Adoption of Mobile Banking: Development of a Research Model

モバイルバンキングの受容:リサーチモデル開発

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Abstract

Many banks have introduced mobile banking services like mobile credit cards checking account balances, setting up bill payment, transferring funds, and short message services (including push and pull methods). While these services offer convenience and add value, it is necessary to consider whether customers will adopt the technology. This study will examine the many variables that affect the consumer’s decision to adopt the technology. We concluded that self-efficacy, behavioral intention, attitude towards use, and user information base readiness (UIBR: awareness, knowledge, experience, exposure) are the major constructs in the adoption of mobile banking. This model can be used to determine the marketing methods, designs, and functionality of mobile banking offered in the United States and Japan.

PURPOSE OF THIS RESEARCH

Mobile technology is by far the fastest growing technology of current day. It is consistently offering new conveniences as the available applications are developed and adopted. Defining the services that this research focuses on is important to grasp the depth of some of the applications that are available to mobile consumers. By definition, mobile credit card is a payment solution by which bank customers would be able to make payment and receive payment on account for the purchase or sale of goods via handheld mobile phone, on a credit basis (Amoroso, 2011). In some countries like Japan, consumers can physically use their mobile phone to pay for items in stores. This is done using hardware that is embedded in the phone interfaced with hardware that exists in the store. Both locations (the mobile phone and the store) have applications to interface with the hardware. This particular service is known to be more secure as well as convenient. It eradicates the need to carry around credit cards.

The banking industry quickly caught on to the mobile applications trend in an effort to keep up with the development of mobile technology. Most banks have already developed such applications to directly access bank information. This is done via secure access requiring a distinct username and password for each user. Using this particular technology, customers are able to access their account balances, set up bill payment and even transfer funds from one account to another. SMS (short message services) banking can be defined as banking transaction using mobile phone via SMS application (Amoroso, 2011). This is a service that is being researched and developed in many different countries around the world. The drive is namely because of the popularity of SMS. In some ways, SMS has taken the place of face to face conversations making up for an extensively large amount of communication between families, friends, business to customer, and business to business. With this service, there are two methods, push and pull, that can be used to complete transactions. The push method is where the bank automatically sends information like balances, posted checks, balance alerts and overdraft alerts via text. The pull method is where the customer initiates transactions like a balance inquiry, transaction inquiry, stop payment on a check, or a transfer of funds.

While it seems that consumers would easily be drawn to the aforementioned services via their mobile phone, there are so many things that has to be taken into consideration when examining the adoption of mobile banking. Another researcher stated the issue of drivers as such:

There are many drivers that motivate people to purchase mobile technologies and, although for a myriad of different reasons, those drivers seem to cross borders. We noticed that there are applications that are developed for adoption and for use in the mobile environment. We believe that there may be cultural differences or infrastructure differences in each country and patterns of adoption and use of mobile technologies that might also be different. (Amoroso, 2011)

To further the study of the adoption of mobile banking, this research paper will first discuss the literature and initial hypothesis development. This will expound on the beginning stages of the research. Secondly, this study will focus on the research models and methods. This will give a clear understanding of the evolution of the final hypothesis and research model. The next area of the paper
LITERATURE REVIEW

Mobile payment instruments fall under the category of electronic money, which “includes all non-cash and non-paper payments instruments such as plastic cards and direct transfer and all money transactions via electronic channels”. It has been noted that electronic wallets, although frequently compared to debit cards, should instead be compared to cash. He explains that “the rationale behind their introduction – from the mid 1990s onwards – was indeed to provide consumers and merchants with an electronic payment instrument that could handle small transactions cost effectively. The Committee on Payment and Settlement Systems of the Bank for International Settlements defines an electronic purse or wallet as “a reloadable multipurpose prepaid card that may be used for small retail or other payments instead of coins”. Unlike debit or credit cards, transactions using an electronic wallet are carried out off-line without the direct involvement of financial intermediaries and the burden of these institutions’ high fixed costs. Current contactless IC card-based payment solutions in Japan fall under this category. Several studies examined online payments acceptance building the infrastructure for mobile payment applications finding that a majority of participants favored the concept of online payments with the primary consideration of risk being associated with making online payments.

Mobile consumer adoption involves the consumer’s propensity to accept and to assimilate new technologies, specifically a mobile wallet in this instance. Mobile consumer adoption consists of three variables, as derived from the technology acceptance model, to include perceived ease of use, perceived usefulness, and attitude toward using the mobile wallet. These factors of mobile consumer adoption, while separately important, form the basis for a higher-level construct that aggregates measure the consumer’s overall tendency to use the mobile wallet in a way that it will find useful.

H1a: The higher the mobile banking functionality the more likely the user is to continue using the service. (Hong, et. al)
H1b: The higher the mobile banking functionality the higher the quality. (Gebauer, et. al)
H2a: The higher the perceived usefulness the more positive attitude toward the mobile banking service. (Hong, et. al)
H2b: The higher the usefulness of the mobile banking application, the higher the satisfaction. (Balocco, et. al)
H3: The more positive the attitude toward mobile banking the more likely the user is to continue using the service. (Hong, et. al)
H4a: The corporate image of a smartphone is associated with attitude toward the mobile banking service. (Lee, Shim)
H4b: The corporate image of a smartphone is associated with customer loyalty to the mobile banking service. (Lee, Shim)
H4c: The corporate image of a smartphone is associated satisfaction toward mobile banking. (Lee, Shim)
H5a: The product quality of a smartphone is associated with customer loyalty to the mobile banking service. (Lee, Shim/Chao et. al)
H5b: The higher the quality of the mobile banking application, the higher the satisfaction. (Lee, Shim)
H6: The higher the satisfaction the higher the adoption rate of the mobile banking service. (Hedman, Gimpel)

ANALYSIS

We collected data from thirty respondents in the United States in order to understand the factors that influence mobile banking usage on the cell phone, rather than on the computer or in the bank branch. Table 1 outlines the constructs and the means, standard deviations, and skewness. Corporate image was the only construct that we found that did not align with the ratings of the other constructs that were in the 4.17 – 4.35 mean range.

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| Figure 1. Research Model Results |

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will show the results derived from putting all of the research together. The final section will conclude the study and provide practical implications – giving some insight into the Japan study abroad trip that initiated this study and experiences that impacted this study.
Table 2 and Figure 1 show the construct correlations for the study and we depicted the relationships / correlations in Figure 1. All of the hypotheses were supported in this research except for corporate image and attitude ($p=0.27$). We found both attitude and satisfaction to be strong relationships to understanding behavioral intention to use mobile banking ($p=0.68$ and $p=0.75$ respectively). In general, we found that the use of e-banking services and applications was tied to the user’s mobile device and the smartphone functionality, usefulness, and even the ease of use.

**DISCUSSION**

We were particularly interested in the factors that influences the adoption of mobile e-banking applications and technologies. We performed a multiple regression analysis (see Table 3) and found a strong prediction model explaining 81.2 percent of the variance with a strong model ($F=20.762$, $p=0.000$). The variables that were most strongly loaded on the behavioral intention to use mobile banking were satisfaction, usefulness, quality, and corporate image ($p < 0.001$ level). We were surprised that ease of use was not found to be statistically related to the behavioral intention to use e-banking. We think this is a particularly important finding in that ease of use was earlier found to be an important variable for technology adoption, but we think it is less important as users feel that certain applications like e-banking have higher levels of sophistication.

In conclusion, this study is presents an important set of factors that influence the adoption of mobile banking. We feel that this study, albeit with a small sample size, plays an important role in understanding the variables that are most important and that provide a theoretical framework for comparing mobile banking environments in different countries and cultures. It is our intention to conduct this research in Japan within the next year with younger student-age consumers to make comparisons within and between the cultures of Japan and the United States.

REFERENCES


