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Factors Affecting the Successful Use of Mobile Commerce among Students at a Higher Education Institution in South Africa



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ABSTRACT

This study investigated the factors that affect the successful use of mobile commerce among students of the Vaal University of Technology. The study was conducted through the administration of a questionnaire survey to a selected sample of 110 students from the Vaal University of Technology. Simple percentage (using Microsoft Excel) was used to analyse the data collected from the participants. The study showed that mobile commerce, in general, was well perceived by customers (students) though some still have concerns (such as ease of use, trust) about using it. Among others, the study recommends that the service providers should develop the content and applications which users will find valuable and usable to keep up with their fast-paced lifestyle. Furthermore, the building of trust between the customers (students) and vendors should be another major concern for the service providers while improving the usefulness of the system.



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INTRODUCTION

The internet has changed the way we live, communicate and relate with each other [1]. Because of this substantial development in information and technology, a new technology emerged, which is known as mobile commerce [1]. According to [2-5] mobile commerce is the process making use of a mobile device for business exchanges performed over a mobile communication network, potentially including the exchange of money. However, [6] contended that mobile commerce definitions that focus on money-related value are improper because it ignores the business idea of promoting measures and after sales benefit. Many Vaal University of Technology (VUT) students are carrying smartphones in their pockets, tablets and other portable devices, increasingly these devices can do what it used to take a laptop or desktop PC to achieve. The advancement of mobile devices and wireless technologies have increased the use and knowledge of mobile commerce [7]. There are still many individuals in the developing world without access to mobile commerce services due to poor infrastructure and cost while many of them have mobile phones [8] also among this are students of Vaal University of Technology (VUT) who are underprivileged. Around the world, mobile commerce is being rapidly adopted as the latest trend to do business [9]. A lot of companies in developed countries have become aware of the importance of mobile commerce and the demand of mobility, which means that the internal agents (employees, managers, supervisors) and external agents (customers, suppliers, stakeholders) should be able to access information resources and services at any time and from anywhere. As companies always try to improve themselves by creating better products and services for their customers, mobile commerce continuously grows and becomes an integral part of enterprise business strategies, and this is due to the benefit offered by companies, which is the ability to achieve competitive advantages for businesses [10]. There are several types of mobile commerce services that are emerging, such as mobile entertainment, like purchasing ringtones and games, mobile banking that allow consumers to conduct financial transactions from their mobile devices, and mobile brokerage that gives consumers the opportunity to buy and sell stocks from any location [11]. With all these activities being done over the mobile, there might be some factors which affect the success of mobile commerce over some VUT students.

According to [11], mobile commerce is an intricate procedure and includes various partaking elements, for example, mobile network operators, gadget manufacturers, content suppliers,

application designers, trading organizations, customers, which establish the mobile commerce value chain. These elements have distinctive interests and seek after various objectives while taking part in the mobile commerce process. Accordingly, efficient mobile commerce applications need to fulfill every one of them [11]. A vital partner of the mobile commerce value chain is the end-client (i.e. buyer), who really directs the business exchanges. Researching and fulfilling his/her needs is of fundamental significance for the suitability and possibility of a business, normally including mobile commerce. The decreases in data charges coupled of the developing infiltration of the supposed smart gadgets have prompted a circumstance where the mobile phone is rising as a perfect business device, empowering firms to supplement different business channels [11].

RESEARCH PROBLEM

Based on the background provided above, the research problem for this paper is described below:

Because businesses are striving to reduce costs of their products in order to stay competitive, they are now opting for a more creative and innovative way to deal with their customers. Hence, most of this business is venturing into mobile commerce. By introducing this new technology of mobile commerce, not all consumers are finding it necessary to adopt the new system due to different reasons. Mobile commerce is being rapidly adopted in various countries around the world, and the global market of mobile commerce has grown by 13.7% in 2013 [12]. For example, USA revenues from mobile commerce reached \$3 billion in 2010 and are expected to reach \$31 billion by the end of 2016 [13]. Japan, Korea, and Europe are using mobile commerce the most, while Arab countries in general and Jordan, in particular, are still in the early stages of using this technology despite the widespread of smartphones [11]. With the statistics mentioned above paragraph, it is showing that mobile commerce is increasing in the business sectors. With the introduction of this new technology, students are the ones who can learn fast on how to use utilize the new system because they are exposed to the internet. Some students around Vaal University of Technology (VUT) take advantage of mobile commerce because they see it in a positive way of saving time and energy. By adopting the use of mobile commerce not all students around Vaal University of Technology (VUT) have access to smartphones or internet, and also some have got those smartphones and also they can access to the internet but due to lack of information or by not knowing how to

utilize the use of mobile commerce within their phones brings to the attention of the factors that affect the successful use of mobile commerce among students at Vaal University of Technology (VUT). VUT Students are not educated on how useful the use of mobile commerce is and they need to take advantage of this technology. Business around campus which are situated in Bedworth, Vanderbijl park, and Vereeniging who are adopting the use of mobile commerce with their consumers need also to come around campus and advertise and educate students on how they are operating their business and by that it will contribute to the successful use of mobile commerce and it increases their customer base.

Research questions

The following research questions were formulated based on the above research problem:

- How are VUT students exposed to the use of mobile commerce?
- How do VUT students perceive the use of mobile commerce?

Research aim and objectives

This aim of the research was to explore the factors that affect the successful use of mobile commerce among students at the Vaal University of Technology (VUT).

Objectives

- To investigate how VUT students are exposed to the use of mobile commerce
- To investigate how VUT students perceive the use of mobile commerce

MATERIALS AND METHODS

Research Approach

The quantitative research study was conducted using closed-ended questionnaires. According to [14], a quantitative research is a methodical gathering of numerical data frequently under

states of significant control and utilization of basic statistics to analyze and report data. With quantitative research, the emphasis is more on numbers instead of texts [15].

Population, Sample and Sampling Technique

The population is the creation of units from which a sample is to be nominated [16]. The population in this study is defined as all potential mobile commerce customers, the banked and the unbanked, among the students of the Vaal University of Technology, varying in both genders and occupations. This may be students who have access to smartphones or tablets and those that do not have. It will cater for those who have access to formal and informal banking. There will be no limitations as to the race, gender or background limitations. Convenience and snowball sampling were used in this study. The target population in this study was three hundred (300) students.

Research Instrument and Data Collection

According to [17], data collection is the process of collecting and quantifying information on variables of interest, in a conventional systematic fashion that allows one to respond to specified research questions, test hypotheses, and evaluate results. A self-designed questionnaire was used to gather data from VUT students.

Measurement

The self-designed questionnaire was created to gather information about their views/perceptions of the use of mobile commerce and their experience in the use of mobile commerce.

Data Processing and Analysis

According to [18], data is validated, edited, coded, entered and cleaned before analysis is done, these steps are very crucial before data is analyzed. This study used Microsoft Excel as statistical software for data analysis. Data analysis was done by using Microsoft Excel formulas and tools to retrieve the accurate results. Data analysis for this study included descriptive statistics, which made use of charts, tables, and percentages.

RESULTS

Response Rate and Demographic Information

Out of three hundred (300) students invited to participate in this study, one hundred and ten (110) students completed the questionnaire. However, out of the 110 students, not all of them answered all the questions. Some of them skipped some of the questions. As shown in Table 1, the participated sample size was not balanced. Majority of the participants were females (63%). However, the imbalance pertaining to gender is acceptable since the aim of this study was not to focus on gender differences but rather the willingness and ability of the participants to provide rich information that would be important to the study. Participants' age group ranged from 18 to 30, whereby 63 (57%) of the participants were between the ages of 22-25. Most of the participants' income was lower than R1000, while the higher income (i.e. >3000) was the less of the population.

TABLE 1: PARTICIPANTS DEMOGRAPHIC INFORMATION

Demographic summary			
Category	Item	Frequency	Percentage (%)
Gender	Male	41	37
	Female	69	63
Age group	18-21	39	36
	22-25	63	57
	26-30	8	7
Income level	<1000	33	30
	1000-1500	26	24
	1500-2000	13	12
	2000-2500	17	15
	2500-3000	13	12
	>3000	8	7

Students' response regarding their general knowledge, exposure, and use of mobile commerce

Students were asked some generic questions regarding their exposure and use of mobile commerce. Pertaining to these questions, not all the 110 students, answered all the questions. Some of them skipped certain questions. The results are discussed below:

Ownership of smartphones

In this study, the students were asked whether they own smartphones. The findings are presented in figure 1 below:

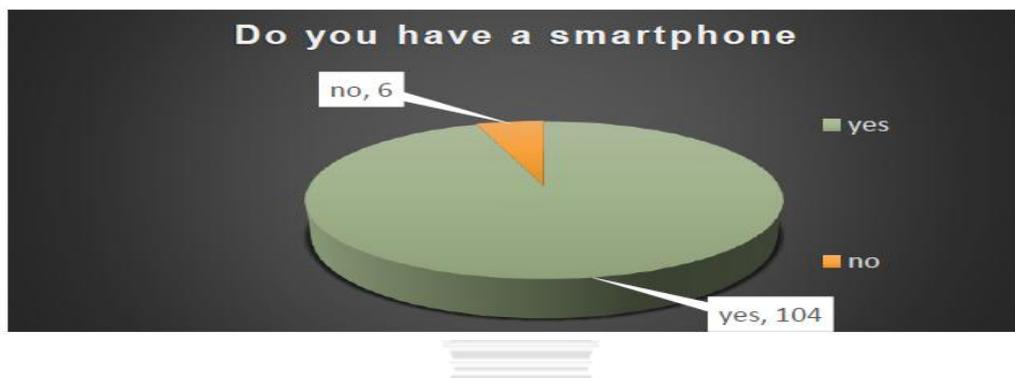


Fig. 1: Ownership of smartphones

As shown in figure 1 above, 104 (95%) students out of 110 own a smartphone. It means that smartphones are a resource available to almost every student.

Information about products and services through smartphones

The students were asked whether they use their smartphones to access products and services, and if they did, they were asked to provide information about the kind of products or services that they accessed through their smartphones. The findings are presented in figures 2 and 3 below:

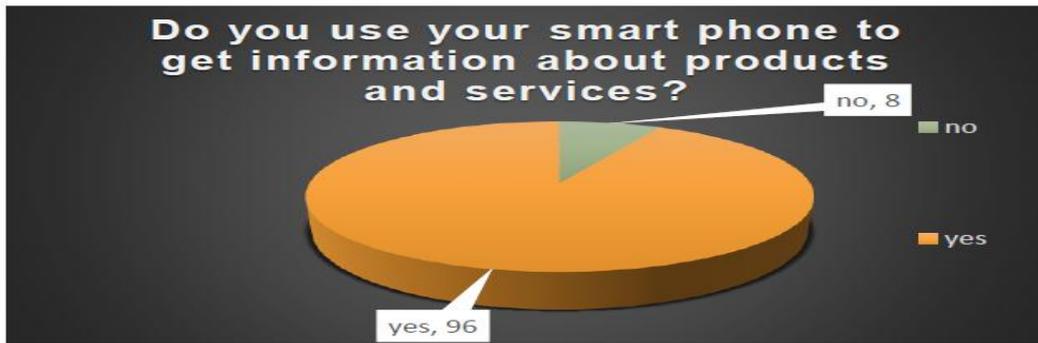


Fig. 2: Information about products or services through smartphones

Figure 2 shows that 96 (87%) students out of 110 student’s respondents had used their smartphones to access information about products and services. On the other hand, 8 (7%) students do not use smartphones to access information about products and services. Six participants did not respond to this question without providing any reason. Concerning the specific products and services that students accessed through their smartphones, options were given to the students to choose from. Figure 3 below shows the response:

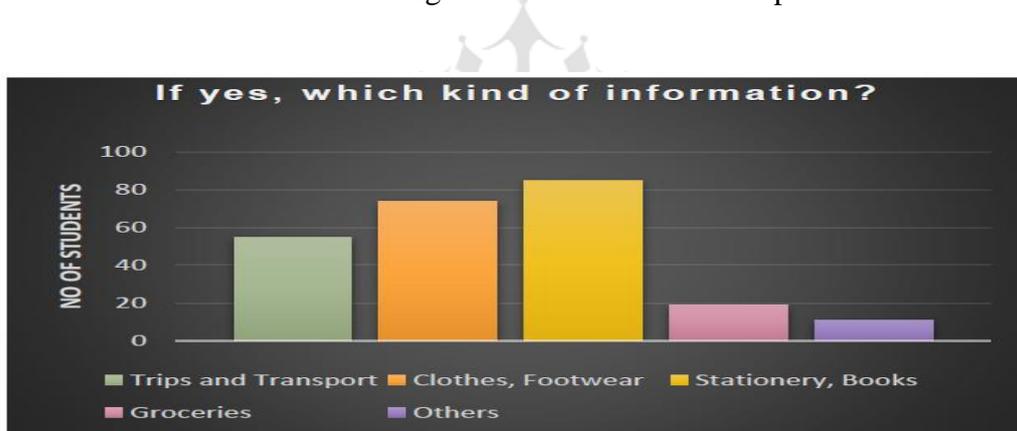


Fig. 3: Kinds of products and services students accessed through their smartphones

Figure 3 indicates that the majority of the students have looked for products related mainly to Stationery and Books. Clothes and footwear were also quite common in the students’ information searches. On the other hand, it was found that groceries were the most uncommon, while Trips and Transport were situated in the middle. The reason can be that customers prefer to purchase products that have a simple description and easier for them to buy without any verification. In this case, customers might have seen that it was easy for them to just buy their train tickets as opposed to groceries that they have no contact with. The

customers (in these case students) would rather go to a physical shop for groceries because they can feel the product, which is more convenient for them. Please note that many of the participants confirmed using their smartphones for more than one type of products and services.

The frequency of accessing information with smartphones

The participants were asked about the number of times that they use their smartphones to access information. The participants were asked to rank their frequency of accessing information with their smartphones as Daily, Weekly, Monthly, and Almost Never. Figure 4 depicts the students' results:

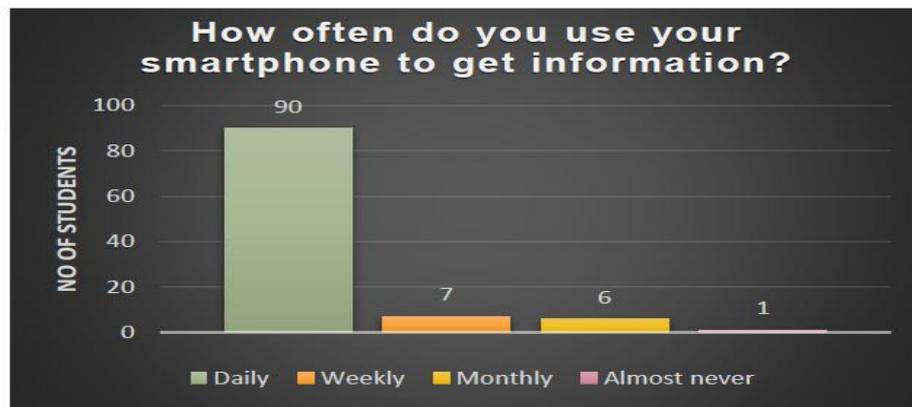


Fig. 4: Frequency of accessing information with smartphones

As shown in figure 4 above, most of the participants accessed information using their smartphones. Ninety (90) of the respondents affirmed that they searched for information about products and services every day. It can, therefore, be argued that most of the participants had the opportunity of reaching a variety of online retailers as opposed to traditional businesses and those online retailers have a greater opportunity of reaching out to potential customers. Please note that six participants did not respond to this question without providing any reason.

Purchasing through smartphone

The access of products and services by students through their smartphones does not necessarily mean that a student has purchased a product. Thus, this study was interested in

whether students have purchased any product using their smartphones. If not, the students were asked why by providing them with the following options to choose from: I prefer to see or touch products before I buy, I don't want to give my personal information, I don't trust the security system, and I don't know why. The results are found in figures 5 and 6 below:

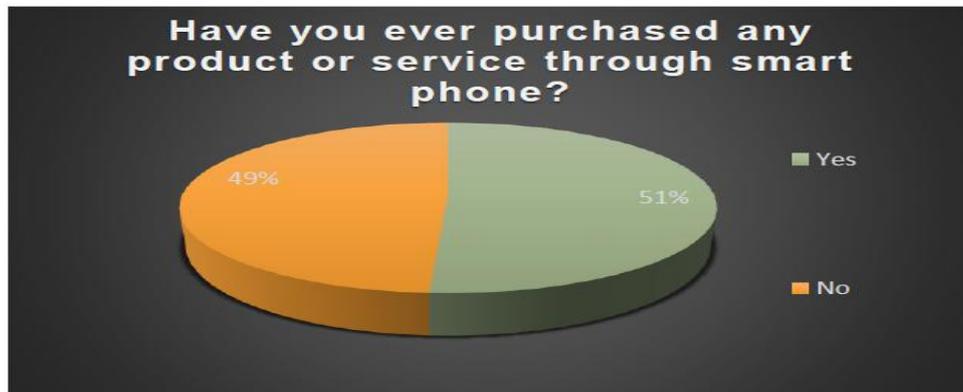


Fig. 5: Purchasing through smartphones

As indicated in figure 5, more than half of the participants had bought a product or service through their smartphones. However, this can still be considered a small number of participants.

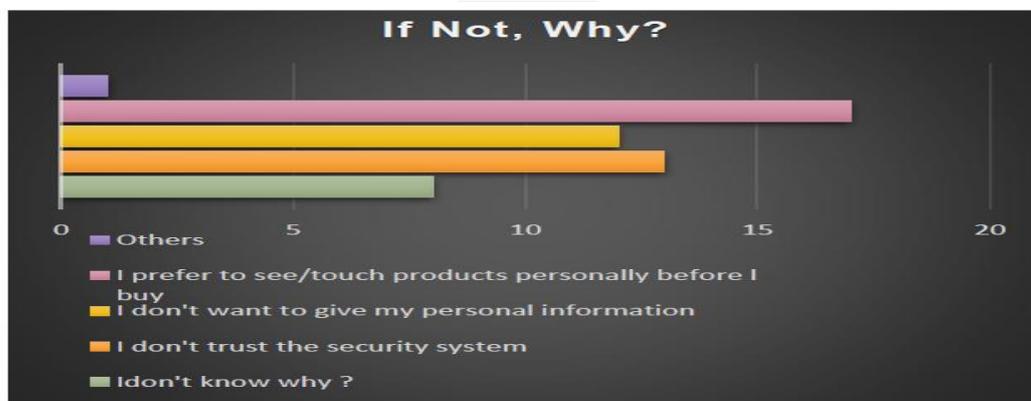


Fig. 6: Reasons for not purchasing through smartphones

In figure 6 above, most of the students indicated that they do not use mobile commerce because they prefer to see/touch the products before they purchase. Another common reason was that they do not want to give their personal information online. Finally, most of the respondents that had chosen "others" specified that it was more convenient to buy through computers than smartphones. This is another indication that mobile commerce is still in the early stage of development.

Students' response regarding their perceptions of mobile commerce and factors that affect their successful use of mobile commerce

In this section, students were asked about their perceptions of mobile commerce and the factors that affect their successful use of mobile commerce. Participants were asked to rate the questions as follows: Strongly agree, Agree, Undecided, Disagree, and strongly disagree. All the 110 students responded to each question. Figures 7-19 below indicates the participants responded to the questions:

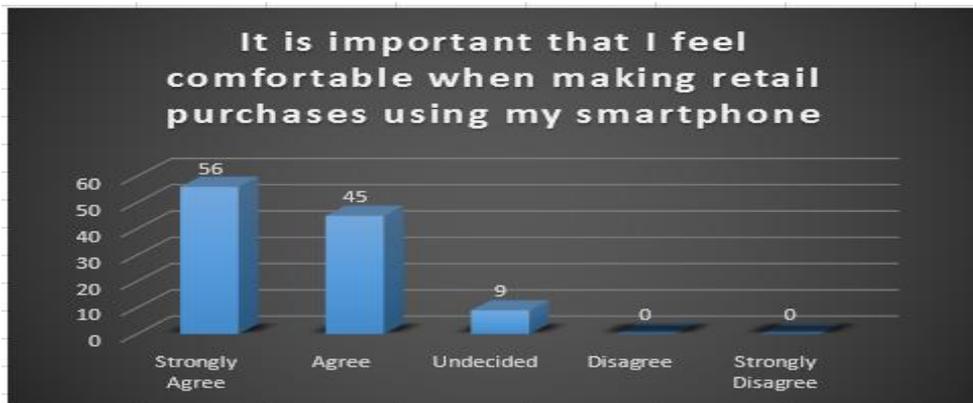


Fig. 7: Comfortability when purchasing with a smartphone

From figure 7, 51% (56) of the participants strongly agree that it is important for them to feel comfortable when making retail purchases with their smartphones, 41% (45) participants agree, while 8% (9) were undecided. These results indicate that comfortability of purchasing products and/or services is very significant for the students.



Fig. 8: Customers' best interest by online retailers

When the students were asked whether most online retailers acted in their best interest, 40% (44) indicated that they strongly agree, 22% (25) agree, 14% (15) undecided, 21% (23) disagree and 3% (3) strongly disagree. This indicates that most online retailers care for most of the participants.

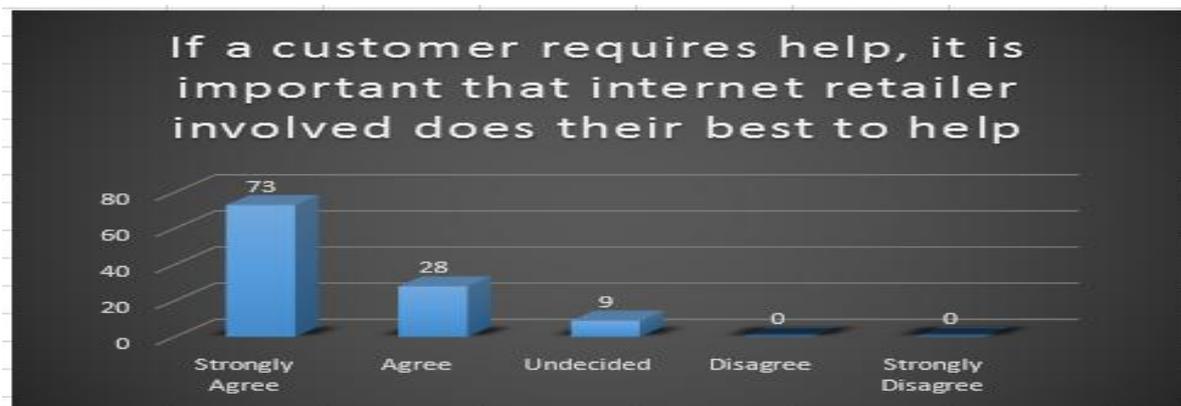


Fig. 9: Assistance from online retailers

Majority of the participants 66% (73) strongly agree that it is important for online retailers to help them when the need be. Furthermore, 25% (28) agree, while 8% (9) were undecided. It is a clear indication that most of the participants want online retailers to be readily available whenever they need them.



Fig. 10: Reliability of online retailers

Majority of the participants 77% (85) indicated that they feel comfortable to rely on the online retailers in meeting their obligations when buying products or services online. In addition, 12% (13) agree, 8% (9) were undecided and 3% (3) strongly disagree. According to

the responses, there is an indication from participants that online retailers must be reliable by meeting their obligations.

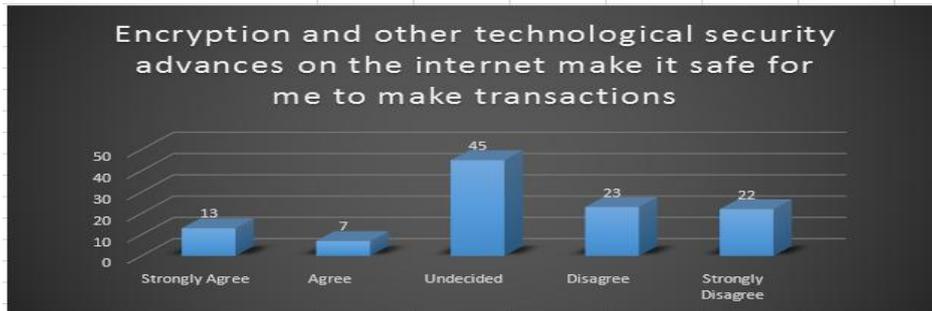


Fig. 11: Online shopping security

Participants were asked whether the advancement of security (such as encryption) made it safe for them to do online transactions. Majority (41%, 45) were undecided, 21% (23) disagree, 20% (22) strongly disagree, 12% (13) strongly agree and 6% (7) agree. The result is a strong indication that most participants do not feel safe doing transactions online.

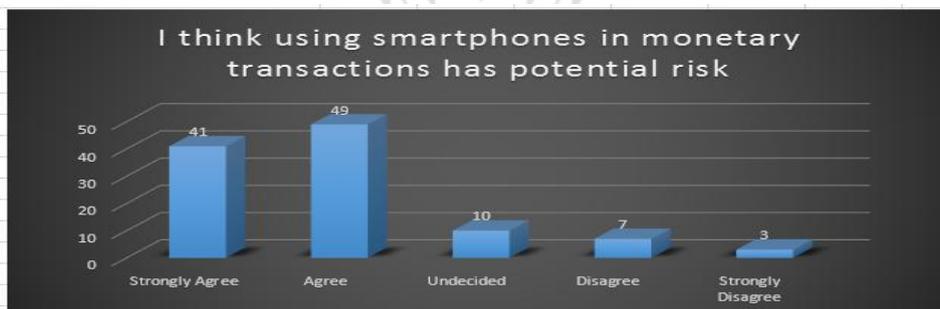


Fig. 12: Risk of using smartphones in monetary transactions

Majority of the participants 45% (49) agree that the use of smartphones in monetary transactions has a potential risk. Furthermore, 37% (41) agree, 9% (10) were undecided, 6% (7) disagree and 3% (3) strongly disagree. This indicates that participants are reluctant to buy products and/or services using their smartphones.



Fig. 13: Safe delivery of purchased products

Figure 13 shows that the majority of the participants (39%, 43) agree that there is a potential risk associated with products that they purchase online being delivered to their homes, 31% (34) strongly agree, 15% (16) undecided, 9% (10) disagree and 6% (7) strongly disagree. This perception is a huge concern because most of the participants feel that there is a potential risk of products being delivered to their homes.



Fig. 14: Providing credit/debit card details for online shopping

From figure 14, the majority of the participants (37%, 41) strongly agree that they have some hesitation when providing their debit/credit card details during online shopping. Some of the participants (35%, 39) agree, 16% (17) disagree, 7% (8) undecided and 5% (5) strongly disagree. The fact that the majority of the participants hesitate to give their credit/debit card details during online shopping shows that they have security issues.



Fig. 15: Safety of personal information

The participants were asked whether they feel that their personal information is private when making online transactions using their smartphones. Most of the participants (34%, 37) agree, 33% (36) strongly agree, 18% (20) disagree, 12% (13) strongly disagree and 3% (4) were undecided. This is a good indication that participants feel safe providing their personal information during online transactions.

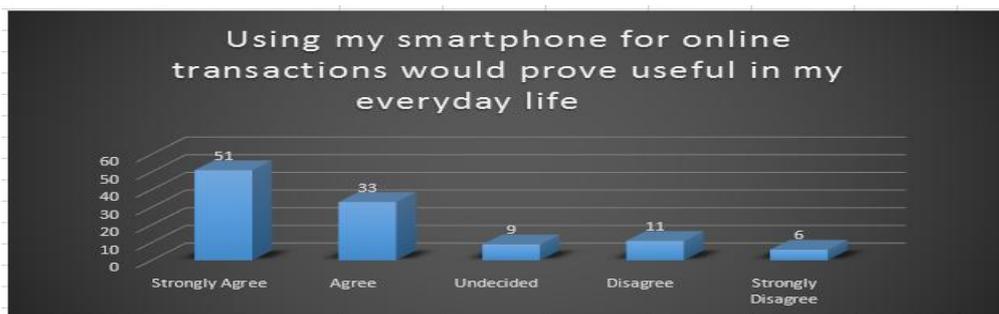


Fig. 16: Usefulness of online transactions through smartphones

Majority of the participants (46%, 51) strongly agree that using their smartphones for online transactions was useful to their everyday life. Furthermore, 30% (33) agree, 10% (11) disagree, 8% (9) undecided and 5% (6) strongly disagree. This shows that most of the participants feel that using their smartphones for online transactions was very helpful and proved to be effective in their daily lives.



Fig. 17: Difficulty of the use of a smartphone for online shopping

Figure 17 shows that 45% (50) of the participants disagree that it is difficult to use smartphones for online shopping, 19% (21) strongly disagree, 16% (17) agree, 13% (14) undecided and 7% (8) strongly agree.

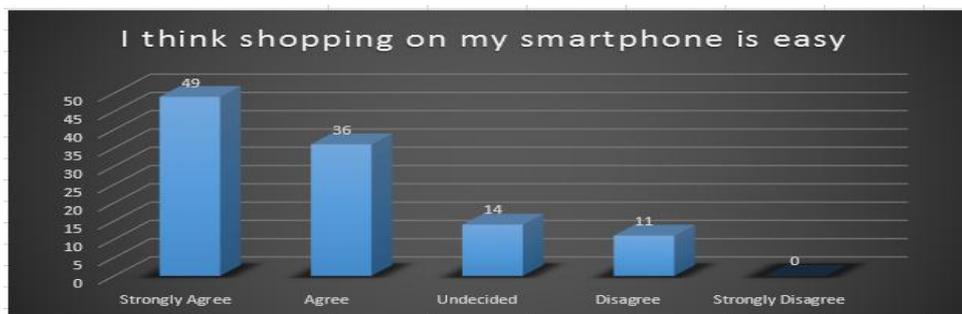


Fig. 18: Ease of use of a smartphone for online shopping

Figure 18 shows that 45% (49) of the participants strongly agree that it is easy to shop on their smartphones, 33% (36) agree, 13% (14) undecided and 10% (11) disagree. Results from figures 18 and 19 show that participants can easily purchase products online using their smartphones without any difficulty.



Fig. 19: Account with a reputable online retailer

Majority of the participants (51%, 57) strongly agree that they are more likely to repeat shopping online when they have an account with a reputable online retailer. Also, 30% (33)

agree, 14% (15) disagree, 3% (3) undecided and 2% (2) strongly disagree. The results show that participants are more likely to transact with online retailers with whom they have an account. This is an indication that they want to do an online transaction with retailers whom they can trust.

ANALYSIS AND DISCUSSION OF RESULTS

This analysis and discussion were done by answering the research questions.

How are VUT students exposed to the use of mobile commerce?

From the students' responses in section C of the results (see figures 1 – 5), the study concluded that VUT students are exposed to the use of mobile commerce to an extent because the study proved that most of the students used their smartphones to access information about products and services (such as stationary and books) on a daily basis. Furthermore, the majority of the students also purchased products or services through their smartphones. These are good indicators that the participants were exposed to the use of mobile commerce. However, based on figure 6, the responses of most of the participants indicated that they some of the students were not do not make use of mobile commerce due to factors such as their inability to see/touch the products before they purchase, their reluctance to give personal information online and the lack of convenience of buying online through smartphones.

How do VUT students perceive the use of mobile commerce?

Based on students' responses in figures 7 – 19, different the participants expressed perceptions. The most prevalent perception was that students feel that there are risks or trust issues associated with mobile commerce. This was evident in the study when most of the participants indicated that they were undecided about the encryption and technological security in mobile commerce, there is risk of purchasing through mobile commerce due to the money involved, the uncertainty of their products being delivered to their homes, and the hesitation to provide their credit/debit card details for mobile commerce transactions. Most students find it difficult to use mobile commerce because of trust, they fear to share their information such as bankcard information because of frauds, there is, therefore, a need to

restore the trust among students on the use of mobile commerce. However, some of the students also had good perceptions about the use of mobile commerce. They mentioned that they feel comfortable when purchasing products with their smartphones, they believe in the privacy of their personal information when using their smartphones for transactions, it was easy for them to use mobile commerce and mobile commerce was useful in their daily lives. Furthermore, the participants indicated that online retailers should have their customers (students) at heart, work in their interest, and ensure that they fulfill their part of their purchasing process and help where the need arises. Most of the participants also strongly agree that they are more likely to use mobile commerce when they have an account with a reputable online retailer. This is a clear indication that the participants take security very seriously and therefore retailers must ensure that they have also the necessary security to attract more consumers.

CONCLUSION

Mobile commerce came into place because of the quick development of the mobile phone market. Since the mobile phone market was extraordinarily expanding all around the globe, marketers began to find in cell phones an approach to elevate and to offer services and products. It ended up huge to comprehend and dissect the mobile phone market to dispatch a significant mobile commerce strategy. In that purpose, this study looked at consumers (VUT students) reaction to the use of mobile commerce and the factors that affect their successful use of mobile commerce. The study showed that mobile commerce is relatively used to an extent among the students in the Vaal University of Technology. However, some concerns and factors hindered the full use of mobile commerce among the students. In this way, with the end goal to draw in more clients and encourage the utilization of mobile commerce it is believed that simply acquainting mobile commerce to students may not be adequate, service providers and suppliers may center around the enhancement of factors influencing client expectation to utilize mobile commerce.

RECOMMENDATIONS

Based on the finding of the study, the following recommendations have been made:

- Since the perceived usefulness was observed to be one of the basic factors, service providers ought to build up the content and applications which clients will discover significant and usable to stay aware of their quick-paced way of life. Structure of the services and content ought to be centered on the essential and exceptional attributes of mobile commerce, for example, easy to use and reliable as far as security.
- Apart from mobile commerce usefulness, the study additionally mirrored the overwhelming significance of trust in mobile commerce. This infers trust working between the clients and sellers ought to be another significant worry for the service providers while enhancing the usefulness of the system. Without legitimate security and privacy protection, clients will think that it is hard to trust and utilize the given by mobile commerce.
- Perceived ease of use was seen to be a vital factor to impact the customer's aim to utilize mobile commerce. In this manner, sites for mobile commerce ought to effectively be navigable by customers.
- The social impact ought to likewise be considered to support the use of mobile commerce by students in the Vaal University of Technology. According to [19], service providers ought to attract clients by means of different social networks and channels, for example, word of mouth and casual workshops.

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