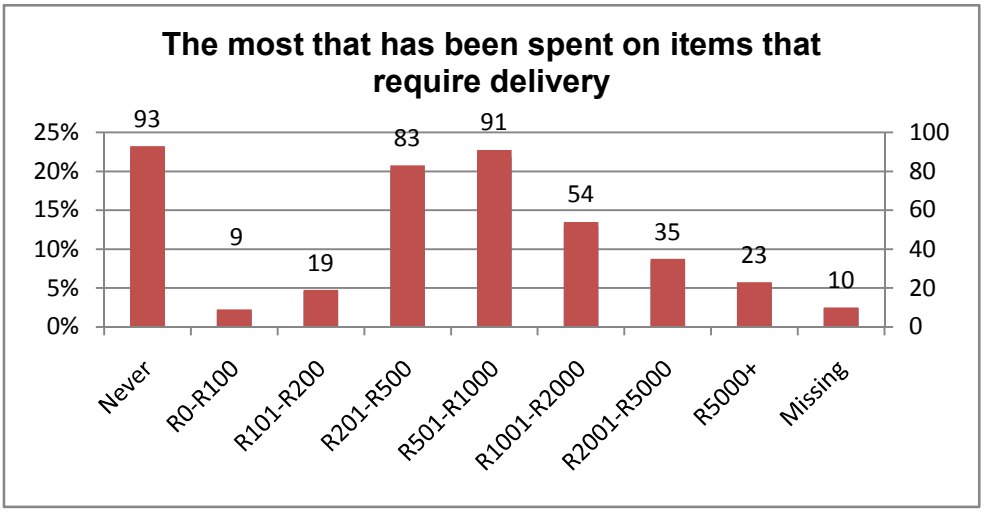

FIGURE 5-14 MOST SPENT ON DELIVERED ITEMS

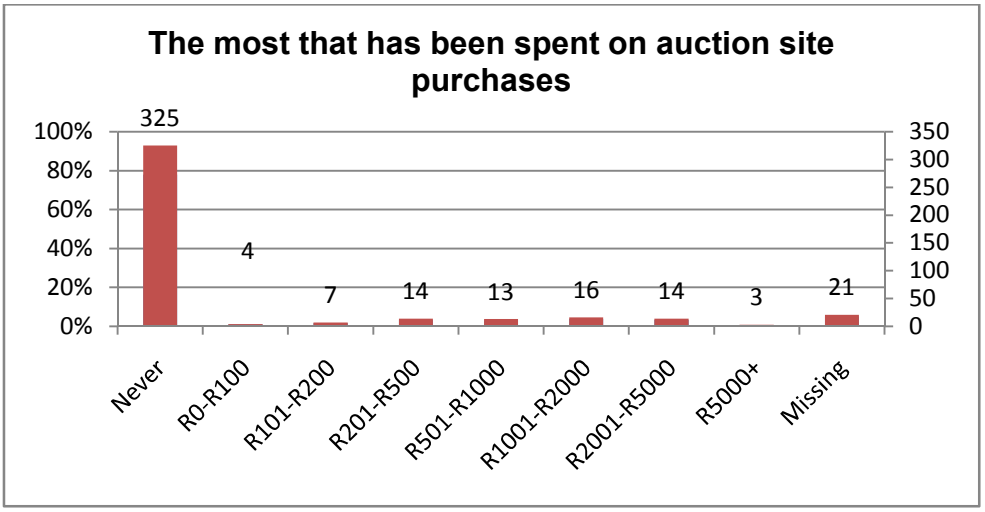

FIGURE 5-15 MOST SPENT THROUGH AUCTION PURCHASES

The research question proposes that more experienced internet and e-commerce users are more likely to spend more through e-commerce. The results that follow highlight the relationship between the amounts that are spent versus the users' relative experience. This is measured against the number of years of internet use and the level and the frequency of internet and e-commerce use.

Frequency of Internet Use vs. Most Spent

	E-Commerce Overall	e-Ticket	Media Downloads	Delivered Items	Auction Purchase
Peasons Chi Square	9.914	5.082	12.182	9.621	4.712
P	0.019	0.166	0.016	0.087	0.452
Contingency Coefficient	0.154	0.111	0.172	0.152	0.108
Minimum Frequency	7.061	8.537	3.343	2.958	1.139
Degrees of Freedom	3	3	12	5	5
Appendix	*F.1.1*	*F.1.2*	*F.1.3*	*F.1.4*	*F.1.5*
Accept/Reject H0 Alpha =0.01	*Cannot Reject H0*	*Cannot Reject H0*	*Not Reliable*	*Not Reliable*	*Not Reliable*
Accept/Reject H0 Alpha =0.05	*Reject H0*	*Cannot Reject H0*	*Not Reliable*	*Not Reliable*	*Not Reliable*

TABLE 5-12 FREQUENCY OF INTERNET USE VS. MOST SPENT

Frequency of E- Commerce Use vs. Most Spent

	E-Commerce Overall	e-Ticket	Media Downloads	Delivered Items	Auction Purchase
Peasons Chi Square	61.519	116.006	4.513	25.794	339.977
P	0.000	0.000	0.608	0.000	0.000
Contingency Coefficient	0.363	0.471	0.149	0.278	0.680
Minimum Frequency	5.172	6.243	8.523	9.292	2.056
Degrees of Freedom	8	8	6	6	5
Appendix	*F.2.1*	*F.2.2*	*F.2.3*	*F.2.4*	*F.2.5*
Accept/Reject H0 Alpha =0.01	*Reject H0*	*Reject H0*	*Cannot Reject H0*	*Reject H0*	*Not Reliable*
Accept/Reject H0 Alpha =0.05	*Reject H0*	*Reject H0*	*Cannot Reject H0*	*Reject H0*	*Not Reliable*

TABLE 5-13 FREQUENCY OF E- COMMERCE USE VS. MOST SPENT

Years of Use vs. Most Spent

	E-Commerce Overall	e-Ticket	Media Downloads	Delivered Items	Auction Purchase
Peasons Chi Square	19.625	14.141	18.276	17.751	10.524
P	0.012	0.078	0.051	0.059	0.396
Contingency Coefficient	0.215	0.183	0.209	0.205	0.205
Minimum Frequency	5.643	6.421	6.160	5.393	2.122
Degrees of Freedom	8	12	10	10	10
Appendix	*F.3.1*	*F.3.2*	*F.3.3*	*F.3.4*	*F.3.5*
Accept/Reject H0 Alpha =0.01	*Cannot Reject H0*	*Cannot Reject H0*	*Cannot Reject H0*	*Cannot Reject H0*	*Not Reliable*
Accept/Reject H0 Alpha =0.05	*Reject H0*	*Cannot Reject H0*	*Cannot Reject H0*	*Cannot Reject H0*	*Not Reliable*

TABLE 5-14 YEARS OF USE VS. MOST SPENT

Levels of Internet use vs. Most Spent

	E-Commerce Overall	e-Ticket	Media Downloads	Delivered Items	Auction Purchase
Peasons Chi Square	14.694	10.339	38.335	34.969	29.467
P	0.259	0.586	0.000	0.002	0.014
Contingency coefficient	0.186	0.157	0.295	0.281	0.466
Minimum Frequency	5.588	6.147	6.050	5.229	2.083
Degrees of Freedom	12	12	12	10	15
Appendix	*F.4.1*	*F.4.2*	*F.4.3*	*F.4.4*	*F.4.5*
Accept/Reject H0 Alpha =0.01	*Cannot Reject H0*	*Cannot Reject H0*	*Reject H0*	*Reject H0*	*Not Reliable*
Accept/Reject H0 Alpha =0.05	*Cannot Reject H0*	*Cannot Reject H0*	*Reject H0*	*Reject H0*	*Not Reliable*

TABLE 5-15 AGE VS. MOST SPENT

From the results, it is evident that the Frequency of Internet Use was not a valid independent variable for e-commerce spending. For this reason, the frequency of e-commerce use has been used as an independent variable.

With regard to the minimum number of elements in each category section, it is evident that both delivery items and auction sites did not provide for valid analysis of the sample group.

	Probability	Reject H0 Alpha = 0.01	Reject H0 Alpha = 0.05
Frequency of Internet Use vs. Most Spent			
E-Commerce			
Overall	0.019311	Cannot Reject H0	Reject H0
e-Ticket	0.165916	Cannot Reject H0	Cannot Reject H0
Media Downloads	0.01605	Not Reliable	Not Reliable
Delivered Items	0.086718	Not Reliable	Not Reliable
Auction Purchase	0.451978	Not Reliable	Not Reliable
Frequency of E- Commerce uUse vs. Most Spent			
E-Commerce			
Overall	0.000000	Reject H0	Reject H0
e-Ticket	0.000000	Reject H0	Reject H0
Media Downloads	0.607599	Cannot Reject H0	Cannot Reject H0
Delivered Items	0.000244	Reject H0	Reject H0
Auction Purchase	0.000000	Not Reliable	Not Reliable
Years of Use vs. Most Spent			
E-Commerce			
Overall	0.011857	Cannot Reject H0	Reject H0
e-Ticket	0.078177	Cannot Reject H0	Cannot Reject H0
Media Downloads	0.050505	Cannot Reject H0	Cannot Reject H0
Delivered Items	0.059334	Cannot Reject H0	Cannot Reject H0
Auction Purchase	0.395833	Not Reliable	Not Reliable
Level of Internet Use vs. Most Spent			
E-Commerce			
Overall	0.258633	Cannot Reject H0	Cannot Reject H0
e-Ticket	0.586272	Cannot Reject H0	Cannot Reject H0
Media Downloads	0.000136	Reject H0	Reject H0
Delivered Items	0.002487	Reject H0	Reject H0
Auction Purchase	0.105183	Not Reliable	Not Reliable

TABLE 5-16 SUMMARY TABLE OF ASSOCIATIONS WITH THE MOST SPENT ON E-COMMERCE

5.5. Research Question 3 – Internet Users do not Perceive a Risk in Internet Payments

Research question 3 was addressed by asking the candidates about their perception of the reliability and safety of making payments over the internet. In addition, candidates were asked about the importance they placed on payment when purchasing an item or service over the internet.

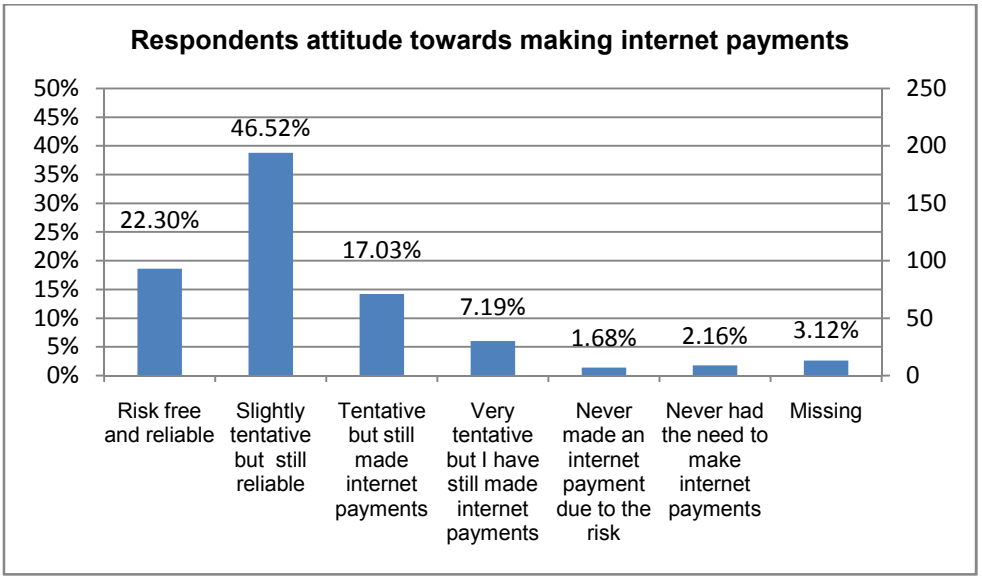

FIGURE 5-16 PROPORTION OF RESPONSES FOR ATTITUDE TOWARDS ONLINE PAYMENTS

Perception of Making Online Payments	
Average	2.2351
Median	2
Responses	404
Standard Deviation	1.0784

TABLE 5-17 SUMMARY STATISTICS FOR RESPONSES FOR ATTITUDE TOWARDS ONLINE PAYMENTS

From these results, it is evident that there is some concern about the reliability of internet payments, with the dominant group (47%) being slightly tentative

about making payments, and an additional 17% saying that they are tentative. The mean and median reflect the concerns that people have when making use of internet payments. (The average and mean were calculated by assuming that this was an ordinal data set with equal intervals between each of the selection options). However, 8.8% of the candidates said that they were either very tentative or that the risk was too high to make use of internet payments.

Comparing these results to the frequency of e-commerce use, FIGURE 5-17 illustrates the proportional split for each of the categories of comfort for internet payments. The data values for frequent use compared to infrequent use (that includes never using e-commerce) illustrate they can be influenced by the levels of e-commerce as people become more comfortable with using the systems.

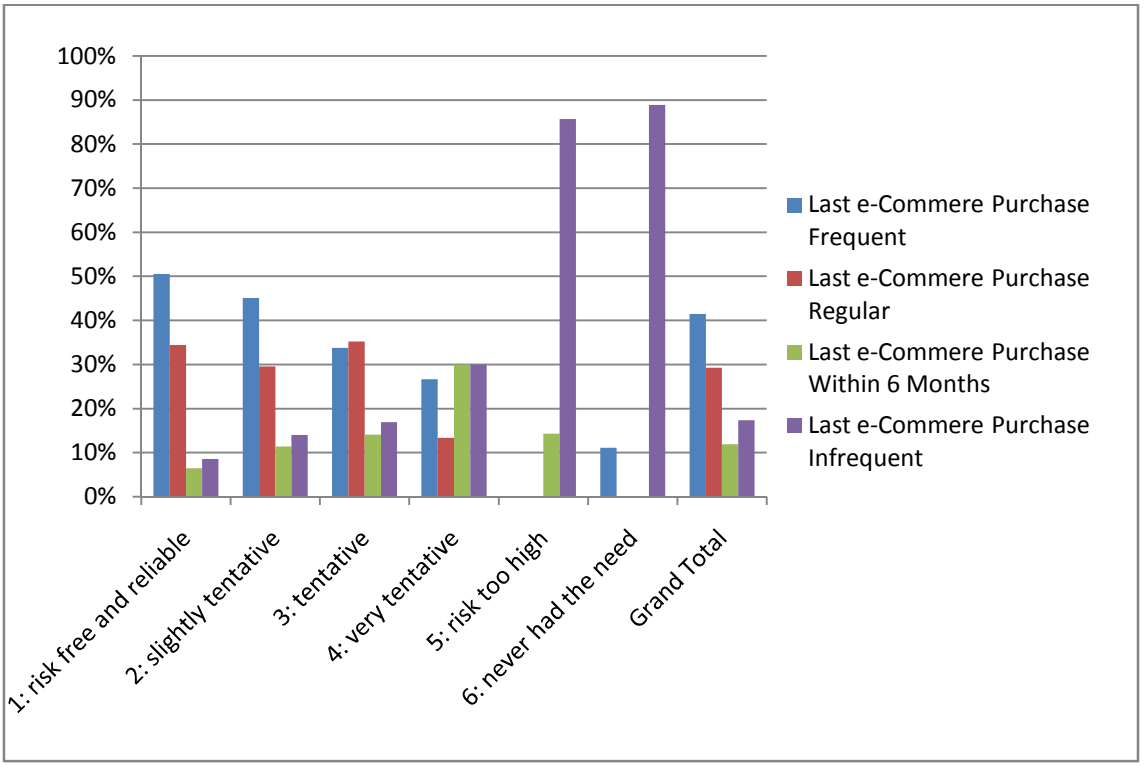

FIGURE 5-17 LEVEL OF RISK ASSOCIATED WITH INTERNET PAYMENTS VERSUS THE FREQUENCY OF E-COMMERCE USE.

These observations are confirmed through a Chi-Square analysis, given in Appdendix G, that shows a significant relationship (alpha < 0.01) between the e-commerce uses the perceived risk experienced when making online payments. This association can be described as having a medium strength.

TABLE 5-18 gives results for the proportion of individuals who perceived risk or unreliability of online payments. It represents the range of the proportions for the relative sample size with a 0.01 probability.

Payment Reliability

Sample Size 404

Payment	Category Percent	Accumul. Percent	Lower Limit Alpha=(0.01)	Upper Limit Alpha=(0.01)
Risk free and reliable	23.02%	23.02%	18.15%	27.89%
Slightly tentative	48.02%	71.04%	65.79%	76.29%
Tentative	17.57%	88.61%	84.94%	92.29%
Very tentative	7.43%	96.04%	93.78%	98.30%
Risk too high	1.73%	97.77%	96.06%	99.48%
Never had the need	2.23%	100.00%	100.00%	100.00%

TABLE 5-18 STATISTICAL RANGE OF PROPORTION OF SAMPLE THAT WERE TENTATIVE TOWARDS ONLINE PAYMENTS

Payment	Category	Accumul.	Majority Proportion Threshold for Null Hypothesis			
	Percent	Percent	50%	75%	90%	95%
Risk free and reliable	23.02%	23.02%	100.00%	100.00%	100.00%	100.00%
Slightly tentative	48.02%	71.04%	0.00%	96.70%	100.00%	100.00%
Tentative	17.57%	88.61%	0.00%	0.00%	82.35%	100.00%
Very tentative	7.43%	96.04%	0.00%	0.00%	0.00%	16.88%
Risk too high	1.73%	97.77%	0.00%	0.00%	0.00%	0.53%
Never had the need	2.23%	100.00%	0.00%	0.00%	0.00%	0.00%

TABLE 5-19 T-TEST TO INVESTIGATE WHETHER THE SAMPLE GROUP PERCEIVE ONLINE PAYMENTS TO BE RISK FREE AND RELIABLE.

In TABLE 5-19, the accumulated proportion is compared to a range of thresholds that is used to analyse the chances of the sample proportion being above the threshold level. In this instance, it is evident that the 23% of the sample that felt that online payments were risk free and reliable, have a 100% chance of the null hypothesis being true, and not being above 50% (or holding a majority). Therefore, this H_0 cannot be rejected. Further analysis of these results will be raised in section 6.3.

The results in FIGURE 5-18 show that the respondents valued choice and convenience as the highest level of concern when making a purchase decision, and payment concerns were named by 21% of the sample. Delivery was highlighted by 25% as the most significant influence on their purchase decision.

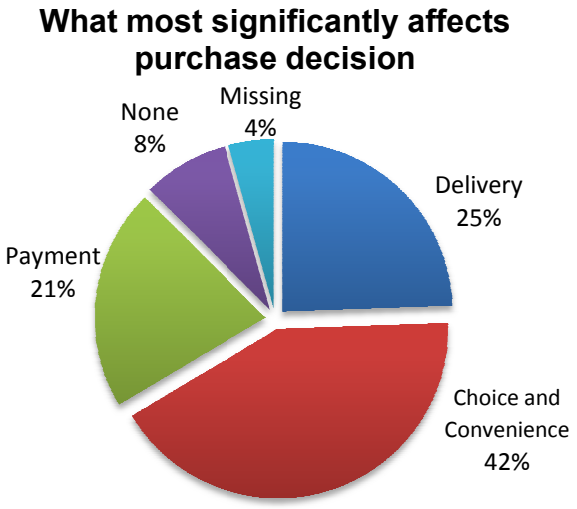

FIGURE 5-18 MOST SIGNIFICANT EFFECT ON PURCHASE DECISION

5.6. Research Question 4 – Delivery and Purchase Fulfilment through e-Commerce Use.

In the FIGURE 5-18 it was illustrated that 25% of the respondents considered the purchase delivery and fulfilment to be the most important criteria when making an e-commerce purchase decision. This research question addresses confidence in postal and courier services' reliability / ability to effectively complete the purchase transaction.

For research questions 1 and 2, it appeared that e-commerce services such as flights and movie tickets are used more frequently, and that respondents were prepared to pay more than for items that require delivery. The confidence of the sample group in the South African Postal services (for normal and registered post) and in courier services is represented in FIGURE 5-19.

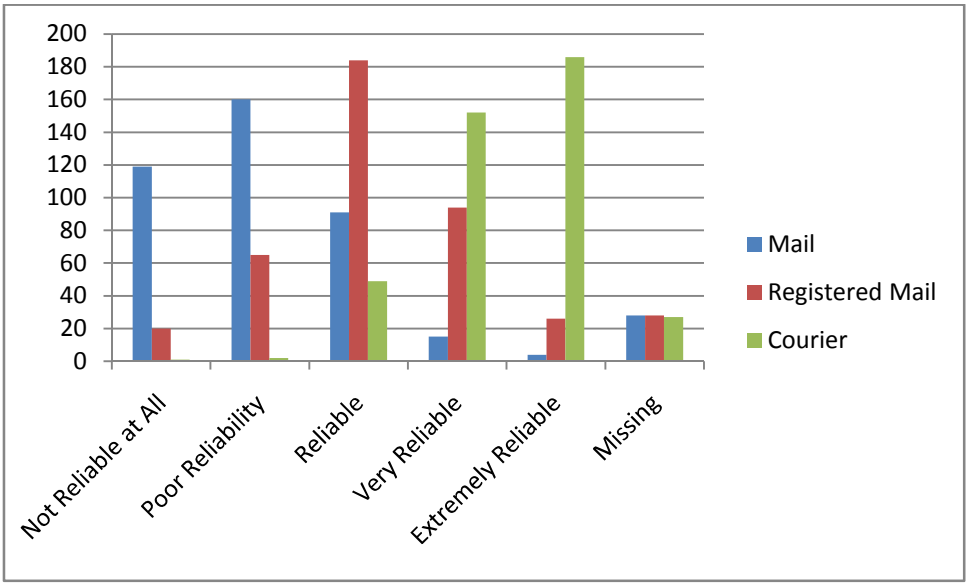

FIGURE 5-19 COMPARISON BETWEEN THE RELIABILITY PERCEPTIONS OF SELECTED DELIVERY SERVICES

Perception towards Delivery Services	Average	Median	Standard Deviation
Normal mail with South African Post Office	1.994962	2 – Poor Reliability	0.923856
Registered mail with South African Post Office	3.035176	3 - Reliable	1.032845
Delivery through a courier service (e.g. DHL)	4.235589	4 – Very Reliable	0.969192

TABLE 5-20 SUMMARY OF PERCEPTIONS OF THE RISKS ASSOCIATED WITH THE POSTAL SERVICES

This scale is ordinal and was considered to have equal intervals between each of the different categories in terms of respondents' perceptions. It is evident that the South African Postal Service, using normal mail, is considered to have "poor reliability", and that there is slightly more confidence in registered mail. The courier services show the greatest level of perceived reliability amongst the sample group.

The following tables review the statistical distribution when comparing the proportions of the sample group to the potential proportions shown within the general population.

Postal Service

Sample Size 389

Delivery Reliability	Category Percent	Accumulated	Lower Limit Alpha=(0.01)	Upper Limit Alpha=(0.01)
Not Reliable at All	30.59%	100.00%		
Poor Reliability	41.13%	69.41%	63.97%	74.84%
Reliable	23.39%	28.28%	22.97%	33.59%
Very Reliable	3.86%	4.88%	2.34%	7.43%
Extremely Reliable	1.03%	1.03%	-0.16%	2.22%

TABLE 5-21 STATISTICAL RANGE FOR THE SAMPLE GROUP'S PERCEPTION OF RELIABILITY OF THE SOUTH AFRICAN POSTAL SERVICES NORMAL MAIL

Delivery Reliability	Category Percent	Accumulated Percent	Majority Proportion Threshold for Null Hypothesis			
			50%	60%	75%	95%
Not Reliable at All	30.59%	100.00%	0.0%	0.0%	0.0%	0.0%
Poor Reliability	41.13%	69.41%	0.0%	12.3%	100.0%	100.0%
Reliable	23.39%	28.28%	100.0%	100.0%	100.0%	100.0%
Very Reliable	3.86%	4.88%	100.0%	100.0%	100.0%	100.0%
Extremely Reliable	1.03%	1.03%	100.0%	100.0%	100.0%	100.0%

TABLE 5-22 T-TEST TO INVESTIGATE THE PROPORTION OF THE SAMPLE GROUP THAT PERCEIVE THE POSTAL SERVICE TO BE RELIABLE AGAINST THRESHOLDS

Registered Mail

Sample Size 389

Delivery Reliability Registered Mail	Category Percent	Accumulated Percent	Lower Limit Alpha=(0.01)	Upper Limit Alpha=(0.01)
Not Reliable at All	5.14%	100.00%		
Poor Reliability	16.71%	94.86%	92.25%	97.46%
Reliable	**47.30%**	**78.15%**	**73.37%**	**82.93%**
Very Reliable	24.16%	30.85%	25.50%	36.19%
Extremely Reliable	6.68%	6.68%	3.79%	9.57%

TABLE 5-23 STATISTICAL RANGE FOR THE SAMPLE GROUP'S PERCEPTION OF THE RELIABILITY OF THE SOUTH AFRICAN POSTAL SERVICES REGISTERED MAIL

Delivery Reliability Registered Mail	Category Percentage	Accumulated Percentage	Majority Proportion Threshold for Null Hypothesis			
			50%	60%	75%	95%
Not Reliable at All	5.14%	100.00%	0.0%	0.0%	0.0%	0.0%
Poor Reliability	16.71%	94.86%	0.0%	0.0%	0.0%	55.1%
Reliable	**47.30%**	78.15%	0.0%	0.0%	1.2%	100.0%
Very Reliable	24.16%	30.85%	100.0%	100.0%	100.0%	100.0%
Extremely Reliable	6.68%	6.68%	100.0%	100.0%	100.0%	100.0%

TABLE 5-24 T-TEST TO INVESTIGATE THE PROPORTION OF THE SAMPLE GROUP THAT PERCEIVE THE REGISTERED MAIL POSTAL SERVICE TO BE RELIABLE AGAINST THRESHOLDS

Courier Service

Sample Size 390

Delivery Reliability (Post) Courier Service	Category Percentage	Accumulated Percentage	Lower Limit Alpha=(0.01)	Upper Limit Alpha=(0.01)
Not Reliable at All	0.26%	100.00%	100.00%	100.00%
Poor Reliability	0.51%	99.74%	99.15%	100.34%
Reliable	**12.56%**	**99.23%**	**98.22%**	**100.24%**
Very Reliable	38.97%	86.67%	82.73%	90.60%
Extremely Reliable	47.69%	47.69%	41.91%	53.47%

TABLE 5-25 STATISTICAL RANGE FOR THE SAMPLE GROUP'S PERCEPTION OF THE RELIABILITY OF THE COURIER SERVICES

Delivery Reliability (Post) Courier Service	Category Percentage	Accumulated Percentage	Majority Proportion Threshold for Null Hypothesis 50%	60%	75%	95%
Not Reliable at All	0.26%	100.00%	0.0%	0.0%	0.0%	0.0%
Poor Reliability	0.51%	99.74%	0.0%	0.0%	0.0%	0.0%
Reliable	**12.56%**	99.23%	0.0%	0.0%	0.0%	0.0%
Very Reliable	38.97%	86.67%	0.0%	0.0%	0.0%	100.0%
Extremely Reliable	47.69%	47.69%	81.9%	100.0%	100.0%	100.0%

TABLE 5-26 T-TEST TO INVESTIGATE THE PROPORTION OF THE SAMPLE GROUP THAT PERCEIVE COURIER SERVICES TO BE RELIABLE AGAINST THRESHOLDS

One mechanism to encourage potential e-commerce customers to purchase, is to utilise refund and return policies. FIGURE 5-20 outlines the extent to which these address the fulfilment concerns of the customers. What is significant from these results is the fact that 50% of the respondents said that the return policy would address their concerns; with an additional 24% saying that it would partially address their concerns.

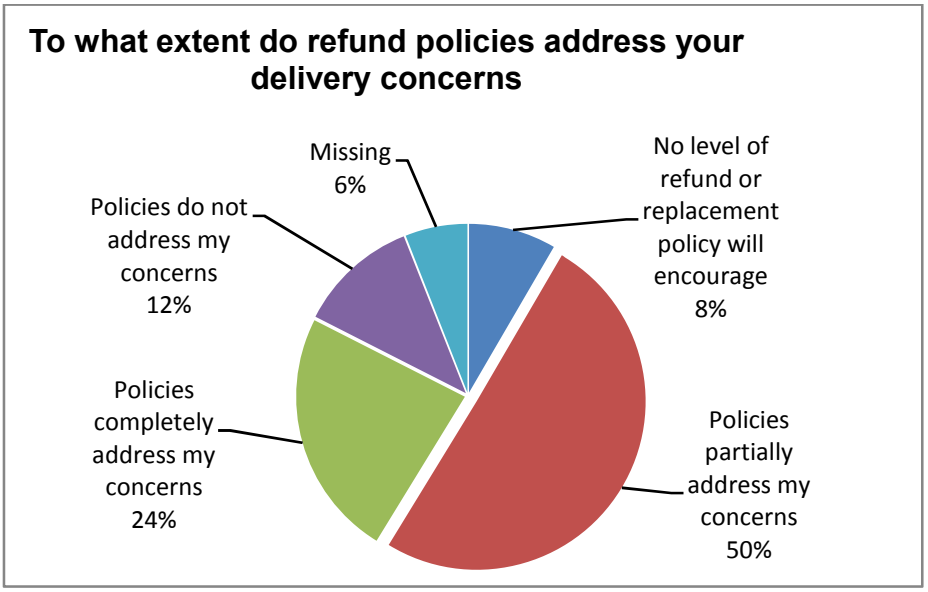

FIGURE 5-20 – USEFULNESS OF REFUND AND RETURN POLICIES

5.7. Overview of Results

Throughout this chapter, the results reflect the varying perceptions that are held by the sample group that represented internet users within LSMs 9 and 10 in South Africa. The statistical analysis was done in such a way as to eliminate the potential type -1 errors due to the matrix of results that were used. This was countered through the use of a 0.01 alpha level for determining the rejection of the null hypothesis. In Chapter 6, the results will be reviewed and analysed within the context of the literature that was reviewed in Chapter 2.

Chapter 6 - Discussion of Results

This research has addressed the overall use of e-commerce in South Africa for LSM groups 9 and 10. It illustrated the frequency of e-commerce use and the amounts spent through transactions.

The focus has not been on one specific internet site or on one particular channel of product or service delivery, but rather on the overall perceptions held by the sample group respondents, regarding the adoption and use of various e-commerce channels. The extent of e-commerce use in South Africa was measured through the use of the following:

- Purchasing a service such as a flight or movie over the internet (e-ticket)
- Downloading media
- Purchasing an item that requires delivery
- Purchasing and selling items via an Auction site

The results illustrate that each of these distribution channels have their own characteristics and levels of associated reliability. Therefore, in this instance, the Technology Acceptance Model (TAM) refers to the overall adoption of e-commerce as a new system that users have to become comfortable with. As a

specific example, the use of auction internet sites such as BidorBuy (or eBay) has shown to have limited support amongst the sample group, and yet the same is not true for the UK industry (Neilsen, 2008c), where eBay is the third most used internet site and in the US it is the 6th most popular company (Neilsen, 2008a). Thus, the results show that the e-commerce industry in South Africa has its own characteristics.

Each research question addresses the frequency of use, the amounts spent and the perceived reliability of the payment and the delivery system.

6.1. Research Question 1 – Frequency of e-Commerce Use

The first research question addresses the relative experience of internet users, determining the relationship between experience and the frequency of e-commerce interaction. The independent aspect (namely the experience of the internet user) is measured through the frequency of internet use, the years of internet use and the levels of internet use. For this study, age and education are also used as potential indicators of experience. In order to identify relationships between various measures, a matrix of analysis was used and is summarised in TABLE 5-11.

The results indicate that the level of using internet applications, such as email, search engines and internet banking, shows the strongest relationship to overall

use of e-commerce. This is illustrated in TABLE 5-6, where the null hypothesis is rejected, with a moderate relationship being measured. In addition, TABLE 5-6 reflects that there is an association between frequent use of e-commerce for items that required delivery (e.g. from Kalahari.net or Amazon.com) and the frequency of purchasing downloaded media, such as MP3s. This dependence, according to the Chi-Squared analysis, is significant with probabilities below 0.01, yet shows a weak to moderate association correlation (with the Contingency coefficient below 0.30). The levels of internet use and the use of auction sites purchases also reveal a relationship, with the null hypothesis being rejected, yet this is a small group and the categories were significantly collapsed in order to reach a valid Chi Square result. It should be noted that the use of services (e-Tickets) such as flights, do not show a significant correlation to the level of internet use (TABLE 5-6).

In terms of the relationship between the frequency of service purchases (e-Tickets) such as flights and movies, there are significant relationships between the years of internet use (TABLE 5-7) and the education level of the candidate (TABLE 5-9). Again, this is a weak to moderate association, even though the probability is at 0.018 for years of use (below the required confidence of 0.05) and 0.0003 for education (below the test level of 0.01). In these instances the null hypothesis can be rejected.

In TABLE 5-7, the years of use show a significant association with media downloads (with a probability of less than 0.01), and overall e-commerce use shows a relationship with probability of less than 0.05. In the same light, both

the frequent use of e-commerce and delivered items show a significant relationship with the frequency of internet use (TABLE 5-8). However, it should be noted that this measure did not have the same distribution illustrated in the AMPS results (Appendix FIGURE B-2). The same pattern of association, of overall e-commerce and delivered items, is illustrated in TABLE 5-9 when compared to the age of the candidates.

The relationship between years of use and overall e-commerce is in line with the experience curve described by Goldstuck (2007), who said that users were more likely to use e-commerce as they approached six or more years of internet use. The results of this survey are strongly biased towards users that had at least six years of internet experience. This is a limitation to fully testing this experience curve within South Africa. To support the model of an applicable experience curve for e-commerce use, it is evident that the majority of consumers prefer to have recommendations before making purchases through e-commerce, which corresponds to the finding of Ha (2004), wherein he highlighted the need for recommendations through word of mouth and purchase feedback.

Furthermore, the results show that the greatest proportion of candidates made use of services through e-commerce, rather than for purchasing items requiring delivery. Sixty seven percent of the candidates made use of online e-tickets for services more regularly, as opposed to purchasing items that required delivery. This corresponds to the results shown by Phau e*t al.* (2000), who illustrated that intangible services that were low in expense would be most suitable for e-

commerce. In the results, it was stated that Amazon.com was not as extensively used in Singapore as it is in the U.S. and the U.K. This research reiterated the concepts that services were more likely to be sold via e-commerce when goods did not need to be delivered (Peterson *et al.*, 1997). The research from Peterson *et al.* also referred to goods that could be digitised. The results from this research contradict these findings as the number of people who download media and software is smaller than the number who order goods that require delivery. The lack of media e-commerce could be due to a lack of awareness, or knowledge, of where to purchase music or video media online.

The use of auction sites for buying and selling goods is very limited, with more than 90% of respondents never having used the e-commerce channels. This may point to the additional risk associated with buying and selling goods from unknown sources. By reducing the number of categories, a significant result was obtained which was a weak to moderate association between years of internet use and the purchasing of items from auction sites. From the results, no significant relationship could be identified for the selling of goods through auction sites. The lack of auction site positive responses, in this survey, could be due to a lack of awareness, or the additional risk of purchasing items from an unknown source, as described by Houser et al. (2006).

In conclusion for the research question, it is apparent that a relationship exists between the internet experience of the user, and the likelihood of him / her using certain channels of e-commerce. For overall e-commerce use, digital goods and products that require delivery, the level of internet use shows the

greatest association with the frequency of e-commerce use. Years of internet use also show a level of association with e-Tickets (flights and movie tickets). However, the most significant relationship appears between education levels and e-Tickets. This ties up with the research from Roos *et. al.* (2006) that education has an impact on determining internet use and therefore, since it appears that e-tickets are most widely and frequently used amongst South Africans, it would be most likely correlated with overall internet use. Therefore the first research question can be accepted along these significant relationships that have been tested.

From the results, it is evident that the most frequent transactions are for services such as flights and movie tickets, followed by delivered goods, downloaded media and finally, auction purchase and sales. This is illustrated by the number of users who have never used certain e-commerce channels, shown in FIGURE 5-6, FIGURE 5-7, FIGURE 5-8, FIGURE 5-9 and FIGURE 5-10.

6.2. Research Question 2 – e-Commerce Payments

The second research question refers to amounts that candidates spend through various internet channels. The survey captured the largest amount that respondents had paid in the past for various products or services.

The results, summarised in TABLE 5-16, show that the most spent on overall e-commerce shows a significant association (to a level of 0.01) with the frequency of e-commerce use, and with the respondent level of internet use. In addition,

the overall e-commerce spends shows further associations (to a level of 0.05 for the null hypothesis to be rejected) with the frequency of internet use and years of internet use.

In TABLE 5-16, the statistical results, highlights the relationship between the frequency of e-commerce use and the most spent for e-tickets and items that require delivery. In TABLE 5-13, the Contingency Coefficient for e-Tickets gives the strongest relationship, being moderate, of the all the Chi-Square analysis done for this research. The frequency of internet use only has a relationship with the most amounts spent for overall e-commerce (TABLE 5-16).
Interestingly, there is a relationship between the most spent on media and delivered items, and the level of internet use for the respondent (TABLE 5-16), that could be used as an indicator.

The highest levels of payments were made for e-Tickets, for flights and movie tickets, with 75% of the candidates reflecting that they spent more on these services than on what they might have spent on downloaded items or goods needing delivery.

This ties up with Gounaris *et al.* (2005) findings that the degree of e-commerce use is a driver of e-service quality, and contributes to the continued use of e-commerce sites. Since e-tickets are most frequently purchased, they show the greatest levels of spend from the sample group.

This fact, combined with the findings for Research Question 1, backed up the industry statistics that flights are responsible for R3 Billion of the current industry spend, with R1 Billion being spent on the remainder of the e-commerce channels Goldstuck (2007). As with Research Question 1, positive responses for auction sites were limited, thus conclusions about these relationships must be drawn cautiously.

The research illustrates that with the acceptance of a technology, including the delivery, the more frequently individuals use an e-commerce channel or system, the more likely they are to spend more money on items. This is particularly evident in the purchase of e-Tickets where no delivery is required and the results show that individuals are prepared to pay more than R5000 for one purchase

An additional argument to the amounts spent on e-Tickets, is that it should be expected that flights would be the most expensive items amongst the range of items dealt with in the research. However, it could also be an indication of the maturity of the e-commerce industries, where airline tickets have shown to have greatest acceptance. For example, a flat screen TV could be ordered online, requiring delivery, and this would be above the R5000 category. Therefore, it should be able to compete with the amounts spent on flight e-Tickets. A control test was not implemented to counter this argument, as this research was simply concerned with the actual amounts spent.

From the two principles of TAM (a system will be utilised through the “perceived usefulness” and the “ease of use”), it is evident that as the respondents used e-commerce more frequently, the more likely they were to utilise the system, with the benefits outweighing the associated risks (Gefen *et al*., 2000 and Davis, 1989). For example, with flight purchases, or e-Tickets, no delivery is required and the only concern is with online payments, which is minimised by the payment being made to well known and branded airline companies. This means that potential unreliability in the purchase process is reduced, allowing for greater acceptance of the system overall.

The e-Ticket purchases have shown the most frequent use and the highest payments levels across the e-commerce channels, which is in line with the findings of Ha (2004). In addition, this is reflected in Goldstuck’s (2007) overview of the South African e-commerce industry that is dominated by the airline industry.

The overall results indicate that the additional unreliability associated with downloading media, delivery of items, and the use of auction sites where the end seller is not well known, contributes to the reduced amount that is spent in these e-commerce channels.

Therefore, in conclusion, the overall payments made for e-commerce can be linked to the internet frequency and e-commerce for a user and the research question can be accepted.

6.3. Research Question 3- Perceptions towards Online Payments

The results from this study highlight that payments over the internet influence on the user's choice of using e-commerce. This is reflected in FIGURE 5-18, where 21% of the respondents place the greatest emphasis on payment reliability when making a purchase decision. This contrasted with the majority of 43% who claimed convenience and product selection as being the most important factor in deciding to use a particular e-commerce site. This question was specifically weighted with convenience and product selection, in order for individuals to have to actively choose payment reliability as the most significant factor when making online payments. The results clearly show the levels of concern that exist around internet payments in South Africa.

The null hypothesis for this research states that local internet users do not consider internet payments to be risk free and reliable. In order to accept or reject the null hypothesis, this research has looked at the tested proportions being above the majority threshold of the sample group. Therefore the null hypothesis is tested against being below the majority threshold, in order for the null hypothesis to be rejected. The results, represented in TABLE 5-19, show that 23% of the sample group consider online payments to be risk-free and reliable, but this does not constitute the majority (more than 50%) of the group. The range for the sample size is also given in TABLE 5-18, that includes a 0.01 level of confidence, to ensure that the sample is representative. In addition, in TABLE 5-19, it is confirmed that there is 100% that 23% could not constitute the

majority for the research question. Therefore, the null hypothesis cannot be rejected.

In further reviewing the results, it is apparent that although the respondents may reflect different levels of being tentative towards online payments, it does not imply that they won't use internet payments. In TABLE 5-18, the accumulated proportions of the sample reflect that by grouping the first three levels of the ordinal scale, 88.6% of the sample group are prepared to make internet payments. The first three categories were made up of – 'no risk and reliable', 'slightly tentative' and 'tentative but still prepared to make internet payments'. In this case, the majority of people would use internet payments, albeit with some level of concern. Statistically, this proportion could be between 85% and 92%. It has a 100% chance of being the majority over 50%, and it has a 17.7% chance of being above a 90% threshold for a majority.

It should be noted that, as users make more frequent use of e-commerce, their perception towards the reliability of online payments improves. This is illustrated in Appendix G, which shows a significant relationship.

The sample group also reflected that only 1.2% of the respondents considered the risk great enough as to prevent the use of online payments. A further 2.2% said that they had not had the need to make online payments. Therefore, the majority of the sample group perceive a certain level of risk with online payments. However, this will not prevent them from using online payments.

When these results were grouped by level of e-commerce use (FIGURE 5-19) it is reflected that as the sample group showed greater levels of use, less risk was perceived with reliability of online payments. As the respondents become less frequent in their e-commerce use, the rate of perceived risks with internet payments rises in proportion.

This aligns with the TAM that shows how users reveal greater levels of comfort as the system's perceived risk through unreliability reduces. Similarly, Monsuwe *et al.* (2004) found the acceptance of online payments to be closely aligned with the user's accumulated experience. Huff *et al.* (2000) found that there has been greater acceptance of online payments in recent years, with the development of the e-commerce industry.

Wolfinbarger *et al.* (2003) revealed that users showed a high level of trust regarding internet payments via credit cards. The study concluded that payment security was inferred from the professionalism of a specific website. However, this research was conducted in the United States where a greater level of e-commerce use amongst the population exists. The use of third party organisation seals to encourage online payments was not tested as it is very site specific, and Head *et al.* (2002) found that it did not necessarily contribute towards increased reliability and reduced risk.

Thus, to conclude the research question, the null hypothesis that South Africans do not perceive risk with online payments and instead consider them to be reliable cannot be rejected as this is not reflected by the majority of the sample

group. This should be balanced with the insight that, although the sample group said they were tentative to varying levels, they were still prepared to make online payments. Although this probably has the greatest effect on first time users, it should be noted that more frequent use reduces the perceived risk of unreliability.

6.4. Research Question 4 – Perceptions Towards Delivery Services

This research investigated the perceived reliability of the delivery systems within the South African context. The sample group was asked about their perceptions towards the South African Postal service, (both normal and registered mail), and towards courier services, as these form a vital part of e-commerce service quality. In addition, the sample group was asked about the effectiveness of refund and replacement policies in improving perceptions.

FIGURE 5-18 reflected that 25% of the sample group consider reliable delivery to be the most important component to making an online purchase. As with online payments, this is not the most significant proportion, and yet it shows a high level of concern about the effectiveness of purchase fulfilment.

Product fulfilment, or the delivery of the correct item to the customer, is considered to be one of the main drivers of e-service quality. This was shown in research done by Wolfinbarger *et al.* (2003) that illustrated that purchase

fulfilment played a significant role in the perceived e-Service quality and the experience of the user.

The research question puts forward the hypothesis that South African internet users (within LSM 9 and 10) consider the delivery to be reliable. In order to answer this, a proportional t-test is used against varying threshold levels (50%, 75%, 90%, 95%). The results represent an ordinal scale where the first three selections ('Extremely reliable', 'Very reliable' and 'Reliable') represent the proportion of candidates that consider the service to be reliable, and this proportion should be in the majority in order to reject the null hypothesis. In other words the chance of the tested proportion not being the majority will reject the null hypothesis.

In Table 5-20, it shows the 28.3% of the sample group consider the South African Postal service to be reliable using normal mail. In TABLE 5-22, the proportional t-test reflects that there is 100% chance that the proportion from the sample group cannot be above the minimum threshold of 50%. Therefore the null hypothesis for normal mail cannot be rejected.

In terms of the results for the registered mail, there is a definite increase in the proportion of candidates that considers the service to be reliable. In this instance, 78.1% of the sample considers it to be reliable (as shown in TABLE 5-24), where there is 0% chance that proportion is not in the majority of above 50%. In addition, there is a 1.2% chance that it will not be above a 75% threshold. Therefore, this proportional null hypothesis is rejected if the majority

threshold is a proportion of 75% with a 5% error. Hence it is evident that more than 75% of the sample considers registered mail to be reliable.

Finally, the last analysis, of courier services, showed the greatest perception of reliable service. In TABLE 5-26, the results illustrate that the group proportion of Reliable Service responses formed the greatest proportion (99.3%) that considers courier services to be reliable. When compared to the thresholds, it was evident that the null hypothesis can be rejected for a majority up to 95%. Therefore, of the three delivery services, courier services show the greatest level of perceived reliability.

In addition to these results, the findings show that people do not perceive the South African postal mail to be reliable (unless it is sent via registered mail). This is one of the possible reasons for the reduced number of respondents that purchase items requiring delivery. It is evident from the results that the postal service is perceived to be extremely unreliable by the majority of the respondents, in stark contrast to the perceived reliability of couriered items.

These findings are aligned with the model put forward by Murillo (2001), who described how in many countries, especially developing ones, the mail and postal services, are often quasi-monopolies, and are considered to be slow and unreliable. This explains the dominance of private package handling companies (couriers) to deliver items for e-commerce.

In order to improve the reliability of the delivery, the literature points to the replacement and refund policies for goods that companies like Amazon.com offer. The results, shown in FIGURE 5-20, reflect that 74% of the sample group consider the replacement or refund policies compensate for the concerns about reliability. This could become a method encouraging product purchases.

Thus, the South African delivery services are certainly seen as a liability to e-commerce success, and this is reflected in the concerns shown by Amazon.com in stopping deliveries through normal mail. With respect to the findings, the survey results reflect the risks perceived by the sample group, whether they are a true reflection of the postal system or not. This impacts on users accepting the e-commerce system in its entirety when delivery is included in the process. The perceived risk makes it more likely for people to overlook the purchase benefits of e-commerce. In addition, it will increase the risk associated with auction sites, where the seller also may be a perceived risk, in addition to the initial concerns of methods and costs of delivery.

Thus, there is greater reliance on private deliver companies, at a higher cost, to drive reliable service for the e-commerce industry. Moving forward, this continues to be a major barrier to the perceived service quality of e-commerce.

This research question has shown that courier services are considered to reliable and registered mail is considered reliable, (to a lesser extent). For both these cases the research question can be accepted. However, the normal

postal service is not perceived to be reliable at all and (in this instance) the research question cannot be accepted.

6.5. Review of the Data Analysis and Limitations

The demographics of the sample group reflect that the age distribution does not match that of the SAARF (2007) AMPS analysis, where it was more evenly distributed. Although not completely equal, there was a represented group for each of the age categories.

For research questions 1 and 2 the statistical analysis made use of a matrix of tests which increased the likelihood of a type 1 error, therefore to reduce the chances of this, an alpha of 0.01 was used and 0.05 was used as an indication for measurements that were outside this range.

From the results, it is evident that some of the questions did not produce the expected range or distribution of answers. For instance, the answers for the frequency of internet use (asking when the respondent last used the internet) did not show the same distribution as the SAARF (2007) analysis (Appendix FIGURE B-2). The structure of the survey question was derived from the AMPS results structure. This lack of equal distribution resulted in limited Chi-Square analysis, because of the reduced number of categories and the possible lack of exposure to potential associations. In order to improve the distribution, the question should rather ask how many hours a candidate spends on the internet in a week or a month. This would have probably given a better distribution.

Furthermore, there were limited responses in the survey regarding the use of auction sites such as eBay and BidorBuy either to buy or sell items. This resulted in very few conclusions being drawn about this e-commerce channel. The research could possibly be repeated once the maturity of this e-commerce channel has improved and shows greater levels of use. On the other hand, the sample group could be changed, or a more focussed snowball survey could be used.

This research specifically focussed on the general perceptions held around e-commerce in South Africa and did not deal with the specifics of a particular website or company, therefore specific aspects around website design, security and product range have not been examined which could be done in future.

This research has not tried to question every type of e-commerce channel but has rather focussed on specific types of product and service fulfilment to identify differences in perceptions and levels of e-commerce use. This has produced distinct results that reflect the deferent characteristics, relevant to each of the e-commerce channels. The results have also given a good indication of the perceptions towards e-commerce use.

6.6. Representation of Findings from research

From the results and the levels of e-commerce use, it is evident that the mechanism of delivery has a large impact of the frequency of use, the amount

customers are willing to pay, and the associated unreliability (or risk) of the transaction. FIGURE 6-1 represents the findings excluding the auction usage, due to the lack of response.

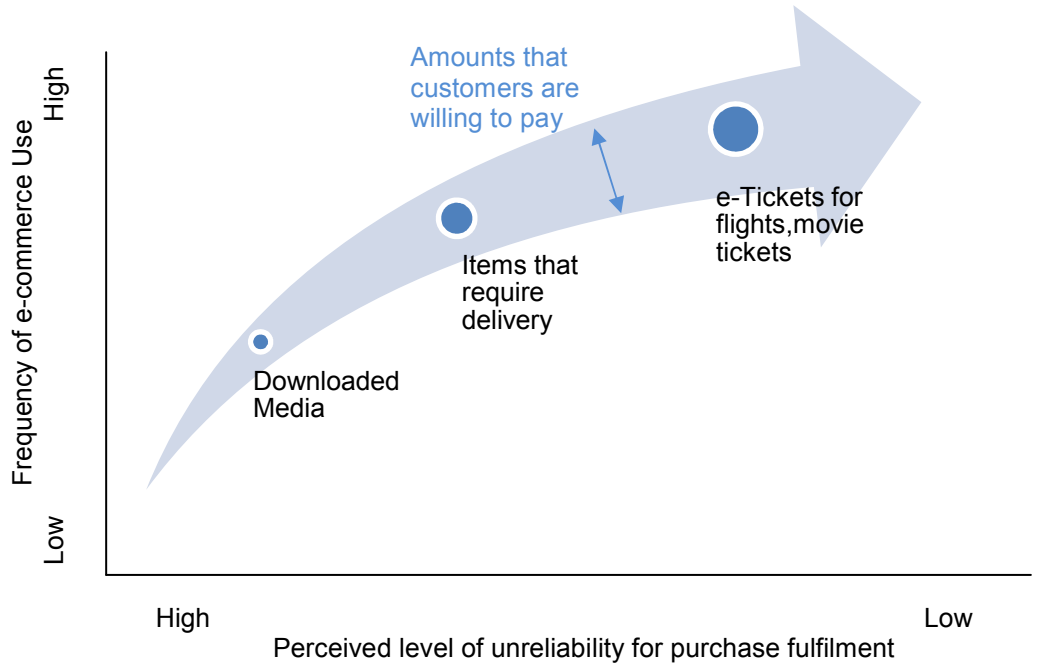

FIGURE 6-1 OVERVIEW OF FINDINGS FROM THE RESEARCH

As internet users become more familiar with e-commerce and the fulfilment channels, it is likely that purchases will become more frequent and that more will be spent. For example, if the broadband connections become more widely used, it would probably reduce the risk associated with downloaded media, in turn leading to an increase in the frequency and amounts spent as a component of e-commerce.

The overall findings align with the results from Liu et al. (2003) who showed that the purchase fulfilment of the delivered products is effected by the associated risks of the transaction. Therefore, this could indicate why services have shown more frequent use through e-commerce than the sale of e-commerce products.

This is in reference to the poor reliabilty this is associated with the national postal service.

In conclusion, it is evident that each channel of e-commerce shows levels of association with specific factors. This is illustrated through the acceptance of research 1 and 2. Using years of use and the levels of internet use, it is possible to drive improved e-commerce in order to improve the industry. Research question 3 could not be proven due to the range of perceptions towards online payments, however further analysis illustrated that the perceptions towards online payments improved with e-commerce use.

Furthermore, the effects that perceived unreliable delivery has on the growth of the e-commerce industry, should be noted. Only the use of courier services and registered mail was considered reliable, with the partial acceptance of research question 4. With increasing numbers of people starting to use the internet environment, the size of the industry should develop to be in line with other more mature markets.

Chapter 7 – Conclusion

This research successfully measured an association between the internet experience of users and the level of e-commerce use, and amounts that are spent by the respondents. In addition, it highlighted the perceived reliability of online payments, whilst highlighting the perceived unreliability of the delivery systems. This was tested across various e-commerce distribution channels, products and services.

The research report illustrated that there is an association between the levels of internet use and the frequency with which individuals make use of e-commerce. Similar relationships have been identified between the years of internet use and general e-commerce use. The channels of delivery and the types of products or services offered, contributed to the levels of use, showing unique relationships between the characteristics and maturity of internet experience. The products and delivery channels were divided into e-Tickets (such as flights), delivered products, downloaded media and products bought and sold through auction sites.

It was evident that greater familiarity of the internet (either through years of use or through levels of internet activity), resulted in the user more likely to make use of e-commerce. This aligns with previous research that was been done around the Technology Acceptance Model. If components of the e-commerce system are considered to be unreliable, or are perceived to have some level of risk, the user is less likely to utilise the benefits of e-commerce. To expand on

this, the research showed that the normal postal service is considered to be unreliable; contributing to less-frequent purchases, and with less being spent on the e-commerce delivery channel.

In addition, the research showed that through more frequent use of e-commerce, there was a greater chance that users would spend more per transaction. This aligns with the idea that good service quality encourages repeat purchases, and customers spending more as they become more familiar with the system.

Services such as flights and movie tickets (e-Tickets) are the most frequent purchases, and are generally responsible for the biggest spend. The sale of products or items that require delivery showed the next highest level of spend, and frequency of use. Downloaded media showed limited support with only some of the respondents having purchased media over the internet. This could be due to risk perception or to general lack of outlet awareness.

The analysis of individuals who utilise auction internet sites was extremely limited, and few conclusions could be drawn about the frequency of use or the amount spent via this e-commerce channel. The low levels of use could indicate increased levels of risk being associated with the sellers, in conjunction to delivery risks. This should be an area for future research as the market matures and more e-commerce is driven through auction sites, such as eBay or BidorBuy.

It is evident from the research that both the online payments, and the delivery or purchase fulfilment, form a significant part of the sample group's decision to use e-commerce.

Online payments form part of every decision to purchase through e-commerce and results showed that it was considered to be relatively reliable, with the dominant group being slightly tentative and yet still using this payment method. The research was unable to conclude that online payments are perceived to be risk free and reliable, despite the majority of respondents being prepared to use online payments. There were signs of concerns about comfort levels when making e-commerce payments. The more-frequent e-commerce users were less tentative in their approach to making online payments. These findings align with the e-service quality measures that place emphasis on the security of internet payments.

An additional aspect of e-service quality is the fulfilment of the purchase, or the delivery of the correct product to the customer within the expected time. It is evident from the research that delivery of goods via the postal service is considered to be unreliable. However, perceptions of registered mail and courier services, are more positive, with courier services perceived to be the most efficient and reliable. To some extent, this can be countered by refund or replacement clauses when purchases are made, although this may not be feasible with auction sites. Word of mouth recommendations should also be encouraged as the majority of the sample group preferred to act on recommendations before utilising e-commerce sites of e-commerce sites.

7.1. Recommendation to Stakeholders

This research has highlighted that in order to encourage particular e-commerce growth, one should use levels of internet use, and years of use as indicators for a potential user base. Delivered goods showed reduced performance as was illustrated by the perceived unreliability of the postal services. The reduced levels of downloaded media could be due to the market place's immaturity or lack of knowledge. This could also be affected by the varying levels of download quality for internet connections throughout South Africa.

The implications of this research are that as long as the e-commerce purchase process uses unreliable components, the risk of non-fulfilment increases. Thus, it is considered riskier to purchase an item that required delivery versus purchasing a flight, at the same cost. In order to overcome this perceived unreliability, e-commerce shops should encourage users to use their services through recommendations, backed up by effective refund and replacement policies. The Technology Acceptance Model compares the benefits of the transaction, or the usefulness of the product or service, to the perceived risk of non-delivery. In general, this creates a barrier to new users of delivered goods, downloaded media or auction sites. Therefore, it is essential that e-commerce sites should reduce the unreliability of the system and, in so doing, encourage first time users and promote growth through recommendations.

Furthermore, in South Africa, auction sites like eBay and BidorBuy would be a perfect avenue for entrepreneurs to sell their goods to both local and foreign markets. However, this is hindered by the perceptions of poor reliability of the postal services. Very few conclusions could be drawn from this research for auction sales and purchases (with respect to the research question), yet it was evident that amongst the sample group, there was very low use of these auction sites.

From these results, it appears that as South African e-commerce consumers become more familiar with the internet and with making payments, they are more willing to make greater levels of payments. Thus, it is critical that e-commerce sites encourage loyalty through improved service quality. This will lead to further repeat purchases and greater levels of trust overall. With South Africa's growing e-commerce market place, it is essential to understand that consumers perceive distinct barriers to entry, through online payments (to a lesser extent) and through purchase deliveries. Therefore, these two areas can be seen as a competitive advantage, if companies are able to build loyalty through reliable service.

Furthermore, the most effective type of e-commerce is one where there is limited delivery, or very little involvement from the customer after the time of purchase. E-Commerce companies selling goods requiring delivery can conclude from the results that the standard South African postal service is perceived to be unreliable. Replacement or refund clauses for each purchase may help counteract these negative perceptions; however, the use of a courier

service would probably be the best option, providing the best-perceived reliability. This should be considered when putting together the pricing model for e-commerce offerings.

7.2. Future Research

As the research tested the general view of e-commerce in South Africa, and not the specific nature of a particular website, this could be a focus area for research. This could be done through more detailed analysis of particular websites or with further investigation into specific channels and different product or service types.

The limitations of the sample group resulted in too few responses for auction sites, and as the e-commerce industry matures, there could be future research specifically on auction sites. Similarly, the way in which the frequency of internet use was measured did not result in the expected distribution which could be an area of focus with a more evenly distributed sample of age groups. In this regard, age could be used to determine the types e-commerce that are preferred and how to encourage first time and repeat purchases.

As this paper focused on LSM 9 and 10 and not on other levels of income, future researchers could identify the relationship between the LSM and the use of e-commerce, especially with regard to the use of mobile devices for utilising e-commerce.

Furthermore, these results could be repeated in other developing countries in Africa, to explore the levels of e-commerce use with regard to limited telecommunication infrastructure.

7.3. Conclusion for Research

It has been illustrated that the components of e-commerce fulfilment, from payments to delivery, contribute to the frequency of use and the amount that is spent through e-commerce. By improving reliability perceptions and delivery service quality, the e-commerce industry can show significant growth, with far greater levels of use. As has been shown through this research, there will be greater acceptance of e-commerce with the increase in internet experience of consumers and with the improved ease to use.

The conclusions of this research have delivered a set of results that support the body of literature and the conclusions should be used to address the perceptions held about e-commerce delivery channels. As South Africa moves into an era, where there is increased competition from international competitors, it is vital that the e-commerce industry develops the fundamentals to compete successfully. The use of e-commerce should be seen as a mechanism to encourage entrepreneurship in South Africa with exposure to the global markets.

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Appendix A – Most time spent by South African Internet Population

Categories accounting for the most time spent by ZA Internet population - August 2007

Rank	Category	% of Total Time	Total time (hours)	Rank by Unique Browsers
1	News & Weather	23%	1,143,605	1
2	Media & Publishing	16%	802,044	2
3	Entertainment	12%	631,017	3
4	Travel	11%	557,026	4
5	Email, Messaging & Chat	11%	545,838	6
6	Employment	6%	315,219	9
7	Directories & Search	5%	263,826	5
8	Sport	4%	217,145	7
9	Financial Services	2%	125,434	8
10	Real Estate	2%	87,418	12

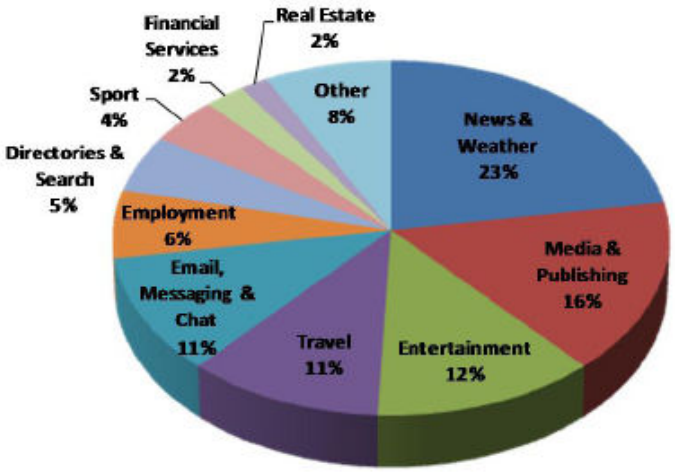

FIGURE A-0-1 - WHERE DO SOUTH AFRICAN SPEND MOST OF THEIR TIME ONLINE

Source - Neilsen//NetRaitngs (2007 September 11)

Appendix B – AMPS Demographic Analysis for 2006 – 2007

Source : SAARF AMPS® (2007)

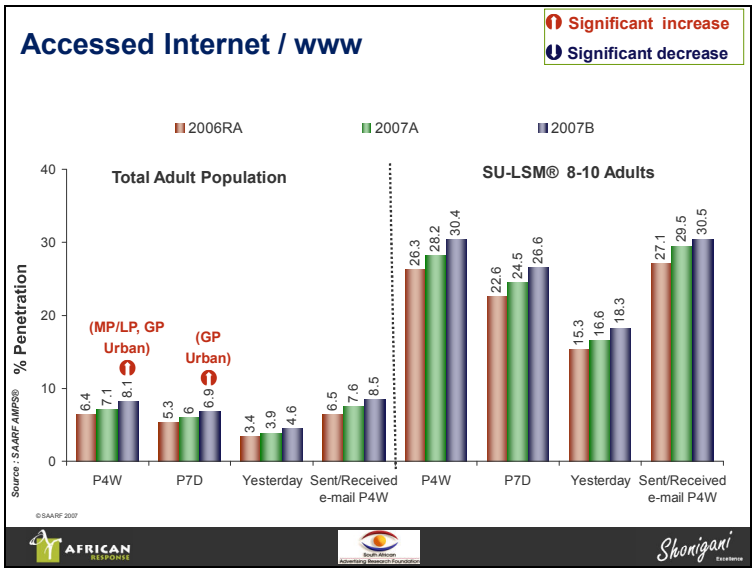

FIGURE B-1 INTERNET ACCESS RESEARCH FOR 2007

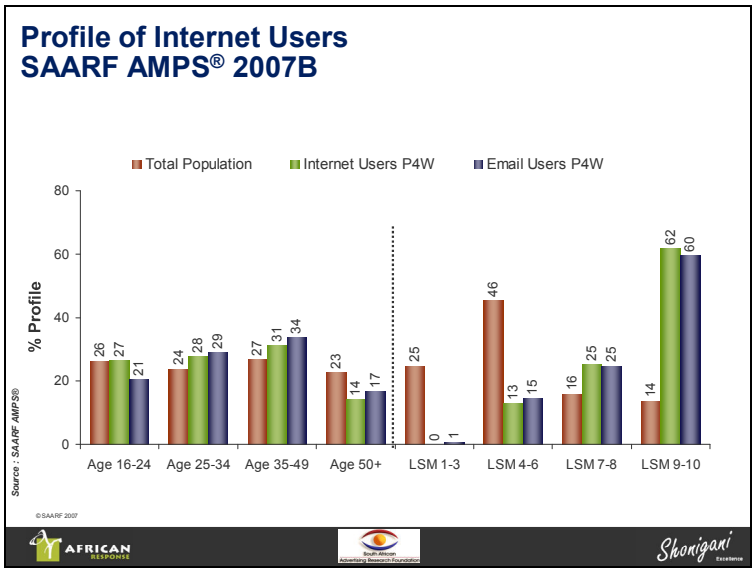

FIGURE B-2 PROFILE OF INTERNET USERS FOR 2007

Appendix C - Survey Questionnaire

Question Selection and Answer Options	Literature Review
Q1. Gender Male Female	Demographic detail for AMPS comparison
Q2. Do you live in an Urban or Rural Area? Urban Rural	Demographic detail for calculating LSM
Q3. In which South African province do you live? Eastern Cape Free State Gauteng KwaZulu Natal Limpopo Mpumalanga North West Northern Cape Western Cape	Demographic detail for AMPS comparison
Q4. What is your highest level of education? Have not completed Matric Secondary Education (Matric) Diploma or Certificate Undergraduate or Honours Degree Masters Degree Doctorate Degree	Rust *et al.*(2002), Murillo (2001) and Roos et al. (2006)
Q5. Please select your age group 16-24 25-34 35-49 50+	Roos et al. (2006) and scale aligned with AMPS (2007B)

Question Selection and Answer Options	Literature Review
Q6. For background information, please indicate which of the following items are in your household TV set VCR DVD player M-Net/DStv subscription Hi-fi/music centre Computer / Laptop Vacuum cleaner/floor polisher Sewing machine Dishwashing machine Washing machine Tumble dryer Home telephone (excluding a cell) Deep freezer Fridge/freezer (combination) Electric stove Microwave oven Built-in kitchen sink Home security service	Demographic detail for calculating LSM
Q7. Please tick the statements that apply to you I live in a house, cluster, town house or apartment There is a motor vehicle in my household There is a domestic worker, who is employed in my household There is at least one cellphone in my household	Demographic detail for calculating LSM
Q8. Do you use the internet at home? Yes No	Aligned with AMPS questions (2007B)
Q9. Before today, when was the last time that you accessed the internet? Yesterday In the last 7 days In the last 2 Weeks In the last 4 Weeks In the last 6 months In the last year More than a year ago	Rust *et al.*(2002) and Roos *et al.* (2006) and scale aligned with AMPS (2007B)
Q10. For how many years have you used the internet? Less than 1 year 1-2 years 2-4 years 4-6 years 6-8 years More than 8 years	Goldstuck (2007b), rating is aligned with findings

Question Selection and Answer Options	Literature Review
Q11. What are your top uses for the internet? News, Sport, Weather Internet Banking Share Trading Social Networking (e.g. Facebook, MySpace) Instant Messaging Email Watching TV or listening to radio Music or Media downloads Gambling or online betting Games or Software downloads Information searches (e.g. Google, Yahoo) Booking online tickets (e.g. Movies, flights) Purchasing items (e.g. Amazon, Kalahari, NetFlorist) Buying through auction sites (e.g. eBay, BidorBuy) Selling on auction sites (e.g. eBay, BidorBuy) Comments	Aligned with AMPS questions and additional questions asked for auction purchases and sales.
Q12. When did you last make a purchase over the internet? Today / Yesterday In the last 7 days In the last 2 Weeks In the last 4 Weeks In the last 2 Months In the last 6 Months In the last year More than a year ago Never	Aligned with AMPS questions (2007B)
Q13. Which one of the following best describes how you feel about making internet payments? I consider internet payments to be risk free and reliable I am slightly tentative but I still consider internet payments to be reliable I am tentative but I have still made internet payments I am very tentative but I have still made internet payments I have never made an internet payment due to the risk I have never had the need to make internet payments	Huff *et al.* (2000) and Head *et al.* (2002)
Q14. When was the last time that you bought an online ticket (e.g. a movie or airline ticket)? Never bought an online ticket Today / Yesterday In the last 7 days In the last 2 Weeks In the last 4 Weeks In the last 3 Months In the last 6 Months In the last year More than a year ago	Zemke *et al.* (2001) and Mentzer *et al.*(2001)

Question Selection and Answer Options	Literature Review
Q15. What is the most that you have spent on an online ticket transaction (e.g. movie or airline tickets)? Never bought an online ticket R 0 – R 100 R 101 – R 200 R 201 – R 500 R 501 – R 1000 R 1001 – R 2000 R 2001 – R 5000 More than R 5000	Zemke et al. (2001) and Mentzer et al.(2001) and Goldstuck (2007b)
Q16. When was the last time that you downloaded media or software that you purchased online (e.g. software or music as mp3)? Never downloaded media or software Today / Yesterday In the last 7 days In the last 2 Weeks In the last 4 Weeks In the last 3 Months In the last 6 Months In the last year. More than a year ago	Zemke *et al.* (2001), Peterson *et al.* (1997) and Mentzer *et al.*(2001)
Q17. What is the most that you have paid for downloaded media or software? Never bought media or software R 0 – R 100 R 101 – R 200 R 201 – R 500 R 501 – R 1000 R 1001 – R 2000 R 2001 – R 5000 More than R 5000	Own question to align with payments questions.
Q18. What is the longest period, from the time of purchase, that you are prepared to wait before being able to use downloaded media (e.g. A MP3 song from an internet music site)? I would not buy media downloads Within 1 hour Within 30min Within 15min Within 10min Within 5 min Within 1 Min Within 30 sec	Own question to identify the expected download rate and ICT expectations (Roos et al. ,2006)

Question Selection and Answer Options	Literature Review
Q19. When was the last time that you purchased an item from an internet store that required a delivery (e.g. Kalahari.net, Digital Planet, NetFlorist or Amazon.com)? Never purchased an item Today / Yesterday In the last 7 days In the last 2 Weeks In the last 4 Weeks In the last 3 Months In the last 6 Months In the last year. More than a year ago	Zemke et al. (2001) and Mentzer et al.(2001) and scale aligned with AMPS (2007B)
Q20. What is the most that you have spent on an order that required delivery? Never bought an item online R 0 – R 100 R 101 – R 200 R 201 – R 500 R 501 – R 1000 R 1001 – R 2000 R 2001 – R 5000 More than R 5000	Zemke et al. (2001) and Mentzer et al.(2001), Goldstuck (2007b). Xing *et al.* (2006)
Q21. From your point of view, what is a reasonable length of time that you would expect to receive a delivered item from an internet store? Within 1 day Within 2 days Within 3 days Within 7 days Within 14 days Within 1 month Within 3 months I would not make use of a online store	Own question to idetnify the expected speed of delivery. Xing *et al.* (2006)
Q22. From your overall internet shopping experience (i.e. the selection, the purchasing and the delivery of an item), which component of this transaction is most important to you? The range of products and convenience is my most important criteria when shopping online Payment reliability is my most important criteria when shopping online The efficient delivery of the item is my most important criteria when shopping online None of the above	Cheng (2006), Peterson *et al.* (1997)
Q23. Which of the following statements best describes your feelings about refund or replacement policies for goods that are damaged or lost during delivery? These policies completely address my concerns about delivery These policies partially address my concerns about delivery These policies do not address my delivery concerns No level of refund or replacement policy will encourage me to purchase goods over the internet	Zemke *et al.* (2001)

Question Selection and Answer Options	Literature Review
Q24. Which of the following statements best describes your view on receiving recommendations before making purchases at specific online stores? I do not need to receive recommendations before making a purchase I prefer to receive recommendations before making a purchase I will only make a purchase after receiving recommendations No matter what advice I receive, I will not purchase online	Ha (2004)
Q25. When was the last time that you PURCHASED an item from an internet auction site that required a physical delivery (e.g. eBay or BidOrBuy.co.za)? Never purchased an item from an internet auction site Today / Yesterday In the last 7 days In the last 2 Weeks In the last 4 Weeks In the last 3 Months In the last 6 Months In the last year. More than a year ago	Standifird (2001), Houser *et al.* (2006) and Murillo (2001)
Q26. What is the most that you have spent on an item purchased from an internet auction site? Never purchased an item from an internet auction site R 0 – R 100 R 101 – R 200 R 201 – R 500 R 501 – R 1000 R 1001 – R 2000 R 2001 – R 5000 More than R 5000	Own question to align with other e-commerce channels
Q27. From your point of view, what is a reasonable length of time that you would expect to receive a delivered item from an internet auction site? Within 1 day Within 2 days Within 3 days Within 7 days Within 14 days Within 1 month Within 3 months I would not make use of an auction site	Own question to identify the expected speed of delivery
Q28. When was the last time that you SOLD an item on an internet auction site that required a physical delivery (for eBay or BidOrBuy.co.za)? Today / Yesterday In the last 7 days In the last 2 Weeks In the last 4 Weeks In the last 3 Months In the last 6 Months In the last year. More than a year ago.	Standifird (2001), Houser et al. (2006) and Murillo (2001)

Question Selection and Answer Options	Literature Review
Q29. What is your perception about the reliability of receiving purchased items through the following delivery services? Normal mail with South African Post Office Not Reliable at All Poor Reliability Reliable Very Reliable Extremely Reliable N/A Registered mail with South African Post Office Not Reliable at All Poor Reliability Reliable Very Reliable Extremely Reliable N/A Delivery through a courier service (e.g. DHL) Not Reliable at All Poor Reliability Reliable Very Reliable Extremely Reliable N/A	Murillo (2001) and Mentzer et al. (2001)
Q30. Name and Surname (Optional)	Used for thanking for response and to encourage further distribution
Q31. Email address (Optional)	

This survey was facilitated by Survey Monkey at the following address –

http://www.surveymonkey.com/s.aspx?sm=yFFy48YnpNiTi9INVdZg_2fw_3d_3d

The opening page displayed the following message and the respondent gave his consent by completing the electronic survey.

I am conducting this research to investigate how the use of online shopping (e-commerce) in South Africa is affected by the perceived reliability of the delivery systems and online payments. This questionnaire should not take more than 10 minutes of your time. Your participation is voluntary and you can withdraw at any time without penalty. All data will be kept confidential and by completing the survey, you indicate that you voluntarily participate in this research.

Appendix D – Tables of Demographic Distribution

TABLE D-1 GENDER DISTRIBUTION

	Count	% of Responses
Female	182	43.6%
Male	232	55.6%

TABLE D-2 AGE DISTRIBUTION

	Count	% or Responses
16-24	25	6.0 %
25-34	241	57.8%
35-49	97	23.3 %
50+	97	12.7 %
Missing	1	0.24 %

TABLE D-3 EDUCATION DISTRIBUTION

	Count	% or Responses
Have Not Completed Matric	2	0.5%
Secondary Education (Matric)	30	7.2 %
Diploma or Certificate	79	18.9 %
Undergraduate or Honours Degree	222	53.2 %
Masters Degree	73	17.5 %
Doctorate	10	2.4 %
Missing	1	0.2 %

TABLE D-4 YEARS OF INTERNET USE

Years of Use	Count	Percent
1: Less than a year	2	0.5%
2: 1-2 years	4	1.0%
3: 2-4 years	25	6.0%
4: 4-6 years	51	12.2%
5: 6-8 Years	79	18.9%
6: More than 8 years	245	58.7%
Missing	11	2.6%

Appendix E – Chi Square Analysis Summary for Use of E-commerce

Appendix E.1 – Chi Square Analysis using the levels of Internet Usage

TABLE E.1.1 - Results of Chi Square Analysis between e-Commerce and the levels of internet use

Internet Use Summary	Last e-Commerce Purchase Frequent	Last e-Commerce Purchase Regular	Last e-Commerce Purchase Within 6 Months	Last e-Commerce Purchase Infrequent	**Row**
Expected Frequencies					
3 And Less	43.4483	31.0345	12.41379	18.10345	**105.0000**
4 Uses	49.2414	35.1724	14.06897	20.51724	**119.0000**
5 Uses	43.8621	31.3300	12.53202	18.27586	**106.0000**
6 and more	31.4483	22.4631	8.98522	13.10345	**76.0000**
All Groups	**168.0000**	**120.0000**	**48.00000**	**70.00000**	**406.0000**

Pearson Chi-square: 41.0171, df=9, p=.000005

Peasons Chi Square	41.0171
Probability	0.000005
Contingency coefficient	0.302915
Minimum Frequency	8.99
Degrees of Freedom	9

TABLE E.1.2 Results of Chi Square Analysis between e- Tickets and the levels of internet use

Internet Use Summary	Last e-Ticket Purchase Frequent	Last e--Ticket Purchase Regular	Last e--Ticket Purchase Within 6 Months	Last e--Ticket Purchase Infrequent	Row
Expected Frequencies					
3 And Less	29.5263	41.6842	9.92481	17.86466	**99.0000**
4 Uses	34.5965	48.8421	11.62907	20.93233	**116.0000**
5 Uses	32.2105	45.4737	10.82707	19.48872	**108.0000**
6 and more	22.6667	32.0000	7.61905	13.71429	**76.0000**
All Groups	**119.0000**	**168.0000**	**40.00000**	**72.00000**	**399.0000**

Pearson Chi-square: 7.90469, df=9, p=.543783

Exclude condition: V10 <=2

Peasons Chi Square	7.90469
Probability	0.543783
Contingency coefficient	0.139379
Minimum Frequency	7.62
Degrees of Freedom	9

TABLE E.1.3 Results of Chi Square Analysis between Media downloads and the levels of internet use

Internet Use Summary	Last Media Purchase Frequent	Last Media Purchase Regular	Last Media Purchase Within 6 Months	Last Media Purchase Infrequent	Last Media Purchase Never	**Row Totals**
Expected Frequencies						
3 And Less	18.57494	16.76904	9.80344	16.25307	43.5995	**105.0000**
4 Uses	21.05160	19.00491	11.11057	18.42015	49.4128	**119.0000**
5 Uses	18.92875	17.08845	9.99017	16.56265	44.4300	**107.0000**
6 and more	13.44472	12.13759	7.09582	11.76413	31.5577	**76.0000**
All Groups	**72.00000**	**65.00000**	**38.00000**	**63.00000**	**169.0000**	**407.0000**

Pearson Chi-square: 29.5526, df=12, p=.003263

Peasons Chi Square	29.5526
Probability	0.003263
Contingency coefficient	0.260183
Minimum Frequency	7.10
Degrees of Freedom	12

TABLE E.1.4 Results of Chi Square Analysis between delivered items and the levels of internet use

Internet Use Summary	Last Media Purchase Frequent	Last Media Purchase Regular	Last Media Purchase Within 6 Months	Last Media Purchase Infrequent	Last Media Purchase Never	**Row Totals**
Expected Frequencies						
3 And Less	13.89706	28.0515	12.35294	25.9926	24.70588	**105.0000**
4 Uses	15.75000	31.7917	14.00000	29.4583	28.00000	**119.0000**
5 Uses	14.29412	28.8529	12.70588	26.7353	25.41176	**108.0000**
6 and more	10.05882	20.3039	8.94118	18.8137	17.88235	**76.0000**
All Groups	**54.00000**	**109.0000**	**48.00000**	**101.0000**	**96.00000**	**408.0000**

Pearson Chi-square: 39.0783, df=12, p=.000102

Peasons Chi Square	39.0783
Probability	0.000102
Contingency coefficient	0.295649
Minimum Frequency	8.94
Degrees of Freedom	12

TABLE E.1.5 Results of Chi Square Analysis between the frequency of Auction purchases and the levels of internet use

Internet Use Summary	Last Auction Purchase Regular	Last Auction Purchase Infrequent	Last Auction Purchase Never	**Row Totals**
Expected Frequencies				
3 And Less	8.436090226	10.48120301	83.0827068	**102**
4 Uses	9.511278195	11.81704261	93.6716792	**115**
5 Uses	8.84962406	10.99498747	87.1553885	**107**
6 and more	6.203007519	7.706766917	61.0902256	**75**
All Groups	**33**	**41**	**325**	**399**

Pearson Chi-square: 18.2803, df=6, p=.005572

Peasons Chi Square	18.2803
Probability	0.005572
Contingency coefficient	0.209304
Minimum Frequency	6.20
Degrees of Freedom	6

TABLE E.1.5 Results of Chi Square Analysis between the frequency of Auction sales and the levels of internet use

Internet Use Summary	Last Auction Sale Never	Last Auction Sale	**Row Totals**
Expected Frequencies			
3 And Less	94.8942	6.10579	**101.0000**
4 Uses	108.0479	6.95214	**115.0000**
5 Uses	99.5919	6.40806	**106.0000**
6 and more	70.4660	4.53401	**75.0000**
All Groups	**373.0000**	**24.00000**	**397.0000**

Pearson Chi-square: 5.92313, df=3, p=.115418

Peasons Chi Square	5.92313
Probability	0.115418
Contingency coefficient	0.270545
Minimum Frequency	4.53
Degrees of Freedom	3

Appendix E.2 – Chi Square Analysis using the Years of Internet Usage

TABLE E.2.1 Results of Chi Square Analysis between e-commerce and the years of internet use

Years of Internet Use	Last e-Commerce Purchase Frequent	Last e-Commerce Purchase Regular	Last e-Commerce Purchase Infrequent	**Row**
Expected Frequencies				
Less than 6 Years	33.4827	24.0594	23.4579	**81.0000**
Less than 8 Years	32.6559	23.4653	22.8787	**79.0000**
More than 8 Years	100.8614	72.4752	70.6634	**244.0000**
All Groups	**167.0000**	**120.0000**	**117.0000**	**404.0000**

Pearson Chi-square: 10.0004, df=4, p=.040428

Peasons Chi Square	10.0004
Probability	0.040428
Contingency coefficient	0.155421
Minimum Frequency	22.88
Degrees of Freedom	4

TABLE E.2.2 Results of Chi Square Analysis between e-tickets and the years of internet use

Years of Internet Use	Last e-Ticket Purchase Frequent	Last e-Ticket Purchase Regular	Last e-Ticket Purchase Within 6 Months	Last e-Ticket Purchase Infrequent	**Row**
Expected Frequencies					
Less than 6 Years	24.0938	34.4198	8.09877	15.38765	**82.0000**
Less than 8 Years	23.2123	33.1605	7.80247	14.82469	**79.0000**
More than 8 Years	71.6938	102.4198	24.09877	45.78765	**244.0000**
All Groups	**119.0000**	**170.0000**	**40.00000**	**76.00000**	**405.0000**

Pearson Chi-square: 15.2293, df=6, p=.018552

Peasons Chi Square	15.2293
Probability	0.018552
Contingency coefficient	0.190369
Minimum Frequency	7.80
Degrees of Freedom	6

TABLE E.2.3 Results of Chi Square Analysis between Media Downloads and the years of internet use

Years of Internet Use	Last Media Purchase Frequent	Last Media Purchase Regular	Last Media Purchase Within 6 Months	Last Media Purchase Infrequent	Last Media Purchase Never	**Row Totals**
Expected Frequencies						
Less than 6 Years	14.57778	13.16049	7.69383	12.55309	34.0148	**82.0000**
Less than 8 Years	13.86667	12.51852	7.31852	11.94074	32.3556	**78.0000**
More than 8 Years	43.55556	39.32099	22.98765	37.50617	101.6296	**245.0000**
All Groups	**72.00000**	**65.00000**	**38.00000**	**62.00000**	**168.0000**	**405.0000**

Pearson Chi-square: 21.0253, df=8, p=.007085

Peasons Chi Square	21.0253
P	0.007085
Contingency coefficient	0.222154
Minimum Frequency	7.32
Degrees of Freedom	8

TABLE E.2.4 Results of Chi Square Analysis between frequency of purchases that require delivery and the years of internet use

Years of Internet Use	Last Media Purchase Frequent	Last Media Purchase Regular	Last Media Purchase Within 6 Months	Last Media Purchase Infrequent	Last Media Purchase Never	**Row Totals**
Expected Frequencies						
Less than 6 Years	10.90640	22.0148	9.49261	20.3990	19.18719	**82.0000**
Less than 8 Years	10.50739	21.2094	9.14532	19.6527	18.48522	**79.0000**
More than 8 Years	32.58621	65.7759	28.36207	60.9483	57.32759	**245.0000**
All Groups	**54.00000**	**109.0000**	**47.00000**	**101.0000**	**95.00000**	**406.0000**

Pearson Chi-square: 13.1567, df=8, p=.106586

Peasons Chi Square	13.1567
Probability	0.106586
Contingency coefficient	0.177168
Minimum Frequency	9.15
Degrees of Freedom	8

TABLE E.2.5 Results of Chi Square Analysis between frequency of auction site purchases and the

years of internet use

Years of Internet Use	Last Auction Purchase Never	Last Auction Purchase Purchase	**Row Totals**
Expected Frequencies			
Less than 6 Years	62.6474	14.35264	**77.0000**
Less than 8 Years	63.4610	14.53904	**78.0000**
More than 8 Years	196.8917	45.10831	**242.0000**
All Groups	**323.0000**	**74.00000**	**397.0000**

Peasons Chi Square	6.1552
Probability	0.046074
Contingency coefficient	0.123562
Minimum Frequency	14.35
Degrees of Freedom	2

TABLE E.2.6 Results of Chi Square Analysis between frequency of auction site sales and the years of internet use

Years of Internet Use	Last Auction Sale Never	Last Auction Sale	**Row Totals**
Expected Frequencies			
Less than 6 Years	71.3823	4.61772	**76.0000**
Less than 8 Years	73.2608	4.73924	**78.0000**
More than 8 Years	226.3570	14.64304	**241.0000**
All Groups	**371.0000**	**24.00000**	**395.0000**

Pearson Chi-square: 1.13009, df=2, p=.568337

Peasons Chi Square	1.13009
P	0.568337
Contingency coefficient	0.053412
Minimum Frequency	4.62
Degrees of Freedom	2

Appendix E.3 – Chi Square Analysis using the Frequency of internet usage

Table E.3.1 Chi Square Analysis between the frequency of Internet use and e-Commerce frequency

Frequency of Internet Use	Last e-Commerce Purchase Frequent	Last e-Commerce Purchase Regular	Last e-Commerce Purchase Within 6 Months	Last e-Commerce Purchase Infrequent	Row
Expected Frequencies					
Not Daily	17.7931	12.7094	5.08374	7.41379	**43.0000**
Daily	150.2069	107.2906	42.91626	62.58621	**363.0000**
All Groups	**168.0000**	**120.0000**	**48.00000**	**70.00000**	**406.0000**

Pearson Chi-square: 13.9796, df=3, p=.002934

Peasons Chi Square	13.9796
Probability	0.002934
Contingency coefficient	0.182446
Minimum Frequency	5.08
Degrees of Freedom	3

TABLE E.3.2 Chi Square Analysis between the frequency of Internet use and e-Ticket frequency

Frequency of Internet Use	Last e-Ticket Purchase Frequent	Last e- Ticket Purchase Regular	Last e-Ticket Purchase Within 6 Months	Last e-Ticket Purchase Infrequent	Row
Expected Frequencies					
Not Daily	12.6781	17.9607	4.22604	8.13514	**43.0000**
Daily	107.3219	152.0393	35.77396	68.86486	**364.0000**
All Groups	**120.0000**	**170.0000**	**40.00000**	**77.00000**	**407.0000**

Pearson Chi-square: 11.5981, df=3, p=.008897

Peasons Chi Square	11.5981
Probability	0.008897
Contingency coefficient	0.166454
Minimum Frequency	4.23
Degrees of Freedom	3

TABLE E.3.3 Chi Square Analysis between the frequency of Internet use and Media Download frequency

Frequency of Internet Use	Last Media Purchase Frequent	Last Media Purchase Regular	Last Media Purchase Within 6 Months	Last Media Purchase Infrequent	Last Media Purchase Never	**Row Totals**
Expected Frequencies						
Not Daily	7.60688	6.86732	4.01474	6.65602	17.8550	**43.0000**
Daily	64.39312	58.13268	33.98526	56.34398	151.1450	**364.0000**
All Groups	**72.00000**	**65.00000**	**38.00000**	**63.00000**	**169.0000**	**407.0000**

Pearson Chi-square: 7.00233, df=4, p=.135774

Peasons Chi Square	7.00233
Probability	0.135774
Contingency coefficient	0.130053
Minimum Frequency	4.01
Degrees of Freedom	4

TABLE E.3.4 Chi Square Analysis between the frequency of Internet use and Delivered Item frequency

Frequency of Internet Use	Last Media Purchase Frequent	Last Media Purchase Regular	Last Media Purchase Within 6 Months	Last Media Purchase Infrequent	Last Media Purchase Never	**Row Totals**
Expected Frequencies						
Not Daily	5.69118	11.4877	5.05882	10.6446	10.11765	**43.0000**
Daily	48.30882	97.5123	42.94118	90.3554	85.88235	**365.0000**
All Groups	**54.00000**	**109.0000**	**48.00000**	**101.0000**	**96.00000**	**408.0000**

Pearson Chi-square: 17.0838, df=4, p=.001863

Peasons Chi Square	17.0838
Probability	0.001863
Contingency coefficient	0.200473
Minimum Frequency	5.06
Degrees of Freedom	4

TABLE E.3.5 Chi Square Analysis between the frequency of Internet use and Auction Purchase frequency

Frequency of Internet Use	Last Auction Purchase Never	Last Auction Purchase	**Row Totals**
Expected Frequencies			
Not Daily	34.2105	7.78947	**42.0000**
Daily	290.7895	66.21053	**357.0000**
All Groups	325.0000	74.00000	399.0000

Pearson Chi-square: 5.90424, df=1, p=.015106

Peasons Chi Square	5.90424
P	0.015106
Contingency coefficient	0.120755
Minimum Frequency	7.79
Degrees of Freedom	1

TABLE E.3.6 Chi Square Analysis between the frequency of Internet use and Auction Sale frequency

Frequency of Internet Use	Last Auction Sale Never	Last Auction Sale	Row Totals
Expected Frequencies			
Not Daily	38.5214	2.47859	**41.0000**
Daily	334.4786	21.52141	**356.0000**
All Groups	**373.0000**	**24.00000**	**397.0000**

Pearson Chi-square: 1.04692, df=1, p=.306220

Peasons Chi Square	1.04692
Probability	0.30622
Contingency coefficient	0.051285
Minimum Frequency	2.48
Degrees of Freedom	1

Appendix E.4 – Chi Square Analysis using the age groups of respondents

TABLE E.4.1 Chi Square Analysis between the respondent's age and e-Commerce frequency

Age group of Respondent	Last e-Commerce Purchase Frequent	Last e-Commerce Purchase Regular	Last e-Commerce Purchase Within 6 Months	Last e-Commerce Purchase Infrequent	Row
Expected Frequencies					
16-34	106.6074	76.1481	30.45926	43.78519	**257.0000**
35-49	40.2370	28.7407	11.49630	16.52593	**97.0000**
50+	21.1556	15.1111	6.04444	8.68889	**51.0000**
All Groups	**168.0000**	**120.0000**	**48.00000**	**69.00000**	**405.0000**

Pearson Chi-square: 26.1945, df=6, p=.000205

Peasons Chi Square	26.1945
Probability	0.000205
Contingency coefficient	0.246472
Minimum Frequency	6.04
Degrees of Freedom	6

TABLE E.4.2 Chi Square Analysis between the respondent's age and e-Ticket frequency

Age group of Respondent	Last e-Ticket Purchase Frequent	Last e- Ticket Purchase Regular	Last e- Ticket Purchase Within 6 Months	Last e-Ticket Purchase Infrequent	**Row**
Expected Frequencies					
16-34	76.2562	108.0296	25.41872	48.29557	**258.0000**
35-49	28.6700	40.6158	9.55665	18.15764	**97.0000**
50+	15.0739	21.3547	5.02463	9.54680	**51.0000**
All Groups	**120.0000**	**170.0000**	**40.00000**	**76.00000**	**406.0000**

SPearson Chi-square: 11.0373, df=6, p=.087242

Peasons Chi Square	11.0373
Probability	0.087242
Contingency coefficient	0.162684
Minimum Frequency	5.02
Degrees of Freedom	6

TABLE E.4.3 Chi Square Analysis between the respondent's age and Media Download frequency

Age group of Respondent	Last Media Purchase Frequent	Last Media Purchase Regular	Last Media Purchase Within 6 Months	Last Media Purchase Infrequent	Last Media Purchase Never	**Row Totals**
Expected Frequencies						
16-34	45.93103	41.46552	24.24138	39.55172	107.8103	**259.0000**
35-49	17.02463	15.36946	8.98522	14.66010	39.9606	**96.0000**
50+	9.04433	8.16502	4.77340	7.78818	21.2291	**51.0000**
All Groups	**72.00000**	**65.00000**	**38.00000**	**62.00000**	**169.0000**	**406.0000**

Pearson Chi-square: 17.9107, df=8, p=.021914

Peasons Chi Square	17.9107
Probability	0.021914
Contingency coefficient	0.205551
Minimum Frequency	4.77
Degrees of Freedom	8

TABLE E.4.4 Chi Square Analysis between the respondent's age and the frequency of purchasing delivered items

Age group of Respondent	Last Media Purchase Frequent	Last Media Purchase Regular	Last Media Purchase Within 6 Months	Last Media Purchase Infrequent	Last Media Purchase Never	**Row Totals**
Expected Frequencies						
16-34	34.36364	69.3636	30.54545	64.2727	60.45455	**259.0000**
35-49	12.86978	25.9779	11.43980	24.0713	22.64128	**97.0000**
50+	6.76658	13.6585	6.01474	12.6560	11.90418	**51.0000**
All Groups	**54.00000**	**109.0000**	**48.00000**	**101.0000**	**95.00000**	**407.0000**

Pearson Chi-square: 20.6087, df=8, p=.008267

Peasons Chi Square	20.6087
Probability	0.008267
Contingency coefficient	0.219534
Minimum Frequency	6.01
Degrees of Freedom	8

TABLE E.4.5 Chi Square Analysis between the respondent's age and Auction Purchase frequency

Age group of Respondent	Last Auction Purchase Never	Last Auction Purchase	Row Totals
Expected Frequencies			
16-34	204.3317	46.66834	251.0000
35-49	78.1508	17.84925	96.0000
50+	41.5176	9.48241	51.0000
All Groups	**324.0000**	**74.00000**	**398.0000**

Pearson Chi-square: 4.50422, df=2, p=.105183

Peasons Chi Square	4.50422
Probability	0.105183
Contingency coefficient	0.105785
Minimum Frequency	9.48
Degrees of Freedom	2

TABLE E.4.6 Chi Square Analysis between the respondent's age and Auction Sale frequency

Age group of Respondent	Last Auction Sale Never	Last Auction Sale	**Row Totals**
Expected Frequencies			
16-34	234.8485	15.15152	**250.0000**
35-49	90.1818	5.81818	**96.0000**
50+	46.9697	3.03030	**50.0000**
All Groups	**372.0000**	**24.00000**	**396.0000**

Pearson Chi-square: 2.02351, df=2, p=.363584

Peasons Chi Square	2.02351
Probability	0.363584
Contingency coefficient	0.071301
Minimum Frequency	3.03
Degrees of Freedom	2

Appendix E.5 – Chi Square Analysis in association with the education of the respondents

TABLE E.5.1 Chi Square Analysis between the education level and the use and e-Commerce frequency

Education group of Respondent	Last e-Commerce Purchase Frequent	Last e-Commerce Purchase Regular	Last e-Commerce Purchase Within 6 Months	Last e-Commerce Purchase Infrequent	**Row**
Expected Frequencies					
No Matric, Matric or Diploma	45.2148	32.0272	12.91852	18.83951	**109.0000**
Undergrad or Honours	89.1852	63.1728	25.48148	37.16049	**215.0000**
Masters or Doctorate	33.6000	23.8000	9.60000	14.00000	**81.0000**
All Groups	**168.0000**	**119.0000**	**48.00000**	**70.00000**	**405.0000**

Pearson Chi-square: 20.8796, df=6, p=.001930

Peasons Chi Square	20.8796

P	0.00193
Contingency coefficient	0.221420
Minimum Frequency	9.60
Degrees of Freedom	6

Table E.5.2 Chi Square Analysis between the education level and e-Ticket frequency

Education group of Respondent	Last e-Commere Purchase Frequent	Last e-Ticket Purchase Regular	Last e-Ticket Purchase Within 6 Months	Last e-Ticket Purchase Infrequent	**Row**
Expected Frequencies					
No Matric, Matric or Diploma	32.2167	45.3719	10.73892	20.67241	**109.0000**
Undergrad or Honours	63.8424	89.9113	21.28079	40.96552	**216.0000**
Masters or Doctorate	23.9409	33.7167	7.98030	15.36207	**81.0000**
All Groups	**120.0000**	**169.0000**	**40.00000**	**77.00000**	**406.0000**

Pearson Chi-square: 24.7171, df=6, p=.000386

Peasons Chi Square	24.7171
Probability	0.000386
Contingency coefficient	0.239554
Minimum Frequency	7.98
Degrees of Freedom	6

TABLE E.5.3 Chi Square between the education level and Media Download frequency

Education group of Respondent	Last Media Purchase Frequent	Last Media Purchase Regular	Last Media Purchase Within 6 Months	Last Media Purchase Infrequent	Last Media Purchase Never	**Row Totals**
Expected Frequencies						
No Matric, Matric or Diploma	19.06158	17.45074	10.20197	16.91379	45.3719	**109.0000**
Undergrad or Honours	37.77340	34.58128	20.21675	33.51724	89.9113	**216.0000**
Masters or Doctorate	14.16502	12.96798	7.58128	12.56897	33.7167	**81.0000**
All Groups	**71.00000**	**65.00000**	**38.00000**	**63.00000**	**169.0000**	**406.0000**

Pearson Chi-square: 12.0755, df=8, p=.147884

Peasons Chi Square	12.0755
Probability	0.147884
Contingency coefficient	0.169952
Minimum Frequency	7.58
Degrees of Freedom	8

TABLE E.5.4 Chi Square Analysis between the education level and delivered Item frequency

Internet Use Summary	Last Media Purchase Frequent	Last Media Purchase Regular	Last Media Purchase Within 6 Months	Last Media Purchase Infrequent	Last Media Purchase Never	**Row Totals**
Expected Frequencies						
No Matric, Matric or Diploma	14.46192	29.1916	12.85504	27.0491	25.44226	**109.0000**
Undergrad or Honours	28.79115	58.1155	25.59214	53.8501	50.65111	**217.0000**
Masters or Doctorate	10.74693	21.6929	9.55283	20.1007	18.90663	**81.0000**
All Groups	**54.00000**	**109.0000**	**48.00000**	**101.0000**	**95.00000**	**407.0000**

Pearson Chi-square: 9.95236, df=8, p=.268399

Peasons Chi Square	9.95236
Probability	0.268399
Contingency coefficient	0.154497
Minimum Frequency	9.55
Degrees of Freedom	8

TABLE E.5.5 Chi Square Analysis between the education level and Auction Purchase frequency

Education group of Respondent	Last Auction Purchase Never	Last Auction Purchase	Row Totals
Expected Frequencies			
No Matric, Matric or Diploma	85.5263	19.47368	**105.0000**
Undergrad or Honours	174.3108	39.68922	**214.0000**
Masters or Doctorate	65.1629	14.83709	**80.0000**
All Groups	**325.0000**	**74.00000**	**399.0000**

Pearson Chi-square: 8.56440, df=2, p=.013815

Peasons Chi Square	8.5644
Probability	0.013815
Contingency coefficient	0.144961
Minimum Frequency	14.84
Degrees of Freedom	2

TABLE E.5.6 Chi Square Analysis between the education level and Auction Sale frequency

Education group of Respondent	Last Auction Sale Never	Last Auction Sale	Row Totals
Expected Frequencies			
No Matric, Matric or Diploma	97.7128	6.28715	**104.0000**
Undergrad or Honours	200.1234	12.87657	**213.0000**
Masters or Doctorate	75.1637	4.83627	**80.0000**
All Groups	**373.0000**	**24.00000**	**397.0000**

Pearson Chi-square: 2.90069, df=2, p=.234494

Peasons Chi Square	2.90069
Probability	0.234494
Contingency coefficient	0.085168
Minimum Frequency	4.84
Degrees of Freedom	2

Appendix F– Chi Square Analysis Summary for Amounts paid through e-commerce

Appendix F.1 – Chi Square Analysis in association with the frequency of internet use

TABLE F.1.1 Chi Square Analysis between the frequency of Internet use and e-Commerce payments

Internet Use Frequency	Most Spent on e-Commerce Less than 1000	Most Spent on e-Commerce 2000	Most Spent on e-Commerce 5000	Most Spent on e-Commerce 5001	**Row Totals**
Expected Frequencies					
Not Daily	7.06127	8.85294	14.2279	12.8578	**43.0000**
Daily	59.93873	75.14706	120.7721	109.1422	**365.0000**
All Groups	**67.00000**	**84.00000**	**135.0000**	**122.0000**	408.0000

Pearson Chi-square: 9.91449, df=3, p=.019311

Peasons Chi Square	9.91449
Probability	0.019311
Contingency coefficient	0.154025
Minimum Frequency	7.06
Degrees of Freedom	3

TABLE F.1.2 Chi Square Analysis between the frequency of Internet use and e-Ticket payments

Internet Use Frequency	Most Spent on e-Commerce less than 1000	Most Spent on e-Commerce 2000	Most Spent on e-Commerce 5000	Most Spent on e-Commerce 5001	**Row Totals**
Expected Frequencies					
Not Daily	9.27451	8.53676	13.8064	11.3824	**43.0000**
Daily	78.72549	72.46324	117.1936	96.6176	**365.0000**
All Groups	**88.00000**	**81.00000**	**131.0000**	**108.0000**	408.0000

Pearson Chi-square: 5.08174, df=3, p=.165916

Peasons Chi Square	5.08174
Probability	0.165916
Contingency coefficient	0.110914
Minimum Frequency	8.54
Degrees of Freedom	3

TABLE F.1.3 Chi Square Analysis between the frequency of Internet use and Media Download payments

Internet Use Frequency	Most Paid for Media R0-R100	Most Paid for Media R101-R200	Most Paid for Media R201-R500	Most Paid for Media R501-R1000	Most Paid for Media R1001-R5000+	**Row Totals**
Expected Frequencies						
Not Daily	20.7910	9.82090	4.17910	3.86567	3.34328	**42.0000**
Daily	178.2090	84.17910	35.82090	33.13433	28.65672	**360.0000**
All Groups	**199.0000**	**94.00000**	**40.00000**	**37.00000**	**32.00000**	**402.0000**

Pearson Chi-square: 12.1823, df=4, p=.016050

Peasons Chi Square	12.1823
Probability	0.01605
Contingency coefficient	0.171502
Minimum Frequency	3.34
Degrees of Freedom	12

TABLE F.1.4 Chi Square Analysis between the frequency of Internet use and Delivered Item payments

Internet Use Frequency	Most Paid for Delivered Never	Most Paid for Delivered Item R0-R200	Most Paid for Delivered Item R201-R500	Most Paid for Delivered Item R501-R1000	Most Paid for Delivered Item R1001-R2000	Most Paid for Delivered Item R2001-R5000+	**Row Totals**
Expected Frequencies							
Not Daily	9.82555	2.95823	8.76904	9.61425	5.70516	6.12776	43.0000
Daily	83.17445	25.04177	74.23096	81.38575	48.29484	51.87224	364.0000
All Groups	93.00000	28.00000	83.00000	91.00000	54.00000	58.00000	407.0000

Pearson Chi-square: 9.62121, df=5, p=.086718

Peasons Chi Square	9.62121
Probability	0.086718
Contingency coefficient	0.151965
Minimum Frequency	2.96
Degrees of Freedom	5

TABLE F.1.5 Chi Square Analysis between the frequency of Internet use and Auction Purchase payments

Internet Use Frequency	Most spent on Auction Never	Most spent on Auction R0-R200	Most spent on Auction R201-R500	Most spent on Auction R501-R1000	Most spent on Auction R1001-R2000	Most spent on Auction R2001-R5000+	**Row Totals**
Expected Frequencies							
Not Daily	33.6490	1.13889	1.44949	1.34596	1.65657	1.76010	**41.0000**
Daily	291.3510	9.86111	12.55051	11.65404	14.34343	15.23990	**355.0000**
All Groups	**325.0000**	**11.00000**	**14.00000**	**13.00000**	**16.00000**	**17.00000**	**396.0000**

Pearson Chi-square: 4.71243, df=5, p=.451978

Peasons Chi Square	4.71243
Probability	0.451978
Contingency coefficient	0.108444
Minimum Frequency	1.14
Degrees of Freedom	5

Appendix F.2 – Chi Square Analysis in association with the frequency of e-commerce use

TABLE F.2.2 Chi Square Analysis between the frequency of purchases for e-commerce and the payments amounts

Frequency of e-commerce use for specific channel	Most Spent on e-Commerce 500 and less	Most Spent on e-Commerce 1000	Most Spent on e-Commerce 2000	Most Spent on e-Commerce 5000	Most Spent on e-Commerce 5001	**Row Totals**
Expected Frequencies						
Frequent	12.41379	15.31034	34.75862	55.0345	50.4828	**168.0000**
Regular	12.41379	15.31034	34.75862	55.0345	50.4828	**168.0000**
Infrequent	5.17241	6.37931	14.48276	22.9310	21.0345	**70.0000**
All Groups	**30.00000**	**37.00000**	**84.00000**	**133.0000**	**122.0000**	**406.0000**

Pearson Chi-square: 61.5187, df=8, p=.000000

Peasons Chi Square	61.5187
Probability	0.00000
Contingency coefficient	0.362747
Minimum Frequency	5.17
Degrees of Freedom	8

TABLE F.2.2 Chi Square Analysis between the frequency of purchases for e-Tickets and the payments amounts

Frequency of e-commerce use for specific channel	Most Spent on e-Ticket 500 and less	Most Spent on e- Ticket 1000	Most Spent on e- Ticket 2000	Most Spent on e- Ticket 5000	Most Spent on e- Ticket 5001	**Row Totals**
Expected Frequencies						
Frequent	16.21622	9.72973	23.88206	38.6241	31.5479	**120.0000**
Regular	28.37838	17.02703	41.79361	67.5921	55.2088	**210.0000**
Infrequent	10.40541	6.24324	15.32432	24.7838	20.2432	**77.0000**
All Groups	**55.00000**	**33.00000**	**81.00000**	**131.0000**	**107.0000**	**407.0000**

Pearson Chi-square: 116.006, df=8, p=0.00000

Peasons Chi Square	116.006
Probability	0.0000
Contingency coefficient	0.470963
Minimum Frequency	6.24
Degrees of Freedom	8

TABLE F.2.3 Chi Square Analysis between the frequency of purchases for Media Downloads and the payments amounts

Frequency of e-commerce use for specific channel	Most Paid for Media R0-R200	Most Paid for Media R201-R500	Most Paid for Media R501-R1000	Most Paid for Media R1001-R5000+	Row Totals
Expected Frequencies					
Frequent	25.88945	10.97487	10.13065	9.00503	**56.0000**
Regular	41.60804	17.63819	16.28141	14.47236	**90.0000**
Infrequent	24.50251	10.38693	9.58794	8.52261	**53.0000**
All Groups	**92.00000**	**39.00000**	**36.00000**	**32.00000**	**199.0000**

Pearson Chi-square: 4.51306, df=6, p=.607599
Exclude condition: Last Media Purchase = Never (5) or Amount Spent = Never (0)

Peasons Chi Square	4.51306
Probability	0.607599
Contingency coefficient	0.148915
Minimum Frequency	8.52
Degrees of Freedom	6

TABLE F.2.4 Chi Square Analysis between the frequency of purchases for Delivered Items and the payments amounts

Frequency of e-commerce use for specific channel	Most Paid for Delivered Item R0-R500	Most Paid for Delivered Item R501-R1000	Most Paid for Delivered Item R1001-R2000	Most Paid for Delivered Item R2001-R5000+	Row Totals
Expected Frequencies					
Frequent	18.7597	15.95455	9.29221	9.99351	**54.0000**
Regular	54.1948	46.09091	26.84416	28.87013	**156.0000**
Infrequent	34.0455	28.95455	16.86364	18.13636	**98.0000**
All Groups	**107.0000**	**91.00000**	**53.00000**	**57.00000**	**308.0000**

Pearson Chi-square: 25.7936, df=6, p=.000244
Exclude condition: Last Delivered Item Purchase = Never (5) or Amount Spent = Never (1)

Peasons Chi Square	25.7936
Probability	0.000244
Contingency coefficient	0.277982
Minimum Frequency	9.29
Degrees of Freedom	6

TABLE F.2.5 Chi Square Analysis between the frequency of purchases for Auctions and the payments amounts

Frequency of e-commerce use for specific channel	Most spent on Auction Never	Most spent on Auction R0-R200	Most spent on Auction R201-R500	Most spent on Auction R501-R1000	Most spent on Auction R1001-R2000	Most spent on Auction R2001-R5000+	Row Totals
Expected Frequencies							
Never	264.2677	8.94444	11.38384	10.57071	13.01010	13.82323	**322.0000**
Purchase	60.7323	2.05556	2.61616	2.42929	2.98990	3.17677	**74.0000**
All Groups	**325.0000**	**11.00000**	**14.00000**	**13.00000**	**16.00000**	**17.00000**	**396.0000**

Pearson Chi-square: 339.977, df=5, p=0.00000

Peasons Chi Square	339.977
Probability	0
Contingency coefficient	0.679661
Minimum Frequency	2.06
Degrees of Freedom	5

Appendix F.3 – Chi Square Analysis in association with the years of internet use

TABLE F.3.1 Chi Square Analysis between the years of Internet use and e-Commerce payments

Years of Internet Use	Most Spent on e-Commerce 500 and less	Most Spent on e-Commerce 1000	Most Spent on e-Commerce 2000	Most Spent on e-Commerce 5000	Most Spent on e-Commerce 5001	**Row Totals**
Expected Frequencies						
Less than 6 Years	5.85714	7.47291	16.96552	27.2660	24.4384	**82.0000**
Less than 8 Years	5.64286	7.19951	16.34483	26.2685	23.5443	**79.0000**
More than 8 Years	17.50000	22.32759	50.68966	81.4655	73.0172	**245.0000**
All Groups	**29.00000**	**37.00000**	**84.00000**	**135.0000**	**121.0000**	**406.0000**

Pearson Chi-square: 19.6251, df=8, p=.011857

Peasons Chi Square	19.6251
Probability	0.011857
Contingency coefficient	0.214730
Minimum Frequency	5.64
Degrees of Freedom	8

TABLE F.3.2 Chi Square Analysis between the years of Internet use and e-Ticket payments

Years of Internet Use	Most Spent on e-Ticket 500 and less	Most Spent on e- Ticket 1000	Most Spent on e- Ticket 2000	Most Spent on e- Ticket 5000	Most Spent on e- Ticket 5001	**Row Totals**
Expected Frequencies						
Less than 6 Years	10.90640	6.66502	16.35961	26.4581	21.6108	**82.0000**
Less than 8 Years	10.50739	6.42118	15.76108	25.4901	20.8202	**79.0000**
More than 8 Years	32.58621	19.91379	48.87931	79.0517	64.5690	**245.0000**
All Groups	**54.00000**	**33.00000**	**81.00000**	**131.0000**	**107.0000**	**406.0000**

Pearson Chi-square: 14.1410, df=8, p=.078177

Peasons Chi Square	14.141
Probability	0.078177
Contingency coefficient	0.183460
Minimum Frequency	6.42
Degrees of Freedom	12

TABLE F.3.3 Chi Square Analysis between the years of Internet use and Media Download payments

Years of Internet Use	Most Paid for Media Never	Most Paid for Media R0-R100	Most Paid for Media R101-R200	Most Paid for Media R201-R500	Most Paid for Media R501-R1000	Most Paid for Media R1001-R5000+	Row Totals
Expected Frequencies							
Less than 6 Years	39.4000	12.40000	6.40000	8.00000	7.40000	6.40000	**80.0000**
Less than 8 Years	37.9225	11.93500	6.16000	7.70000	7.12250	6.16000	**77.0000**
More than 8 Years	119.6775	37.66500	19.44000	24.30000	22.47750	19.44000	**243.0000**
All Groups	**197.0000**	**62.00000**	**32.00000**	**40.00000**	**37.00000**	**32.00000**	**400.0000**

Pearson Chi-square: 18.2755, df=10, p=.050505

Peasons Chi Square	18.2755
Probability	0.050505
Contingency coefficient	0.209027
Minimum Frequency	6.16
Degrees of Freedom	10

TABLE F.3.4 Chi Square Analysis between the years of Internet use and Delivered Item payments

Years of Internet Use	Most Paid for Delivered Item Never	Most Paid for Delivered Item R0-R200	Most Paid for Delivered Item R201-R500	Most Paid for Delivered Item R501-R1000	Most Paid for Delivered Item R1001-R2000	Most Paid for Delivered Item R2001-R5000+	Row Totals
Expected Frequencies							
Less than 6 Years	18.62716	5.66914	16.80494	18.22222	10.93333	11.74321	**82.0000**
Less than 8 Years	17.71852	5.39259	15.98519	17.33333	10.40000	11.17037	**78.0000**
More than 8 Years	55.65432	16.93827	50.20988	54.44444	32.66667	35.08642	**245.0000**
All Groups	**92.00000**	**28.00000**	**83.00000**	**90.00000**	**54.00000**	**58.00000**	**405.0000**

Pearson Chi-square: 17.7507, df=10, p=.059334

Peasons Chi Square	17.7507
Probability	0.059334
Contingency coefficient	0.204911
Minimum Frequency	5.39
Degrees of Freedom	10

TABLE F.3.5 Chi Square Analysis between the years of Internet use and auction purchase payments

Years of Internet Use	Most spent on Auction Never	Most spent on Auction R0-R200	Most spent on Auction R201-R500	Most spent on Auction R501-R1000	Most spent on Auction R1001-R2000	Most spent on Auction R2001-R5000+	Row Totals
Expected Frequencies							
Less than 6 Years	62.3046	2.12183	2.70051	2.50761	3.08629	3.27919	**76.0000**
Less than 8 Years	63.9442	2.17766	2.77157	2.57360	3.16751	3.36548	**78.0000**
More than 8 Years	196.7513	6.70051	8.52792	7.91878	9.74619	10.35533	**240.0000**
All Groups	**323.0000**	**11.00000**	**14.00000**	**13.00000**	**16.00000**	**17.00000**	**394.0000**

Pearson Chi-square: 10.5235, df=10, p=.395833

Peasons Chi Square	10.5235
Probability	0.395833
Contingency coefficient	0.204954
Minimum Frequency	2.12
Degrees of Freedom	10

Appendix F.4 – Chi Square Analysis in association with the level of internet use

TABLE F.4.1 Chi Square Analysis between levels of internet use and e-Commerce payments

Last e-Commerce Purchase	Most Spent on e-Commerce 500 and less	Most Spent on e-Commerce 1000	Most Spent on e-Commerce 2000	Most Spent on e-Commerce 5000	Most Spent on e-Commerce 5001	Row Totals
Expected Frequencies						
3 And Less	7.72059	9.52206	21.61765	34.7426	31.3971	**105.0000**
4 Uses	8.75000	10.79167	24.50000	39.3750	35.5833	**119.0000**
5 Uses	7.94118	9.79412	22.23529	35.7353	32.2941	**108.0000**
6 and more	5.58824	6.89216	15.64706	25.1471	22.7255	**76.0000**
All Groups	**30.00000**	**37.00000**	**84.00000**	**135.0000**	**122.0000**	**408.0000**

Pearson Chi-square: 14.6937, df=12, p=.258633

Peasons Chi Square	14.6937
Probability	0.258633
Contingency coefficient	0.186446
Minimum Frequency	5.59
Degrees of Freedom	12

TABLE F.4.2 Chi Square Analysis between levels of internet use and e-Ticket payments

Last e-Ticket Purchase	Most Spent on e-Ticket 500 and less	Most Spent on e-Ticket 1000	Most Spent on e-Ticket 2000	Most Spent on e-Ticket 5000	Most Spent on e-Ticket 5001	Row Totals
Expected Frequencies						
3 And Less	14.15441	8.49265	20.84559	33.7132	27.7941	**105.0000**
4 Uses	16.04167	9.62500	23.62500	38.2083	31.5000	**119.0000**
5 Uses	14.55882	8.73529	21.44118	34.6765	28.5882	**108.0000**
6 and more	10.24510	6.14706	15.08824	24.4020	20.1176	**76.0000**
All Groups	**55.00000**	**33.00000**	**81.00000**	**131.0000**	**108.0000**	**408.0000**

Pearson Chi-square: 10.3387, df=12, p=.586272

Peasons Chi Square	10.3387
Probability	0.586272
Contingency coefficient	0.157206
Minimum Frequency	6.15
Degrees of Freedom	12

TABLE F.4.3 Chi Square Analysis between levels of internet use and Media Download payments

InternetUse Summary	Most Paid for Media Never	Most Paid for Media R0-R200	Most Paid for Media R201-R500	Most Paid for Media R501-R1000	Most Paid for Media R1001-R5000+	Row Totals
Expected Frequencies						
3 And Less	50.4925	23.85075	10.14925	9.38806	8.11940	**102.0000**
4 Uses	58.4129	27.59204	11.74129	10.86070	9.39303	**118.0000**
5 Uses	52.4726	24.78607	10.54726	9.75622	8.43781	**106.0000**
6 and more	37.6219	17.77114	7.56219	6.99502	6.04975	**76.0000**
All Groups	**199.0000**	**94.00000**	**40.00000**	**37.00000**	**32.00000**	**402.0000**

Pearson Chi-square: 38.3345, df=12, p=.000136

Peasons Chi Square	38.3345
Probability	0.000136
Contingency coefficient	0.295055
Minimum Frequency	6.05
Degrees of Freedom	12

TABLE F.4.4 Chi Square Analysis between levels of internet use and Purchase Delivered Item payments

Years of Internet Use Summary	Most Paid for Delivered Item Never	Most Paid for Delivered Item R0-R200	Most Paid for Delivered Item R201-R500	Most Paid for Delivered Item R501-R1000	Most Paid for Delivered Item R1001-R2000	Most Paid for Delivered Item R2001-R5000+	Row Totals
Expected Frequencies							
3 And Less	23.76413	7.15479	21.20885	23.25307	13.79853	14.82064	**104.0000**
4 Uses	27.19165	8.18673	24.26781	26.60688	15.78870	16.95823	**119.0000**
5 Uses	24.67813	7.42998	22.02457	24.14742	14.32924	15.39066	**108.0000**
6 and more	17.36609	5.22850	15.49877	16.99263	10.08354	10.83047	**76.0000**
All Groups	**93.00000**	**28.00000**	**83.00000**	**91.00000**	**54.00000**	**58.00000**	**407.0000**

Pearson Chi-square: 34.9691, df=15, p=.002487

Peasons Chi Square	34.9691
Probability	0.002487
Contingency coefficient	0.281285
Minimum Frequency	5.23
Degrees of Freedom	10

TABLE F.4.5 Chi Square Analysis between levels of internet use and Auction Purchase payments

Last Auction Purchase	Most spent on Auction Never	Most spent on Auction R0-R200	Most spent on Auction R201-R500	Most spent on Auction R501-R1000	Most spent on Auction R1001-R2000	Most spent on Auction R2001-R5000+	Row Totals
Expected Frequencies							
3 And Less	82.0707	2.77778	3.53535	3.28283	4.04040	4.29293	**100.0000**
4 Uses	94.3813	3.19444	4.06566	3.77525	4.64646	4.93687	**115.0000**
5 Uses	86.9949	2.94444	3.74747	3.47980	4.28283	4.55051	**106.0000**
6 and more	61.5530	2.08333	2.65152	2.46212	3.03030	3.21970	**75.0000**
All Groups	**325.0000**	**11.00000**	**14.00000**	**13.00000**	**16.00000**	**17.00000**	**396.0000**

Pearson Chi-square: 29.4667, df=15, p=.014007

Peasons Chi Square	29.4667
Probability	0.014007
Contingency coefficient	0.466390
Minimum Frequency	2.08
Degrees of Freedom	15

Appendix G – Chi Square Analysis for Perception towards online payments and the use of e-commerce

TABLE G-1 Chi Square Analysis between perceptions of payment reliability and e-commerce use.

Last e-Commerce Purchase	Payment Perception Risk free and Reliable	Payment Perception Slightly Tentative	Payment Perception Tentative	Payment Perception Very Tentative and High Risk	Row Totals
Expected Frequencies					
3 And Less	38.53846	79.9777	29.42184	19.06203	**167.0000**
4 Uses	27.23077	56.5112	20.78908	13.46898	**118.0000**
5 Uses	11.07692	22.9876	8.45658	5.47891	**48.0000**
6 and more	16.15385	33.5236	12.33251	7.99007	**70.0000**
All Groups	**93.00000**	**193.0000**	**71.00000**	**46.00000**	**403.0000**

Pearson Chi-square: 57.1074, df=9, p=.000000

Peasons Chi Square	57.107
Probability	0.000
Correlation	0.352
Minimum Frequency	5.48
Degrees of Freedom	9