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Research report

An empirical study on trust in mobile banking: A developing country perspective

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ABSTRACT

Trust is essential for Mobile Banking (MB) adoption and usage. MB technology has the potential to improve people's quality of life and to bring efficiency to banks. In this paper, MB trust was addressed in Brazil, a developing country that has an enormous potential for expansion of banking services. We used Confirmatory Factor Analysis and Structural Equation Modeling to analyze the database, which was composed of 1077 questionnaires. In this study sample, determinants of trust had similar behavior when compared to determinants of trust previously pointed out in the literature. Our discussion indicated a kind of information asymmetry that could be mitigated in order to build trust in MB and promote its adoption. However, we observed a negative relationship between trust in MB and undergraduate course area (dummy variable for undergraduate courses in technology). The inclusion and analysis of this new variable, especially in developing countries, may contribute with the literature on MB adoption.

1. Introduction

Mobile Banking (MB) technology has the potential to improve people's quality of life and to bring efficiency to banks. Elwork and Gutkin (1985) wrote about the impact that computers would have upon society and sciences. Thirty years later, computers are more sophisticated, but there are still many topics on the agenda about technology challenges, including cross-country differences around the world.

One topic on this agenda is Mobile Banking (MB) adoption and usage. This technology allows people to perform bank transactions anytime and anywhere (Zhou, 2012a). MB benefits banks by promoting better efficiency and improved service quality, and it also benefits customers through time optimization, immediate information, instant connectivity, great convenience and interactivity (Akturan & Tezcan, 2012; Cruz, Filgueiras Neto, Muñoz-Gallego, & Laukkanen, 2010; Febraban, 2014; Gu, Lee, & Suh, 2009; Ha, Canedoli, Baur, & Bick, 2012; Zhou, 2012a; Zhou, Lu, & Wang, 2010).

With MB, users are able to access account balances, pay bills, and transfer funds through mobile devices, instead of visiting banks or using internet banking based on computer (Gu et al., 2009). Banks in different countries have been offering MB technology to their customers, but despite the widespread adoption of mobile devices, such as smartphones and tablets, the adoption rate of MB is still low (Akturan & Tezcan, 2012; Febraban, 2015; Gu et al., 2009; Lee & Chung, 2009; Zhou, 2012a; Zhou et al., 2010).

Trust is crucial for any business relationship (Palvia, 2009; Wang, Ngamsiriudom, & Hsieh, 2015), and it plays a critical role in m-commerce, because it reduces uncertainty (Gu et al., 2009; Li & Yeh, 2010; Wang et al., 2015). In the same way, building users' initial trust is essential for mobile banking service providers (Zhou, 2012a). There are different factors that affect customer's trust in MB. Some of them are personal innovativeness, task characteristics, social influence and risk perception.

Regarding trust in e-commerce, Kim and Benbasat (2006) stated that the adequate construction of trust-assurance arguments, which are disclosed on websites, is another factor that affects customers' trust. Their empirical results confirm this assumption. The same reasoning is applied to MB: banks need to provide customers with compelling arguments in order to establish trust and acceptance of this technology. Thus, the environment in which people live can modify the relationship between trust in MB and the factors already identified by literature, which motivated the development of this study with Brazilian respondents.

Brazil is a country in which people adopt mobile devices. Data from 2014 shows that smartphone rate penetration in Brazil was 41%, and it is estimated that this rate will be around 75–80% in

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2024. Nevertheless, bank transactions through mobile devices consisted of about 12% of total bank transactions in 2014, so MB adoption rate is still low in Brazil. Even though most transactions via MB (96%) did not involve money operations, Brazilian banks have been investing in security and usability of their MB apps so as to improve these figures (Febraban, 2015).

Bank rate access is about 97% in developed countries like the United States, Germany and the United Kingdom, whereas it is about 60% in Brazil. According to Febraban, the main entity representing the Brazilian bank sector, this low rate of bank access represents a big potential of expansion for banks. Participation of the Brazilian financial sector in the total of investments in information technology (18%) is similar to that in developed countries (Febraban, 2014; 2015).

Brazil is also the biggest country in Latin America, and it has the largest and most complex bank system in the region (Nakane & Weintraub, 2005). However, in comparison with developed countries, Brazil has other characteristics, such as the following: i) lower levels of disclosure by banks; and ii) companies listed in the capital market with lower and more cross-sectional variations in disclosure (Alves & Cherobim, 2009; Britto, Rodrigues, & Marques, 2013; Lopes & Alencar, 2010; Malaquias & Lemes, 2013).

We observed that MB can leverage the penetration of banks in Brazil, hence, contribute to the growth of the bank rate access in the following years. The low rates of disclosure indicate additional characteristics that might affect trust in MB. Therefore, these characteristics turn this environment an appropriate place to verify the adherence of previous literature on trust in MB.

Given this scenario, we developed this study in order to explore potential determinants of trust in MB in Brazil. The sample comprehended undergraduate students. We used factors previously documented and tested in other studies, and we included a new variable: undergraduate course area. This new variable was included in order to analyze the perception of trust by people who interact more with technology: students in the technology field. Since these students learn more details regarding technology during their undergraduate courses, they might have a different perception of trust in MB.

As pointed out by Davis (1989), the development and improvement of measure for key theoretical constructs is a priority in the field of information systems. Furthermore, the variable undergraduate course area is not necessarily a perception, and its measurement is very simple. As the extant research on mobile adoption focuses mainly on user perception (Zhou et al., 2010), we expect to contribute with future studies on this subject.

This study can help banks to improve the rate of MB adoption. Moreover, we argue that our results also have a “practical value” (Davis, 1989, p. 319), particularly for Brazilian banks. A large number of customers using MB could justify the investments that banks have made in this technology, thus increasing the rates of return (Lee & Chung, 2009). The understanding of the factors that affect user adoption of mobile banking services enables banks to target bottlenecks of this adoption and improve their services (Zhou et al., 2010).

2. Theoretical model and hypotheses

We intend to explore trust in MB with respondents who live in Brazil. In our model, we considered six relevant factors that other researchers already have studied: risk perception, age, gender, task characteristics, personal innovativeness and social influence. We also included a new variable in our model (undergraduate course area), in order to capture a potential difference in perception from people that study in the area of technology.

Trust represents a catalyst for exchange relationships between buyers and sellers (Pavlou, 2003; Wang et al., 2015). Due to the high degree of uncertainty and perceived risk in e-commerce operations, trust becomes an important factor for people to obtain confidence on an exchange partner (Li & Yeh, 2010; McKnight, Choudhury, & Kacmar, 2002; Moorman, Zaltman, & Deshpande, 1992; Palvia, 2009; Pavlou, 2003; Ribbink, van-Riel, Liljander, & Streukens, 2004).

Customers need to trust in MB to use it. Viruses and Trojan horses may exist in mobile terminals too; so, these problems increase users' concern about payment security, and decrease their trust in MB, which, in turn, can affect their usage intention and behavior (Zhou, 2012a). In the relationship between customers and MB terminals, if trust is not present, there is no adoption and no use of this technology (Zhou, 2012b).

Risk perception is one of the main barriers to MB adoption in Brazil (Cruz et al., 2010), the most important in China (Laforet & Li, 2005) and has a significant relationship with users' attitudes and intention to use MB in Iran (Mohammadi, 2015). This construct also has significant relationship with internet banking adoption (Yiu, Grant, & Edgar, 2007) and with customer's lack of interest in online commercial transactions (Liao, Liu, & Chen, 2011). The perception of risk is a significant factor affecting trust (Al-Gahtani, 2011) and affecting mobile banking adoption (Al-Jabri & Sohail, 2012; Ha et al., 2012; Mishra & Bisht, 2013). As risk perception can generate a negative effect on trust, the first variable that we included in our model was risk.

Risk perception involves the concern about: i) use of personal information without the knowledge or permission of the owner (Akturan & Tezcan, 2012; Lee, 2009; Luarn & Lin, 2005); ii) transference of money for third parties without knowledge and permission (Akturan & Tezcan, 2012; Hanafizadeh, Behboudi, Koshksaray, & Tabar, 2014; Luarn & Lin, 2005); and iii) vulnerability of mobile devices to hackers, Trojan horses and information interception (Zhou, 2011; 2012a; 2013). Banks need to guarantee high security transactions through MB, as well as they need to ensure reliability to their customers (Al-Jabri & Sohail, 2012; Ha et al., 2012).

The concern about an access to personal/financial information by an unauthorized third-party leads customers to distrust in the security of online systems (Kim, Ferrin, & Rao, 2008). In the case of MB, higher risk perception can make people avoid its adoption, especially when we observe the results of Sohail and Al-Jabri (2014), showing that non-users perceive higher levels of risk in MB when compared to the users of this technology. Al-Jabri and Sohail (2012) also found a negative effect of perceived risk in mobile banking adoption. In addition, Al-Gahtani (2011) and Liao et al. (2011) identified that perceived risk had a negative effect on trust to conduct online transactions. In this way, we hypothesized that people that perceives higher levels of risk in MB tend to feel less confident to adopt it.

H1. The relationship between trust and risk perception is negative.

It is usual to include demographics characteristics in models about technology use and adoption (Al-Gahtani, 2011; Luo, Li, Zhang, & Shim, 2010; Shaikh & Karjaluoto, 2015; Yu, 2012). As demographic variables, we used age and gender. Generally, men tend to be more willing to adopt new technologies than women; young people tend to be more willing to use new technologies than older ones (Akturan & Tezcan, 2012; Cruz et al., 2010). One of the reasons for the negative relationship between age and information technology adoption is related with physical characteristics, which change through time (Hawthorn, 2000; Wagner, Hassanein, & Head, 2010).

According to Laguna and Babcock (1997, p. 324), “older adults report more computer anxiety than young adults”, which also affect