



Review

A weight and a meta-analysis on mobile banking acceptance research



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ABSTRACT

Following the globalization of business and systems, there is a pressing need to understand the main factors affecting mobile banking user acceptance. The increasing number of mobile banking studies and articles published in the last years, as well as conferences and workshops, has made the research process on this important subject more complex and time-consuming. Therefore, it is necessary to synthesize findings from existing research, seeking an update of the current state-of-the-art knowledge. A combination of weight and meta-analysis was chosen, in order to identify the frequency and relevance of the most used constructs and their most important relationships. A total of 57 articles were found in the literature, having the necessary quantitative statistical data to be considered. The best predictors of the intention to use the mobile banking services identified, simultaneously significant in the weight and in the meta-analysis, are: (i) attitude, (ii) initial trust, (iii) perceived risk, and (iv) performance expectancy. In terms of use of mobile banking, considering the same assumptions, the best predictors are: (i) intention, and (ii) performance expectancy. Facilitating conditions on attitude, task technology fit on performance expectancy, and performance expectancy on initial trust have the potential to be added to the list of the most important predictors, but they still need additional research. A theoretical model based on our results is presented, providing a means to support future mobile banking acceptance studies.

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Contents

1. Introduction	480
2. Research methodology	481
3. Meta-analysis	481
3.1. Acceptance research studies	482
3.2. Network of constructs and relationships	482
3.3. Meta-analysis constructs relationships	482
3.4. Weight analysis	482
4. Discussion	482
5. Conclusions	486
6. Implications for research and practice	487
7. Limitations and future research	487
References	488

1. Introduction

The prevalence of mobile technology in daily life has increased the popularity of mobile banking (Chen, 2013) and the importance of these types of services for users, banks, and financial institutions. In the present work mobile banking is understood as a type of

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financial services in the course of which, within an electronic procedure, the customer uses mobile communication techniques in conjunction with mobile devices to perform financial transactions (Anderson, 2010). For some, mobile banking is considered to be one of the last major technological innovations (Lin, 2011), due to being inherently time and place independent (Lin, 2012), providing customers with a more convenient means to access banks and financial institutions. Several advantages, to both customers and banks, are boosting the number of services and content available, starting with more traditional transactions such as money transfers, bill payments, trading, or loans, to more advanced ones such as automatic check payments, virtual advisory/sales agent, personal savings plans, interactive games, or predictive cross-selling of products.

As a result of the increasing number of mobile banking studies and articles published in the last years, the research process has become more complex and time-consuming, covering several different subjects such as environment, rules, culture, trust, risk, technology, gamification, value, satisfaction, and loyalty. Consequently, there is a greater need to describe, synthesize, evaluate, and integrate the results of these articles (Fettke, 2006). A literature review can build a firm foundation for advancing knowledge (Webster & Watson, 2002), revealing relationships, contradictions, gaps, and irregularities in the relevant literature (Urbach, Smolnik, & Riempp, 2009). The review also facilitates theory development, closes areas where a plethora of research exists, and uncovers areas where research is needed (Webster & Watson, 2002). In spite of occasional criticism against it (Borenstein, Hedges, Higgins, & Rothstein, 2009), some researchers consider that a meta-analysis is even better than a literature review (Schmidt & Hunter, 2014), and we therefore included it in our work. Combining it with a weight analysis provides one of the most profound analysis available (Rana, Dwivedi, & Williams, 2015). The main purpose of this research is to synthesize findings from existing research on mobile banking acceptance, providing a combination of weight and meta-analysis, in order to balance and identify the performance of the most used constructs described in the literature and their importance. To the best of our knowledge, this the first time that a sustained meta-analysis combined with a weight analysis and with a period of analysis as large as ours has been addressed to the area of mobile banking. It is known that mobile banking studies have often produced contradictory results, depending on multiple factors such as theoretical models employed, constructs, moderators, samples sizes, periods of data collection, countries, and cultural aspects. In the same way that a meta-analysis has often been used to better understand and interpret the results of putatively conflicting results (Dennis, Wixom, & Vandenberg, 2001), it will contribute to a clearer and more concise view of mobile banking acceptance. This what we intend to provide.

2. Research methodology

Our process of literature selection was based on Urbach et al.'s (2009) approach and comprised three steps: (1) selection of the literature sources, (2) definition of a time frame for the analysis, and (3) selection of the articles to be reviewed. Following Webster and Watson's (2002) recommendations, we began our literature review by identifying the relevant mobile banking literature through a keyword search in numerous electronics databases, such as Science Direct, ISI Web of Science, ACM Digital Library, Scopus, Emerald, Springer, Taylor & Francis, EBSCO, and JSTOR. Conference proceedings, dissertations, and these were also included in order to address bias toward higher effect sizes normally associated with published journal articles (Pappas & Williams, 2011; Rothstein, Sutton, & Borenstein, 2004). To ensure capturing all relevant

articles we also used Google Scholar and Scopus search engines to cover publications in other databases. We systematically searched these sources for mobile banking and related words, such as: mobile, banking, adoption, acceptance, m-banking, m-bank, mb, electronic banking, smartphone, cell phone, mobile phone, tablet, financial services, financial, branchless banking, cross-channel banking, self-service technology, and e-services. Interrelated areas and subjects, such as Internet banking, mobile payments, mobile services, financial services, m-commerce, and mobile apps, were excluded. A systematic search is a condition to ensure that a relatively complete census of relevant literature is accumulated (Webster & Watson, 2002), and therefore it is used in our work.

Of the 121 articles identified, a rigorous set of criteria was developed to assess the studies' usefulness for the meta-analysis, namely: (i) the time frame was set between January of 2003 and February of 2016, and studies had to be published or be available on-line within this period, (ii) the unit of analysis had to be the individual level; all studies at firm or business level were excluded, (iii) the type of analysis had to be quantitative; all qualitative studies, literature reviews, or conceptual articles were excluded, (iv) the studies had to provide values of correlations between related variables used in supporting the theoretical model, and (v) the studies had to provide independent databases; articles containing previous datasets were eliminated to avoid biasing the study through multiple counting (Wood, 2008). However studies with multiple independent datasets were included (e.g., Mortimer, Neale, Hasan, and Dunphy (2015) contributed with two datasets). This resulted in a total of 57 papers and 58 datasets for the meta-analysis. Of these papers, 42 were journal articles (73.7%), 2 were dissertations (3.5%), and 13 were conference papers (22.8%). This is a larger sample compared with other meta-analysis published in top tier Journals, such as Mahmood, Burn, Gemoets, and Jacquez (2000), which included 45 studies, Wu and Lederer (2009) with 50, Gerow, Grover, Thatcher, and Roth (2014) with 30, and equivalent to others such as Dennis et al. (2001) with 61 studies.

Following Rana et al.'s (2015) guidelines, for the meta-analysis and weight analysis we selected only those relationships that have been explored three or more times in the literature, resulting in a total of 34 relationships. The meta-analysis is a very well-known method (Sharma & Yetton, 2003) that allows integrating earlier mobile banking studies' findings; even if their findings are the non-significant or inconsistent they can contribute to a pooled conclusion (Sabherwal, Jeyaraj, & Chowa, 2006), enhancing the general validity of interpretations (Cook, 1991). The method is considered suitable for highlighting gaps in knowledge, supporting further and future studies on patterns found (Y. Lee, Kozar, & Larsen, 2003), and is therefore used in our work.

With the correlation coefficients collected between each pair of constructs from the various studies, the average of the cumulative value was computed for each of the 34 relationships. These values combined with the studies' total samples sizes supported the meta-analysis results, produced using the Comprehensive Meta-Analysis software tool (www.meta-analysis.com). Additional views on data were produced using IBM Watson Analytics tool (www.ibm.com). The weight analysis was calculated based on the total number of significant relationships; for each pair of constructs found in the 57 mobile banking studies identified, considering that weight is a clear indicator of the predictive power of an independent variable (Jeyaraj, Rottman, & Lacity, 2006), complementing the meta-analysis results.

3. Meta-analysis

Meta-analysis is a statistical technique that combines the results from theoretical studies that address similar themes or subject area

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