Developing Mobile Financial Services to Meet the Needs of Tertiary Students in Ghana

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Abstract

Mobile financial Services thrive on consumers who are comfortable with technology and in an environment where people make transactions using mobile phone. This paper presents mobile financial service opportunities that would be of benefit to Mobile Money Services Providers and tertiary students which can also be extended to other groups of people. Questionnaire administered with elements of the Technology Acceptance Model (TAM) and Users Gratification Model to some students of tertiary institutions in Ghana and analysed reveals that, areas which readily presents potential for the usage of Mobile financial Service includes, payments of school fees, hostel fees, buying of books, accessing of students' loan, payments for photocopies and other personal financial services. Factors of concern for students in using mobile financial series include, easiness of use, security of transactions, and mobile money accounts monitoring. The chi-square analysis test shows that there exist a strong relationship among mobile financial service products and also a strong significant relationship for the factors of concern of students. The monetary authorities and the Mobile financial service providers should consider the security of transactions to be paramount and assure users and potential users about the integrity of their system if mobile financial services are to thrive among students. Mobile financial service providers should envisage the existence of economies of scope in their product development and marketing strategy to harness the fullest benefit of their infrastructural platform.

Key words: Mobile Money, Students, Ghana, Products, Security, Mobile Banking, Mobile Financial Services.

1. Introduction

Mobile money services are currently being deployed in many markets across the world and the developing countries especially. There is strong evidence that these services can improve access to formal financial services in developing countries. According to Medhi and Ratan, (2009) the number of mobile phone users has long exceeded the number of people with bank accounts across the world. One can say that currently mobile money represents one of the few areas where Africa leads the rest of the world. The M-PESA of Kenya is what readily comes to mind in terms of mobile banking revolution across the world. It was started by Safaricom in 2007, since then the continent has seen a strong growth in the introduction and usage of mobile financial services under different names across Africa. For countries including Kenya, Tanzania, Sudan, Somalia and Uganda, mobile money services can be said to be very popular.

Ghana has a relatively young life of mobile banking market as this service was introduced by MTN in 2009, years following this has seen an appreciable level of competition in the provision of this service as other mobile phone service providers and other private entities have also started providing mobile finance services to customers. Currently in Ghana, of the six telecom operators, three offer mobile money services and these are MNT, TIGO and AIRTEL.

Though Visa, the global payments technology announced that about 93 per cent of Ghanaians are aware of mobile money (myjoyonline.com, 2013, April 22), a report by the IMF in the Business and Financial Times (2014, February 5) a leading business news paper in Ghana, indicates that only 11 per cent of mobile phone users are engaged in mobile money transactions. From this statistics it is clearly that mobile financial services is yet to be fully accepted by the Ghanaian populace as compared to the situation existing in the East African countries especially Kenya with a mobile phone penetration of 74per cent and yet having embraced this service idea much better than Ghana. Kenya has about two-thirds (19 million) of the 29 million mobile subscribers using

mobile money services by mid 2012 (The insider's guide to mobile web and marketing in Kenya, 2012). In Uganda, just after three years of its introduction (from 2009 to 2012), mobile money has turned out to be the greatest enabler of financial transactions registering more people than those with bank accounts over the last five years (Mugabe, 2012).

According to industry analyst the value of mobile money service transactions in Ghana is expected to exceed $250 million in some few years to come following the introduction of the service in 2009. This is based on the exponential growth in the usage of the service over the years and with increase awareness this growth rate may be higher than expected.

The benefits associated with mobile banking and mobile financial service includes ease of access, reliability and affordability compared to other channels and the flexibility of the service. Other benefits are that the system does not rely on any physical infrastructure such as phone wires and is accessible to a large segment of the population (Elder & Rashid, 2009); and from the fast speed in transacting money transfers. These features bring considerable convenience to business operations and would suit the needs of tertiary students. Another benefit is the reduction in the security risk of carrying cash around. Matila (2003) found risk to be a very significant factor in adopting mobile banking services. Speed of delivery and convenience are also important, as are the perceived safety of the money from loss and the security of the transactions. Studies undertaken in several countries, including Kenya, Tanzania, Uganda, Brazil, South Africa, Sudan, Malaysia and the Philippines, indicate that the lower cost of usage is one of the most significant factors driving the adoption of new mobile money services.

According to Tobbin (2012) the perceived usefulness and perceived ease of use from the technology acceptance model, economic factors and trust influence the rural unbanked in Ghana to adopt and use mobile banking services. In this paper we ask the question: 'what are some of the factors that would affect the decision of tertiary students to adopt mobile banking services and which type of products and services would best suit their needs. The study also conceptualize the tertiary student environment, the financial service needs of the students and draws a link with mobile money and analyses how this service can be adopted to meet the needs of the students.

With almost 100 tertiary institutions in Ghana with about 500,000 student population size by conservative estimates and not neglecting the fact that almost all these students have access to mobile phones there exists a fertile ground for mobile money to thrive. What makes this segment particularly interesting is that, it is only the big public universities that have bank branch presence, all the other institutions have to rely on bank branches in cities or towns nearby. The fortunate ones have third party ATMs sited on campuses or nearby towns to disburse cash, yet a majority of these institutions still do not have access to ATMs on campus. The current situation is not particularly surprising from the cost analysis point of view since operating cost of bank branch activities are quite high, the strategy is that for markets of this type, it makes financial sense to keep as little presence as possible in order to cut down on cost. It is in the midst of this, that mobile banking services comes in handy to serve the financial needs of tertiary students in Ghana. The paper is structured as follows, literature review, methodology, results and discussion, and conclusion.

2. Literature Review

Literature on Mobile Financial Services (MFS) is clearly situated in the applied research models and from works traditionally used within the information system literature. MFS can be divided into two distinct categories: mobile banking (m-banking) and mobile payments (m-payments) (Boyd & Jacob, 2007). Barnes and Corbitt (2003) refer to mobile banking as a channel whereby the customer interacts with a bank via a mobile device, such as a mobile phone or personal digital assistant (PDA), while Mallat (2006) defines mobile payments as the use of a mobile device to conduct a payment transaction in which money or funds are transferred from a payer to a receiver via an intermediary, or directly without an intermediary. Literature on mobile banking and mobile financial services points to the key concept and theoretical model, the Theory of Technology Acceptance Model (TAM) and the Uses and Gratifications Theory which reveal individuals' behavior tendencies to the adoption and usage of technology.
TAM originates from the theory of reasoned action (TPA; Ajzen & Fishbein, 1975, 1980). According to Davis, (1989) TAM is based on two elements that are predictive of intentions to technology adoption: perceived ease of use and perceived usefulness. Perceived Ease of Use (PEOU) is ''the degree to which a person believes that using a particular system will be free of effort'' with Perceived Usefulness (PU) being the degree to which a person thinks that using a particular system will enhance his or her performance. The measures of PU include performance increase, productivity increase, effectiveness, overall usefulness, time saving and increased job performance. Also measures for PEOU have included, ease of control, ease of use, clarity, and flexibility of use

(Dahlberg et al., 2008). These instruments have been well validated in a number of studies (Mathieson, 1991; Taylor & Todd, 1995; Hsu & Lin, 2008).

TAM has typically focused on technology adoption and usage at the organizational and systems level and is based, in part, on normative and extrinsic motives. Furthermore, a user's adoption of a new technology is determined by that user's intention to use the system, which in turn is determined by the user's beliefs about the system. An extension has been given to this model and it has been used extensively in analyzing consumers' adoption and usage of technology (Davis et al., 1989; Venkatesh, 2000). Studies including (Luarn & Lin, 2005, Chung & Kwon, 2009, Gu et al., 2009, Yu & Fang, 2009), have used TAM and other variations of it to research consumers acceptance of mobile banking applications in different economic settings.

Lu et al. (2005) state that: ''throughout the years, TAM has received extensive empirical support through validations, applications and replications for its power to predict use of information systems''. Legris et al. (2003) is of the view that TAM has proven to be a useful theoretical model in helping to understand and explain user behavior in information system implementation. The criticism to this theory is that it is not exhaustive enough since it does not include, for example, social and emotional factors in technology usage (Bagozzi, 2007). For Doll et al. (1998) the model seems to be too parsimonious with fairly general constructs. Biljon et al. (2007) called for a more complex approach that incorporates qualitative factors such as different worldviews and technological frames of reference.

On the other hand, the Users Gratifications research model has focused more exclusively on individuals' use of technology for both rational or utilitarian reasons as well as hedonic purposes of fun seeking and enjoyment (Lin, 1996; Stafford et al., 2004). In the study of Nysveen et al. (2005) perceived expressiveness and perceived enjoyment directly influenced intentions to use mobile data services. The conclusion on this model is that, the uses and gratifications perspective helps to explain the role of personal motives related to areas such as communications media, where personal motives for media consumption can range from utilitarian (functional) to non-utilitarian (e.g. enjoyment, entertainment, social status). It must be stated that, the mobile payment procedures are functional services adopted for utilitarian reasons (Khodawandi et al., 2003).

Another theory known as the Diffusion of Innovation Theory by Rogers, (1995) can be used to determine the characteristic for adoption of Mobile finance services, the studies of Brown et al. 2003; Luarn and Lin, 2005; Mallat, 2006; Niina et al., 2008 are based on this theory. Osei-Assibey (2014), however, combined the Diffussion of Innovation Theory and the Technology Acceptance Model to determine the drivers of mobile money adoption.

2.1 Trail in Mobile Money

Mobile payment procedures are essentially information technology (IT) procedures and channels through which users make various payment transactions. Mobile money allows any mobile subscriber to add credit to his or her mobile account and store it for later use or send it to other mobile subscribers via SMS. The receiver can inexpensively convert this credit back into cash. Mobile money allows users to send cash as quickly as a text message, avoiding inconvenient and costly transfer methods such as physical travel, the mail, or traditional wire transfer services like Western Union and Moneygram.

Most mobile banking implementations have a banking application installed on users' SIM. Once signed up, an electronic account is created which enables the user to deposit and withdraw funds or transfer money from their account to other users (Tobbin, 2010). It is effectively a channel whereby a customer interacts with a bank via a mobile device notably the mobile phone. It depicts the ultimate convergence of mobile technology and the broader range of banking services such as account-based savings or credit facilities.

2.2 Conceptual Framework of Tertiary Student Environment.

Figure 1 presents an idea of the tertiary student's financial needs. Panel A presents a situation without mobile money services, in the simplified environment the students would have to undertake five different financial activities though at different times, all the mentioned transactions involve the physical movement of the students to different points of service.
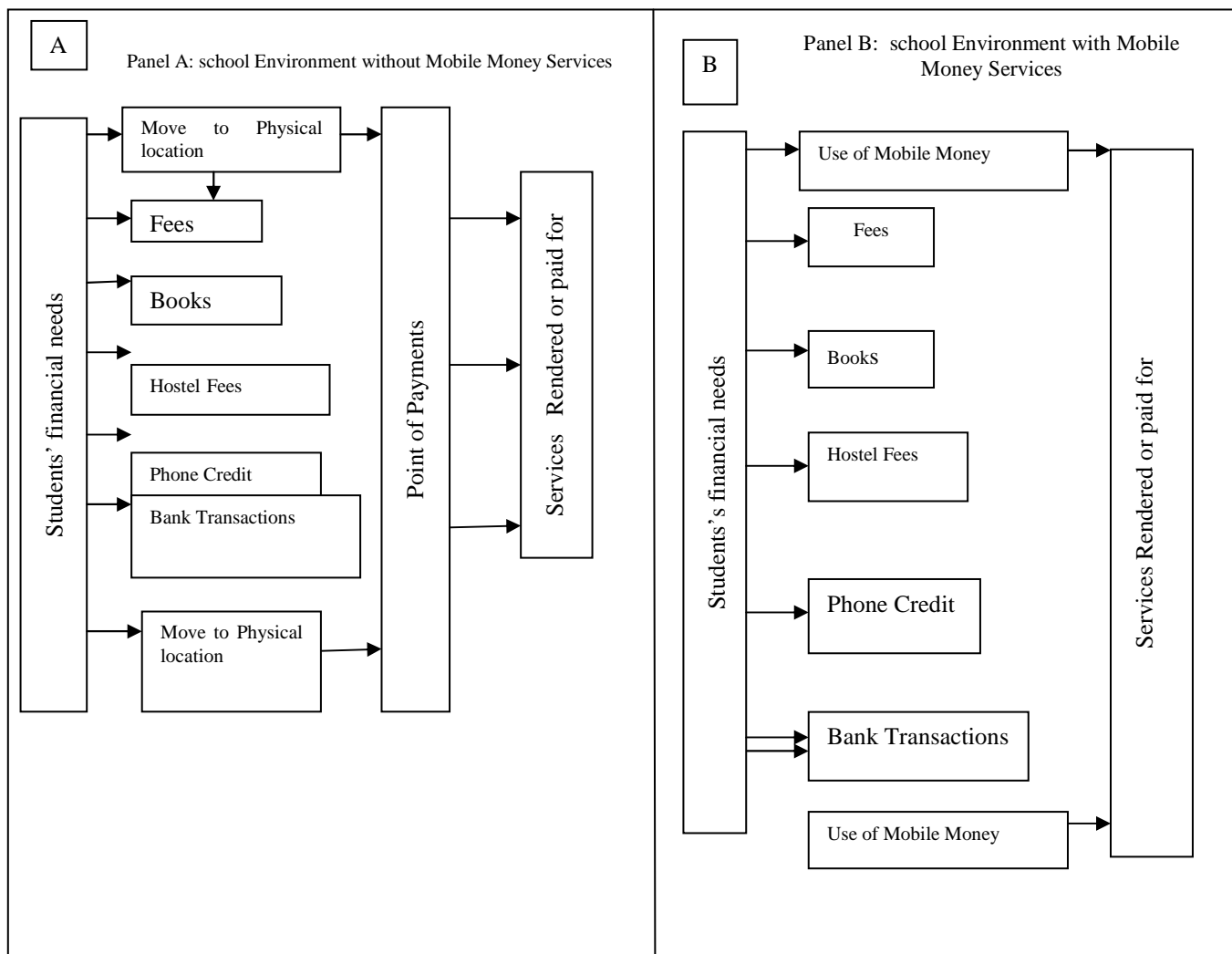
Figure1. Simplified Tertiary Student's Financial Needs

In panel B, the same five financial needs have been captured in a world where the students make use of the mobile financial service. It can be clearly be seen that the five financial activities can all be done on the mobile phone with just about one movement to go to the book shop to pick the books, the other activities can conveniently be carried out on the mobile phone and confirmation sent back to the student as to the success or otherwise of the payment status.

Based on the above conceptual frame work adopted for this study we hypothesize that

H_1**:** *Mobile Financial services needs of tertiary students are not strongly related.*

H_2: *There exist no relationships between factors that influence decision to use mobile financial services by students.*

3. Methodology

To achieve its aim, this study relies on aspects of both TAM and Uses and Gratifications research as framework to explain the factors that tertiary students considers in adopting mobile financial services and the users to which

they would deploy mobile banking services. This is a survey study with data based on questionnaire administered to students of selected tertiary institutions in January 2014 over a 3 day period. The choice of a student was based on simple random sampling technique since it is a fact that each tertiary student has access to a mobile phone. For most students who own mobile phones, the phones represent not only a communication device, but also a way to express one's individuality through items such as customized ringtones, faceplates, and wallpapers.

The survey contained some aspects of constructs related to mobile financial services acceptance, perceived risk acceptance, financial needs of students and to a little extent academic needs of students. The questionnaire was pre tested to aid in accessing the likely understanding and appreciation to issues identified in the questionnaire by the respondents and after the feedback was used to improve on the constructs in the questionnaire. Section A was on the demographic issues and general use of mobile phones, section B was dedicated to the factors that are likely influence their use of mobile banking services, Section C looked at the types of service needs that are preferred on mobile phones by students and section D covers the factors that students consider in using mobile money and mobile banking services. Descriptive statistics and simple ranking of results were used, and in testing for the hypothesis for the existence of relationships, chi-square given below was used

$$X^2 = \sum_{i=1}^{n} \frac{(O_i - E_i)^2}{E_i}$$

where O= observed frequencies

E= expected frequencies

3.1 Sampling and Data Collection

A combination of convenient sampling and simple random sampling was employed in collecting data for the study. Convenient sampling technique was used in selecting the tertiary institutions for this study, The tertiary schools visited were based in Accra, Kumasi and Cape Coast and includes University of Ghana, Kwame Nkrumah University of Science and Technology, University of Cape Coast as the Public Universities used. Some Private Universities and a Polytechnic were used and they were Central University College, Methodist University College, Regent University College and Accra Polytechnic. A total of number of 300 questionnaires was distributed over a 3-day period during the second week of January of 2014. In the final analysis 239 (79.66per cent) questionnaires qualified to be used for the study because some could not be collected and a few could also not be used because some of the constructs were not answered by some of the respondents. Descriptive statistics and chi-square technique were used to meet the study objective.

4. Results and Discussion

Table 1 gives a summary of the demographic data collected in the survey. Data collected from the field shows that, of the total respondents used for the analysis, 40.17 per cent were female students with male students making up 59.83per cent. The level of education was of importance to this study since the level education and the usage of technology is likely to exhibit a direct relationship. From the questionnaires given out, students perusing undergraduate studies made up 95.4per cent of the respondents followed by polytechnic students pursing Higher national diploma certificate with a score of 2.93per cent, respondents pursing postgraduate programs were just 1.67per cent. The age distribution of these respondents also shows more than half (56.49per cent) of the respondents are below age 26, with the remaining respondents being 26 years and above. the implication of this is that taking the socio-cultural and economic conditions in Ghana, most of these respondents are still dependent on their parents and guidance is a condition that is likely to impart on their ability to spend. On the expenditure side the study reveals 90.79per cent of these students spend on the average GH¢8.65 or $2.50 per week on their mobile phones. This shows that tertiary students in Ghana spend a lot on their mobile phones, which is quite revealing in Ghana. The conclusion from this is that students in Ghana are emotional and personally attached to their mobile phones to be spending this amount of money on mobile services.

Table 1. Demographics

Demographic Characteristics		Freq	Percentage of Total
Gender			
	Male	96	**40.17**
	Female	143	**59.83**
Age			
	Up to 20	9	**3.77**
	21-25	126	**52.72**
	26-30	68	**28.45**
	Above 31	36	**15.06**
Education			
	Polytechnic	7	**2.93**
	Undergraduate	4	**95.4**
	Postgraduate	228	**1.67**
Expense (GH¢)			
	Below 2	22	**9.21**
	2-5	69	**28.87**
	6-10	69	**28.87**
	More than 10	79	**33.05**
Bank Account			
	Yes	235	**98.33**
	No	4	**1.67**
Bank Services			
	Very satisfied	40	**16.74**
	Satisfied	149	**62.34**
	Not satisfied	41	**17.15**
	Disappointed	5	**2.09**
	Not Applicable	4	**1.67**
Credit Selling Points on Campus			
	Always Available	141	**59**
	Sometimes Available	83	**34.73**
	Not Available	15	**6.28**

4.1 Banking Service and Mobile Financial service

Since mobile financial services tend to compete with traditional banking services the study further sought to access students' level of bank service satisfaction. In the survey, 98.33per cent of students opinioned that they operate bank accounts, with the remaining 1.67 responding in the negative; for those who operate bank account, 79.08per cent revealed that they were at least satisfied with the services they enjoy from their bankers, those who were at least dissatisfied with their bank services were 20.92per cent of the respondents. This implies that service satisfaction cannot be used as a marketing strategy to get students who operate bank account to move on to use mobile financial services since in most cases high service quality tend to create customer loyalty, something aside service satisfaction could be used to woo students to move to mobile financial services.

In an environment without ATM and bank branch presence, the role of the mobile money agent or credit selling points becomes crucial. From the survey, this seems not to be a challenge as 59per cent of students reveal that mobile agents and mobile phone credit points were always available on campus, further a 34.73per cent of respondents hold the view that these agents are sometimes available with only 6.28per cent presenting the view that the agents are not available on campus. These selling points can serve as mini centers for uploading cash or for receiving cash using the mobile phones.

4.2 Products and Services

The study further identified the type of mobile financial services and mobile money uses to be deployed by students. Our study shows in table 2, based on percentage preference for products, that students want to use mobile money for school fees payment which is ranked 1st by students followed by paying for buying of books, hostel fees, accessing students loan and the payment for running photocopies in that order. For product combination in table 3, school fees and personal services ranks 1st, then school fees and buying of books, school fees and hostel fees, school fees and accessing of students loan and finally school fees and payment for photocopies in that order.

Table 2. Mobile Money Products Ranking

Type of Product	Responds	Percentage	Total	Rank
School Fees	Extremely Happy	57.32	84.1	**1**
	Happy	26.78		
Buy books	Extremely Happy	38.49	74.47	**2**
	Happy	35.98		
Hostel Fees	Extremely Happy	38.08	68.62	**3**
	Happy	30.54		
SSNIT Loan	Extremely Happy	42.26	64.44	**4**
	Happy	22.18		
Photocopies	Extremely Happy	33.89	59.83	**5**
	Happy	25.94		

Table 3. Product Mix and Combination

Product Combination	Responds	Percentage	Percentage	Rank
School fees and Personal Services	Extremely Happy	56.9	73.21	
	Happy	16.31		1
School fees and buy books	Extremely Happy	51.04	66.52	
	Happy	15.48		2
School fees and Hostel Fees	Extremely Happy	47.68	65.25	
	Happy	17.57		3
School fees and student loan	Extremely Happy	48.12	58.16	
	Happy	10.04		4
School fees and Photocopy	Extremely Happy	42.67	54.38	
	Happy	11.71		5

4.3 Concerns of Students

The respondents hold the view that, the main factors of concern to them in adopting mobile financial services as presented in table 4 and ranked are; easiness of use (1st), security of transactions and, mobile money account monitoring (2nd), the accessing bank account details (3rd) and lastly receiving clock alerts on financial transactions. This finding supports Nysveen et al. (2005) who hold the view that perceived expressiveness and perceived enjoyment directly influence intentions to use mobile data services.

Table 4. Concerns of Students

Factor of Concern	Responds	Percentage	Total	Rank
Easiness of Use	Very Important	67.23		**1**
	Important	32.77	100	
Account Monitoring	Very Important	78.66		**2**
	Important	20.92	99.58	
Security	Very Important	84.52		**2**
	Important	15.06	99.58	
Bank Account Details	Very Important	69.87		**3**
	Important	25.52	95.39	
Clock Alerts	Very Important	50.21		**4**
	Important	38.08	88.29	

4.4 Hypothesis Testing

Table 5 and 6 presents the chi-square results for testing the hypothesis stated

H_1 : *Mobile Financial services needs of tertiary students are not strongly related.*

Table 5 shows that with a probability value of 0.0000 for all the products combination identified for this work, there exist a statistically significant relationship between mobile financial needs of tertiary students.

H_2 : *There exist no relationships between factors that influence decision to use mobile money services by students.*

Table 6 also shows that with a probability value of 0.0000 for all the factors of concern to students in adopting mobile financial services, there exist a statistically significant relationship. This falls in line with the argument of Brown et al. (2003) that relative advantage, trial periods, and consumer banking needs, along with perceived risk, have a major negative influence on the adoption of mobile banking.

Table 5. Existent of Relationship between Products

Relationship	Degree of Freedom	X^2	Pr
School fees and Buy books	9	95.488	0.0000
School fees and Hostel fees	12	188.06	0.0000
School fees and students loan	12	73.32	0.0000
School fees and photocopies	12	78.98	0.0000
Hostel fees and Photocopies	16	138.14	0.0000
Hostel fees and Students Loan	16	153.06	0.0000
Students loan and Photocopies	16	124.39	0.0000

Table 6. Extent of Relationship between Factors of Concern

Factors Of Concern	Degree of Freedom	X^2	Pr
Easiness of Use and Account Monitoring	2	30.62	0.0000
Easiness of Use and Security of transactions	2	26.2	0.0000
Easiness of Use and Bank Account Details	3	32.71	0.0000
Easiness of Use and Clock Alerts	2	15.73	0.0000
Security and Account Monitoring	4	67.54	0.0000
Security and Bank Account details	6	47.95	0.0000
Security and Clock Alerts	4	11.01	0.0000

5. Conclusion

This study focused on identifying mobile financial products and services that can be developed for the Ghanaian tertiary institutions market and the factors of concern to students and invariably to Mobile financial service providers. The successful implementation of these products would make financial transactions on campuses of

tertiary institutions simple and convenient. This would reduce the carrying cost of money on campus for all stakeholders namely the tertiary institutions themselves, students, and all other stakeholders in the value chain activities at the various tertiary schools where financial transactions are undertaken. The issue of concern namely, easiness of use, security of transaction, account monitoring, and bank account details are not too big of issues to be handled by the mobile financial service providers and the regulators that is the Central bank and the National communication Authority. With the recent SIM card registration exercised carried out the NCA, the security of mobile financial services has greatly improved because of the tracking ability on the SIM cards.

The study therefore concludes that there exist a fertile ground for the development and rolling out of mobile financial services for tertiary students in Ghana and if carried out effectively these products would be a big success.

6. Limitation of Study

Although the qualitative study brings out the underlying motives for students preference for mobile banking services among tertiary students in Ghana, this study restricted itself to Tertiary Institutions based in the cities of Accra, Kumasi and Cape Coast where there exist a large banking presence, the views collected from students might be different for students in the other regions of Ghana where banking presence is much restricted which limits the generalization of this study. Nonetheless the study has made some pertinent finding in the area of personal service needs of students for mobile financial services.

7. Scope for further Research

This study identified the type of mobile financial services that can be developed for tertiary students in Ghana. It also discussed the issues of concern in adopting mobile financial services among tertiary students in Ghana. Further studies can be conducted to reveal the degree of preference in mobile financial services between Public Tertiary Institutions and Private Tertiary Institutions. Also, aside the products presented above, a thorough research can be conduct on the nature of personal mobile financial services being demanded by tertiary students in Ghana and in other countries especially the developing countries.

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