

THE INFLUENCE OF SITE AESTHETICS, EASE OF USE, PRIVACY/ AUTHENTICATION ON CUSTOMER LOYALTY, RETENTION, AND COMMITMENT TOWARDS E-BANKING WITHIN THE RWANDAN BANKING INDUSTRY

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Abstract

The transformation from traditional, bricks-and-mortar banking to E-banking has been momentous. The evolution of the E-banking industry can be traced early 1970s. Banks began to look at E-banking as a means to replace some of their traditional branch functions. E-banking comprises various formats or technologies, including telephone banking, direct bill payment, Internet banking, and mobile banking. This research project aimed at unearthing the perceptual view of the respondents on the e-banking complexities (Ease of Access/Accessibility, Inter-phase Design / aesthetics, Privacy/Risk/ Authentication) and how they affect the customer's loyalty, retention and commitment towards the usage of e-banking services. The study employed descriptive and correlational research designs. A data set to test the proposed model came from self-constructed, validated and self-administered survey of a sample of 250 retail-banking customers in three banks in Rwanda. The statistical result reveals that there exists a strong relationship between electronic banking complexities and customer loyalty, retention, and commitment towards e-banking within the Rwandan banking. The male respondents portrayed having experienced e-banking complexities in the usage of e-banking than females, while the female respondents exemplify higher levels of loyalty, retention, and commitment than their male counterparts. Those with higher educational levels were more comfortable with the usage of e-banking than those with low education level. The respondents with advance ages seemed not to portray perceived difficulty in the usage of e-banking services than those of lower ages.

Keywords: Banking; E-Banking; Rwanda

Introduction

Banking institutions invest heavily in information technology and efficient information systems to enhance business processes and strategies with the aim of gaining competitive advantage. The transformation from traditional, bricks-and-mortar banking to E-banking has been momentous. The evolution of the E-banking industry can be traced to the early 1970s. Banks began to look at E-banking as a means to replace some of their traditional branch functions for two reasons. The evolution of banking technology has been driven by changes in distribution channels as evidenced by automated teller machine (ATM), Phone-banking, Tele-banking, PC-banking and internet banking (Mojumder, Islam, Moshir, & Nazmul, 2013). According to Batchelor (2013), electronic banking, or e-banking is the term that describes all transactions that take place among companies, organizations, and individu-

als and their banking institutions. Different terms have been used to define E-banking, such as 'internet banking', and 'online banking'. However, despite its different labels, E-banking indicates the use of the internet and information technology as the delivery channel to conduct banking activities, for example, transferring funds, paying bills, viewing checking and savings account balances, applying for credit cards, transferring money and paying mortgages (Centeno, 2003; Gkoutzinis, 2006; Khan, 2007; Kim et al., 2006). Specifically, E-banking is where a customer can access his or her bank account via the internet using personal computer or mobile phone and web-browser (Arunachalam & Sivasubramanian, 2007). E-Banking brings a number of benefits for both the provider and the customer. The different forms of electronic banking are summarized in Table i.

Table 1

Different Forms Electronic Banking

Form of Banking	Description
PC banking	The customer installs banking software on his or her personal computer. The customer has access to his or her account with that specific software.
Internet banking	Customer can access his or her bank account via the Internet using a PC or mobile phone and web-browser.
TV-based banking	The use of satellite or cable to deliver account information to the TV screens of customers.
Telephone-based banking	Customers can access their bank and account via SMS and as well as by ordinary phone using services of interactive voice responses (IVR).

Source: Daniel (1999)

According to Delvin (1995), customers have less time to spend on activities such as visiting a bank and therefore want a higher degree of convenience and accessibility. The service-quality attributes that the Internet banks must offer to induce consumers to switch to online transactions and keep using them are perceived usefulness, ease of use, reliability, responsiveness, security, and continuous improvement (Liao & Cheung, 2008).

From the bank's perspective, these are mainly related to cost savings (Sathye, 1999; Robinson, 2000) and internet banking remains one of the cheapest and more efficient delivery channels (Pikkarainen et al., 2004). Other rationales for the adoption of such services are also related to competition as internet banking strategy has been an interesting way to retain existing customers and attract new ones (Robinson, 2000) and to the numerous advantages to banks for instance, mass customization, more effective marketing and communication at lower costs amongst others (Tuchila, 2000). Benefits for the end users are numerous and include mainly convenience of the service (time saved and globally accessible service); lower cost of transaction and more frequent monitoring of accounts among others (Pikkarainen et al., 2004). Increased comfort and time-saving where transactions can be made 24 hours a day, without requiring the physical interaction with the bank and also better administration of funds that is the history of a transaction is registered on the digital support and can be analyzed before a new transaction is initiated, are also among the arguments favoring internet banking (Tuchila, 2000).

With the rapid growth of the Internet and the globalization of the market, most companies are attempting to attract and retain customers. In the changing banking scenario of the 21st century, banks have to build a strong identity to provide world-class services. The banks have to be of high standard, committed to excellence in customers, shareholders and employees' satisfaction, and to play a leading role in the expanding and diversifying of financial sector (Balachandran, 2005). There has been a tremendous change in the way of banking between the years 2005 and 2009 and customers have also rightly demanded world class quality services from the banks. With multiple choices available, customers are not willing to put up with anything less than the best. Banks have recognized the need to meet customers' aspirations as different customers have different personalities, so it is an urgent drive for the banks to establish and deter the e-banking complexities in the banking sector in order to enhance customer loyalty, retention, and commitment.

The banking industry believes that by adopting new technology, the banks will be able to improve customer service level and tie their customers closer to the bank. The application of e-banking has been proven as an effective way to reduce the costs of operation for the financial institutions. E-Banking services, in most developing countries, according to Wungwanitchakorn (2002), are still in its early stages. That is, if banks are to obtain the benefits of E-banking, an identification of how the service is perceived by potential consumers and their charac-

teristics as well as the factors affecting their level of satisfaction and continuity to deal with such services is crucial.

No other medium than the Internet – the fastest growing form of communication media in history (Berners-Lee & Fischetti, 1999) – has ever confronted its (new) users with such vast and diverse difficulties of use. Even nowadays as the Internet is used as a common instrument, its utilization often evokes problems.

Today’s banking situation demands continuous innovation in order to meet the yearnings and aspirations of the ever-demanding customers. Hence, banks need to roll out new products and services quickly and effectively, using latest cutting edge technology (Augusto, 2002). The major benefit that is draw by the banks through the adoption of e-banking is improved efficiency and effectiveness in their operations, further enhancing faster and convenient processing of various transactions, which further boosts the overall performance of the bank.

The customers on the other hand, stand to enjoy the benefit of quick service delivery, reduced frequency of going to banks physically and reduced cash handling. These developments in the Rwandan banking industry seem not to have achieved its expected aim,

despite the overwhelming publicity, and investment made towards E-banking by various banks. Queues are still seen in the banking halls, bank customers still handle too much cash, and even those who registered and subscribed to this services seemingly do not use the services as often as expected. The prevalent issue here is: are customers really enjoying these services, or are there various hiccups experienced in the process of using this service that makes them to back-track? It’s imperative then to unearth the perception of customers towards the various components that may act as hindrances to the usage of E-banking services.

Conceptual Framework

Figure 1 shows the research model empirically investigated in this study. Consumers’ perceptive view of the e- banking complexities may be influenced not only by their socioeconomic but also by the demographic characteristics. The intervening effect of individual difference of the respondents is factored in the model as the demographic profile of the respondent.

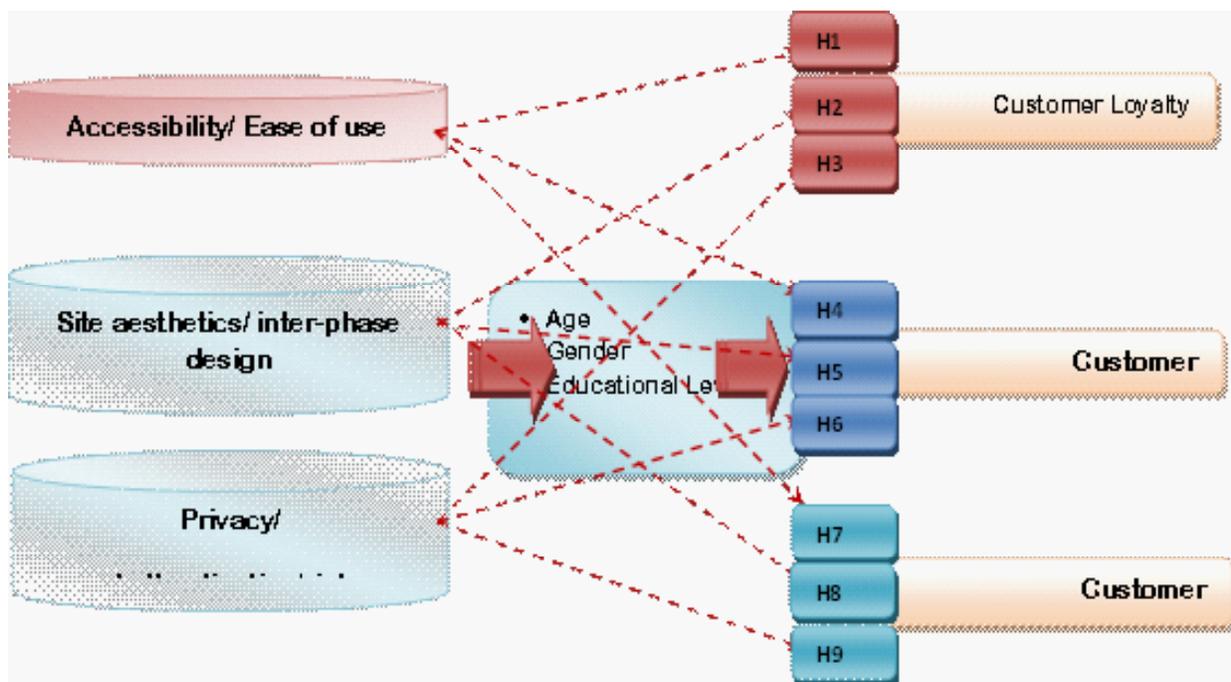


Figure 1. Conceptual Framework



Hypotheses

The following hypotheses were developed to reflect the research model:

- H1: Perceived accessibility/ ease of use on e-banking services has a positive effect on the loyalty, of the bank's customers
- H2: Perceived accessibility/ ease of use on e-banking services has a positive effect on the retention, of the bank's customers
- H3: Perceived accessibility/ ease of use on e-banking services has a positive effect on the commitment, of the bank's customers
- H4: Perceived site aesthetics / inter-phase design on e- banking services has a positive effect on the loyalty of the bank's customers
- H5: Perceived site aesthetics / inter-phase design on e- banking services has a positive effect on the retention of the bank's customers
- H6: Perceived site aesthetics / inter-phase design on e- banking services has a positive effect on the commitment of the bank's customers
- H7: Perceived privacy/authentication on e-banking services has a positive effect on the loyalty of the bank's customers
- H8: Perceived privacy/authentication on e-banking services has a positive effect on the retention of the bank's customers
- H9: Perceived privacy/authentication on e- banking services has a positive effect on the commitment of the bank's customers

Literature Review

Electronic bank complexities refer to the hardship that customers face in the use of electronic banking. The low education, culture of not using information technology equipment or the advanced age can increase these complexities on one hand. Banks' equipment can have technical problems that may be the source of such complexities on the other hand. The e-banking complexities analyzed in this study include accessibility/ease of use, Site aesthetics, Inter phase Design, Cost/fees and charges of Access, and Privacy/ Authentication/risk

Perceived Complexity on Accessibility/Ease of Use

Ahmad (2011) says that E-banking offers consumers and organizations many benefits, including 24/7 access to accounts and services. As financial institutions continue to develop online banking, customers are using more services, such as bill payment across indus-

tries, money transfer and mobile e-banking using cell phones and hand-held devices (Goodwin-Jones, et al., 2011). For using out electronic banking properly, a basic knowledge of computers, telephone and the Internet is required, which limits the number of people willing to avail this facility. According to Hackett et al. (2009), many people who are not comfortable with computers, telephone and the Internet often find it difficult to access this service.

The ease of use variable is related to an easy –to-remember, well organized, easy navigability, concise and understandable contents, terms and conditions. Researchers have argued that perceived ease of use is the extent to which a person accepts as true that using a technology will be at no cost to that individual (Brown, 2002). Nadim and Noorjahan (2007) affirmed that perceived ease of use is the term that represents the degree to which an innovation is perceived not to be difficult to understand, learn or operate. He further stated that perceived ease of use is the degree to which consumers perceive a new product or service as better than its substitutes.

According to Nadim and Noorjahan (2007) the perceived ease of use is the consumer's perception that banking on the internet will involve a minimum effort. They further noted that perceived ease of use refers to the ability of consumers to experiment with a new innovation and evaluate its benefits easily. He also affirmed that the drivers of growth in electronic banking are determined by the perceived ease of use which is a combination of convenience provided to those with easy internet access, the availability of secure, high standard electronic banking functionality, and the necessity of banking services.

Perceived Complexity on Site Aesthetics /Inter-phase Design

The goal of aesthetic design is to make a web site visually attractive and enjoyable. Proctor (2003) discussed content preparation in a broad sense and identified its four aspects: knowledge elicitation, information organization and structure, information retrieval, and information presentation. He continues that during design, and prior to implementation, it is strongly recommended that users of different ages, and with arrange of capabilities and limitations be engaged to trial the new service and provide feedback. Financial institutions should test accessibility of their customer websites with both automated tools and user accessibility trials.

With an increasing number of customers being online, the importance of Web sites for influencing purchasing decisions is rising steadily. Measuring the quality of Web sites from a user's perspective enables companies to take corrective actions, develop an appropriate e-business strategy, and improve their operations (Ganapathy et al., 2004; Seethamraju, 2004). Web site quality can be seen as an antecedent of service quality. As the services marketing literature suggests, customers who are not satisfied with the basic services of the organization are likely to seek to satisfy their needs elsewhere (Gruen, 1995).

Loiacono, Watson, and Goodhue (2002) propose a novel method of evaluating website quality using website quality (WEBQUAL) instrument. WEBQUAL focuses on the website interface and it is suggested to be one the most empirically grounded electronic Service Quality (e-SQ) scales (Wolfenbarger & Gilly, 2003). WEBQUAL is developed based on the conceptual background of the Theory of Reasoned Action (TRA) and the Technology Acceptance Model (TAM). The main idea behind the use of WEBQUAL is that it is possible to predict the re-visit/re-use behavior of web users based on their perceptions of overall website quality. The instrument consists of four constructs: usefulness, ease of use, entertainment, and complimentary relationship, which include a range of website dimensions, each is evaluated by a website visitor according to his/her perceptions of website quality (Loiacono et al., 2002).

Perceived Complexity on Privacy/Authentication/Risk

Perceived credibility refers to the two important dimensions – security and privacy – that are identified across many studies as effecting intention by users to adopt the Internet-based transaction systems (Wang et al., 2003).

Although service providers, financial institutions, the media, security organizations, and security experts have continually provided technical information and verbal assurances on dealing with online security threats, consumers are fearful of the intruder getting hold of their accounts and other confidential information and hence security preys heavily on consumers' minds (White & Nteli, 2004).

Cox and Rich (1964) provided a more precise definition of perceived risk; it is a function of consequences (the dollar at risk from the purchase decision) and uncertainty (the person's feeling of subjective

uncertainty that he or she could gain or lose from the transaction). Although electronic banking provides many opportunities for the banks, it is also the case that the banking services provided through internet are limited due to security concerns and technology problems. Kaleem and Ahmad (2007) view risk in the context of security concerns, and trust in one's bank, while Saadullah (2007) indicates that perceived risk is related to reliability and system failure. Lichtenstein and Williamson (2006) indicate that security, privacy, trust and risk concerns may impact consumer electronic banking usage.

Information communication and technology has created a new realm of opportunities for illegal activity. One can act anonymously or assume false identities; the environment allows deceptive undertakings, such as fraudulent requisitions from electronic stores (e-stores), gathering of sensitive information via unauthorized electronic mail (e-mail) monitoring, the disruption of a web site by sending viruses or the illegitimate acquisition of credit cards numbers. Such illicit actions – and the threat of these – entail increased security costs and consequently higher product prices, and are thus harmful for both organizations operating in electronic commerce and consumers. (Valtonen, Tuomas, Reuna, & Luhtinen, 2002).

Toigo (2003) indicates that strategic risk, operational risk, and reputational risk are some of the risks heightened by the rapid introduction and underlying technological complexity of ICT. Suominen (2001), in his research on the Nordic banks, notes that there have been some instances where large e-banks have crashed, blocking customers access to their accounts for long periods of time. Security is the one biggest problem with electronic banking. According to Peter (2013), probably the greatest challenge facing internet services is the issue of customer safety and security. The net has proven especially vulnerable to fraud and identity theft in which sensitive private information about business and individuals is stolen by unauthorized persons and used to run up large credit card bills or to ravage the reputation of victims (Hackett, 2009).

Customer acceptance is a key indicator of technology usage (Sathye, 1999) and barriers to internet banking adoption include consumer concerns of media information on security breaches, the reliability of online transactions, the security of the internet banking system and banks capability of pro-



protecting customers' accounts and privacy (Rotchanakitumuai & Speece, 2003; Wang et al., 2003). Consumers, therefore, are more likely to use internet banking when they perceive no risk to their bank accounts and other confidential information and are aware of security measures (Sathye, 1999; Salisbury et al., 2001; Cheng et al., 2006). These observations suggest that perception of internet banking security is likely to influence usage intentions and also customer awareness and knowledge of security are likely to influence their views on internet banking security. Lowering perceived risks associated with online transactions as well as maintaining transaction trust are vital keys to attracting and retaining customers (Verhagen & Tan, 2004).

The importance of security and privacy to the acceptance of Internet banking has been noted in many banking studies (Pikkarainen et al., 2004; Howcroft et al., 2002; Polatoglu & Ekin, 2001; Sathye, 1999). In specific, privacy and security were found to be significant obstacles to the adoption of online banking in Australia (Sathye, 1999).

Most fundamentally, most of the individuals are reluctant to use Internet banking as they have concerns over the security and privacy issues. This is also supports the findings of Suganthi and Balachandran (2001) who found out that one of the important factors affecting Internet banking in Malaysia is security concerns.

Customer Satisfaction (Customer Loyalty, Customer Retention, Customer Commitment)

Satisfaction can be defined as a post-choice evaluative judgment concerning a specific purpose decision (Oliver, 1979) and is mostly used as part of the confirmation/ disconfirmation paradigm (Oliver & Svan, 1989). Parasuraman et al. (1985) suggest that service quality influences customer satisfaction. Several authors have argued that satisfaction is based on the customer's cumulative experience rather than being a transaction-specific phenomenon (Anderson et al., 1994; Bayus, 1992). Shneiderman (1998) found the positive relationship between the subjective satisfactions of a user from the use of information technology. A user's subjective satisfaction is influenced by different perceived quality characteristics of the technology, such as ease of use and usefulness (Khalifa & Liu, 2002). Satisfaction is an important antecedent in fostering customer retention (Gil, Hudson, & Quintana 2006), as it can affect a buyer's decision to continue a

relationship with the organization (Ndubisi, Malhotra, & Chan 2009).

According to Baker (2004) the term customer loyalty is used to describe the behavior of repeat customers, as well as those that offer good ratings, reviews, or testimonials. Some customers do a particular company a great service by offering favorable word of mouth publicity regarding a product, telling friends and family, thus adding them to the number of loyal customers. The ultimate goal of customer loyalty programs is happy customers who will return to purchase again and persuade others to use that company's products or services. This equates to profitability, as well as happy stakeholders. The concept of customer loyalty is anchored on the theory of consumer behavior which is the study of when, why, how, and where people do or do not buy a product. It blends elements from psychology, sociology, social anthropology and economics. It attempts to understand the buyer decision making process, both individually and in groups. It studies characteristics of individual consumers such as demographics and behavioral variables in an attempt to understand people's wants.

Ndubisi and Pfeifer (2005) pointed out that the cost of serving a loyal customer is five or six times less than a new customer. This statement shows the importance of customer loyalty. He mentioned that it is better to look after the existing customer before acquiring new customers. Gee et al. (2008) stated the advantages of customer loyalty which include the service cost of a loyal customer is less than new customers, they will pay higher costs for a set of products and for a company a loyal customer will act as a word-of-mouth marketing agent.

Research Methodology

The research employed and utilized descriptive and correctional research designs. The choice of these designs was informed by the ability of descriptive method to profile respondents categorically (Greener, 2008) and the correlational design was to examine the relationship between variables (Wallace & Wray, 2006).

A self-structured questionnaire was designed based on previous empirical literature, and content validity (Greener, 2008) were established through experts' intervention from the field of management. The questionnaire was administered to 250 customers through a voluntary participation from the bank's

customers who use e-banking services. It should be noted that every questionnaire was personally handed and instructions were given to each customers before completing the questionnaire. The research questionnaire was used as primary data collection method. The components of e-banking complexities and outcomes of customer satisfaction items were measured on Likert scale ranging from 5 (strongly agree) to 1 (strongly disagree), and the data was analyzed using SPSS version 21.

Data Analysis, Interpretation, and Discussion

Profile of the Respondents

The profile of the respondents was analyzed through descriptive statistics as presented in Table 2, indicating 198 males representing 79.2% and 52 females representing 20.8% of the total 250 respondents used in the study.

Table 2
Distributions of the Respondents by Demographic Factors

Demographic	Categories	Frequenc	Perc
Gender of respondent	Male	198	79.2
	Female	52	20.8
Age of respondent	Under 19	12	4.80
	Between 20	99	39.6
	Between	105	42.0
	Between	28	11.2
	Above 50	6	2.40
Educational Level of the Respondent	Certificate/ Bachelor's	129	51.6
	Bachelor's	109	43.6
	Master's	10	4.00
	PhD	2	0.80

Table 2 further indicates that out of the 250 respondents, 129 representing 51.6% have a certificate or Diploma, 109 respondents (43.6%) have Bachelor's Degree, 10 respondents (4.0%) with Master's Degree, and 2 respondents with PhD (0.80%). Of the total 250 respondents, 12 (4.80%) have ages below 19 years, 99 respondents (39.6%) have ages between 0 and 29 years, 105 respondents (42.0%) have ages between 40 and 49, and 6 respondents (2.40%) have ages above 50 years. From the statistical results, respondents with the

age between 30 and 39 had the highest percentage, followed by those with ages between 20 and 29 and between 40 and 49, respectively.

Electronic Banking Services Used by the Respondents

Table 3 gives a summary of the different electronic banking services used by the respondents of the respective banks under study.

Table 3
Type of Electronic Banking Used by the Respondents

Type of E-banking	Freque	Percent
Mobile banking	78	31.2
ATM	168	67.2
Internet banking	4	1.6
Total	250	100.0

It was revealed that the majority of the customers use ATM followed by mobile banking and internet banking. This reveals a clear indication that most of the

customers do not access their accounts nor transact any business i.e., purchase of electricity, payment of bills. In the Rwandan context most of the ATM ma-



chines are installed and annexed outside of the banking hall, this means that the customers still do access the banks though not served directly by the cashiers.

Respondent's Perceptions on the E-banking Complexities and Customer Satisfaction

From the statistical evidence in table 4, there is a depiction that the respondents do experience complexities with all the variables on the E-banking complexities – Ease of use/ accessibility, inter-phase design, e-banking equipment usage, and privacy/ risk/ authentication. The respondents further seem not to be loyal, committed in using the E-banking services.

Studies by Dube-Rioux, (1990) and Homburg

et al. (2006) have recognized that the experiences during the acquisition and consumption of the product or service can also have a significant influence on satisfaction judgments. In similar vein, Khalifa and Liu (2002) and Khalifa and Shen (2005), in their study found that specific website e-services can positively affect customer satisfaction with website and online purchasing in the long run. Khalifa and Liu (2002) highlighted that a user's subjective satisfaction is influenced by different perceived quality characteristics of the technology, such as ease of use and usefulness. It is therefore highly evident that a higher e-SQ will lead to higher satisfaction, and vice versa.

Table 4
Mean and Standard Deviation of the Variables

N=250	Mean	Std. Deviation
E- Banking Complexities		
Ease of Access/Accessibility	2.139	.82258
Inter-phase Design	2.329	.89902
E Banking Equipment Usage	2.157	.83870
Privacy/ Risk/ Authentication	2.083	.93077
Customer Satisfaction in the usage of E-		
Customer Loyalty	2.065	.84134
Customer Retention	2.130	.93788
Customer Commitment	2.071	.93365

Respondent's Perceptions on the E-banking Complexities and Customer Satisfaction When Categorized According to the Demographic Profiles

Table 5 illustrates the mean of e-banking complexities and customer satisfaction of male and female respondents. The results give a clear depiction that the male do perceive a higher level of complexity than their female counterparts in the usage of the e-banking

services and on the effect on their overall satisfaction. Jaruwachithanakul and Fink (2005) conducted a study using age, gender, educational levels, and income as moderating factors, and found out that gender; educational levels and income were found to significantly influence the perception of the respondents on the e-banking complexities.

Table 5
Mean of the Variables Based on the Respondents' Gender

Sex of the respondents		Mean
Male	Ease of Access/Accessibility	1.7841
	Inter-phase Design / aesthetics	1.9407
	E-Banking Equipment Usage	1.7942
	Privacy/ Risk/ Authentication	1.6982
	Customer Loyalty	1.7159
	Customer Retention	1.7500
	Customer Commitment	1.6755
Female	Ease of Access/Accessibility	3.4904
	Inter-phase Design / aesthetics	3.8077
	E-Banking Equipment Usage	3.5385
	Privacy/ Risk/ Authentication	3.5481
	Customer Loyalty	3.3942
	Customer Retention	3.5769
	Customer Commitment	3.5769

Table 6 indicates that the customers with the age below 40 years experience complexities in the usage of the e-banking services and further affecting their

loyalty, retention, and commitment than those with ages above 40 years.

Table 6
Mean of the Variables Based on the Respondents' Age

Age group		Mean
Under 19 years old	Ease of Access/Accessibility	1.0000
	Inter-phase Design /	1.0000
	E-Banking Equipment	1.0000
	Privacy/ Risk/	1.0000
	Customer Loyalty	1.0000
	Customer Retention	1.0000
	Customer Commitment	1.0000
20-29 years old	Ease of Access/Accessibility	1.6894
	Inter-phase Design /	1.8409
	E-Banking Equipment	1.6894
	Privacy/ Risk/	1.4167
	Customer Loyalty	1.5530
	Customer Retention	1.6212
	Customer Commitment	1.4621
30-39 years old	Ease of Access/Accessibility	2.1190
	Inter-phase Design /	2.3524
	E-Banking Equipment	2.1714
	Privacy/ Risk/	2.2286
	Customer Loyalty	2.1000
	Customer Retention	2.0762
	Customer Commitment	2.1286
40-49 years old	Ease of Access/Accessibility	3.8214
	Inter-phase Design /	4.0179
	E-Banking Equipment	3.7143
	Privacy/ Risk/	3.7857
	Customer Loyalty	3.6786
	Customer Retention	4.0179
	Customer Commitment	3.9286
50 years and above	Ease of Access/Accessibility	4.3333
	Inter-phase Design /	4.7500
	E-Banking Equipment	4.6667
	Privacy/ Risk/	4.7500
	Customer Loyalty	4.5000
	Customer Retention	4.9167
	Customer Commitment	4.5833



The educational level of the respondents was analyzed based on the following categories: Secondary Certificate or Diploma, Bachelor's Degree, Master's Degree or PhD level. The overall analysis on table 7 indicates that the customers who

possess a secondary certificate or diploma do indicate experiencing complexities in the usage of the e-banking services while those with a Master's or PhD do not.

Table 7

Mean of the Variables Based on the Respondents' Level of Education

Education level	Mean	
Certificate/Diploma	Ease of Access/Accessibility	1.6686
	Inter-phase Design / aesthetics	1.7849
	E-Banking Equipment Usage	1.6686
	Privacy/ Risk/ Authentication	1.4593
	Customer Loyalty	1.5640
	Customer Retention	1.6163
	Customer Commitment	1.4942
Bachelor's degree	Ease of Access/Accessibility	2.4633
	Inter-phase Design / aesthetics	2.7248
	E-Banking Equipment Usage	2.4908
	Privacy/ Risk/ Authentication	2.5505
	Customer Loyalty	2.4128
	Customer Retention	2.4587
	Customer Commitment	2.4908
Master's degree	Ease of Access/Accessibility	4.2000
	Inter-phase Design / aesthetics	4.5500
	E-Banking Equipment Usage	4.2500
	Privacy/ Risk/ Authentication	4.5000
	Customer Loyalty	4.2500
	Customer Retention	4.6000
	Customer Commitment	4.4000
PhD	Ease of Access/Accessibility	4.5000
	Inter-phase Design / aesthetics	4.7500
	E-Banking Equipment Usage	5.0000
	Privacy/ Risk/ Authentication	4.7500
	Customer Loyalty	4.5000
	Customer Retention	5.0000
	Customer Commitment	4.7500

Relationship Between Variables

Based on the statistical relationship, this finding, thus, provides a robust and in-depth insight in indicating that all the three dimensions of e-banking complexity were positively and significantly correlated with customer loyalty, customer retention and customer commitment

towards the e-banking services. These findings are in line with Jun et al. (1999) and Yang and Fang (2004) who revealed that ease of use has considerable impacts on both customers perceived overall service quality and satisfaction. Jayawardhena and Foley (2000)

Table 8

Correlation Matrix between Ease of Access/Accessibility, Inter-Phase Design, E-Banking Equipment Usage, Privacy/Risk/Authentication, Loyalty, Commitment, and Retention

		Accessibility	Design	E-usage	Privacy	Loyalty	Retention
Accessibility	Pearson	1					
	Sig. (2-tailed)						
	N	250					
Design	Pearson	.940**	1				
	Sig. (2-tailed)	.000					
	N	250	250				
E_usage	Pearson	.983**	.954**	1			
	Sig. (2-tailed)	.000	.000				
	N	250	250	250			
Privacy	Pearson	.951**	.937**	.949**	1		
	Sig. (2-tailed)	.000	.000	.000			
	N	250	250	250	250		
Loyalty	Pearson	.986**	.925**	.979**	.967**	1	
	Sig. (2-tailed)	.000	.000	.000	.000		
	N	250	250	250	250	250	
Retention	Pearson	.980**	.921**	.972**	.932**	.979**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	250	250	250	250	250	250
Commitment	Pearson	.977**	.919**	.969**	.964**	.985**	.971**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
	N	250	250	250	250	250	250

** . Correlation is significant at the 0.01 level (2-tailed)

illustrated that web site features such as speed, web site content and design, navigation, interactivity and security all influence user satisfaction. In their research Hoffman and Novak (1996) found out that there is a significant correlation between download speed and user satisfaction, this is further compounded by Johnston (1997), who illustrates that certain actions, such as increasing the speed of processing information and customers, are likely to have an important effect in terms of pleasing customers.

Some studies show that e-banking has successfully reduced operating and administrative costs (Devlin, 1995; Siriluck and Speece, 2003). Cost savings have helped e-based banks offer lower or no service fees, and offer higher interest rates on interest-bearing accounts than traditional banks (Gerlach, 2000; Jun & Cai, 2001).

Conclusion

This research seeks to make an original contribution to knowledge by investigating the impact of

e-banking factors on outcomes of customer satisfaction in the commercial banks industry in Rwanda. This research contributes to the services marketing discipline in finding out the e-banking complexities that affect the customer's loyalty, retention and commitment to the usage of the e-banking services. Factors pertaining to ease of access/accessibility, Inter-phase design/ aesthetics, E-Banking equipment usage, privacy/risk/authentication, customer loyalty, retention and commitment, were the focus of this study. Contributions found are essentially beneficial for both academics, software engineers, website developers and managers alike.

The results of correlation test proved that there was positive correlation between the dimensions of e-banking complexities and customer loyalty, retention, and commitment in the Rwandan banking industry. The bank managers need to specifically concentrate on the e-banking complexity dimensions (ease of access/accessibility, inter-phase design/aesthetics, E-banking equipment usage, pri-



privacy/risk/authentication) since they have a high impact on the customer loyalty, retention and commitment.

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