


Factors That Influence Customer Trust and Satisfaction in Mobile Banking: A Problematization Approach

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ABSTRACT

Over the last decade, banks have significantly invested in mobile banking. While mobile banking research focuses increasingly on adoption and behavioural intention, and post-adoption behaviours such as customer satisfaction have been given little attention. This paper draws on the information system success model to look into the antecedents of trust and satisfaction in mobile banking. It adopts the problematization and the systematic literature review approaches to problematize, organise, and integrate previously published literature related to trust in mobile banking in the post-adoption stage. The paper proposes a conceptual model with five factors that influence customer trust in mobile banking: system quality, information quality, services quality, structural insurance, and task characteristics. The relationships between the independent variables and satisfaction are mediated by trust. This paper is one of the first to discuss the DeLone and McLean model within a customer trust and satisfaction framework.

KEYWORDS

Customer Satisfaction, DeLone and McLean Information System Success Model, Information Systems, Institutional-Based Trust, Interpersonal-Based Trust, Mobile Banking, Problematization Approach, Trust

INTRODUCTION

This unique paper develops our contributions in the fields of mobile banking (MB) and information systems success through conceptualising trust in MB as a key factor in influencing consumer behaviour in the post-adoption stage, particularly user satisfaction. As part of this, we also propose a further contribution which is a conceptual framework, bringing to the fore the key factors which influence customer trust and in turn, satisfaction. In the view of the researchers, this is a growing area of research, which is taking on increasing importance, especially in relation to Fintech (Financial Technology) and online MB services. There is currently huge disruption currently underway in the financial services industry with the introduction of fintech and cybersecurity having a significant influence on customer perceptions, trust and satisfaction.

By extension, this disruption has led to many customers re-assessing their relationships with their banks in terms of the types of products they use, how they communicate with the bank and how safe they feel within integrated information systems (Baptista & Oliveira, 2016; Malaquias & Hwang, 2016). Thus, the movement towards electronic channels such as online and mobile banking has given customers freedom and autonomy in how they manage and receive online payments, and

DOI: 10.4018/IJEBR.2021070105

This article, originally published under IGI Global's copyright on July 1, 2021 will proceed with publication as an Open Access article starting on March 11, 2024 in the gold Open Access journal, International Journal of E-Business Research (IJEBR) (converted to gold Open Access January 1, 2022) and will be distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>) which permits unrestricted use, distribution, and production in any medium, provided the author of the original work and original publication source are properly credited.

the methods they utilise to check account balances and transfer funds (Ege Oruç & Tatar, 2017; Yu, Balaji, & Khong, 2015). In moving this discussion forward, the authors define MB as an application delivered by financial institutions that enables customers to access banking services and conduct transactions using mobile devices (Baabdullah, Alalwan, Rana, Kizgin, & Patil, 2019; Geebren, Jabbar, & Luo, 2021).

As user migration towards online services continues apace this paper through the process of neglect spotting and problematization (Nicholson, LaPlaca, Al-Abdin, Breese, & Khan, 2018), investigates a clear gap in the MB research. This paper argues that too often the focus is on the role of initial trust in the pre-adoption stage of MB at the expense of the influence of trust on consumer behaviour in the post-adoption stage (Alalwan, Dwivedi, & Rana, 2017; Mohammadi, 2015; Oliveira, Faria, Thomas, & Popovič, 2014; Tan & Leby Lau, 2016). The authors argue that this is an important aspect of research and an area which needs further investigation due to customer behaviour acting as a catalyst for practical implications for decision-makers (Tam & Oliveira, 2016). Thus, our contribution to research in this area is the investigation of MB, which examines customer trust and satisfaction. In order to achieve this, this takes a gap-spotting approach in developing the literature (Sandberg & Alvesson, 2011) and investigate the mediating impact of trust between factors that relate to MB systems, particularly in acknowledgement of customer trust and satisfaction. This paper argues that this is an important aspect of research, the online environment is by its very nature an impersonal environment with little human visual or physical clues, hence, in an environment such as this building trust and satisfaction can be difficult.

From a practical perspective, MB penetration has increased considerably during the last five years, especially in the developed world. For example, 89% of adults in the US use MB, and in the UK, 68% of adults use MB (BUSINESS INSIDER, 2019, 2020). However, the use of MB is limited to basic and straightforward services. A survey conducted by Deloitte across 17 developed countries found that only 24% of adults used MB to transfer money abroad in 2019, comparing to 53% used online banking. Besides, MB users prefer using online banking and branch to update details of their accounts, with only 24% of adults used MB to perform this task (Deloitte, 2019). Thus, these trends can indicate that MB customers may are not completely satisfied with such services.

In supplementing the gap in the literature, this paper also problematizes literature sources that assist the authors in integrating the methodological approach, a mechanism of identifying research gaps and providing relative contributions (Nicholson, LaPlaca, Al-Abdin, Breese, & Khan, 2018; Sandberg & Alvesson, 2011). As the links between MB and information systems emerge, this strategy assists the authors in investigating the current knowledge gap and provides directions for future research. Especially, this paper challenges the field assumption of customer satisfaction and argues that too often, the customer experience in the online environment is secondary to the infrastructure design, form over function. Therefore this paper pursues the following contributions. Firstly, through a process of problematization, this paper brings forward the notion of online trust as a precursor to the development of online tools and strategies to increase customer satisfaction with the MB system, and secondly, through a neglected gap in the literature, this paper contributes a conceptual framework which illustrates the mediating role of trust in enhancing customer satisfaction level. In meeting these contributions and identifying the knowledge gap, the following research questions are identified: *RQ1. How can trust be conceptualised in MB? RQ2. What are the key factors which influence user trust and satisfaction in MB?*

The rest of the paper is structured in the following manner: In the first instance, this paper discusses the theoretical background and the theory used in the paper. Then a systematic literature review of trust in the post-adoption stage of MB is conducted to present the theoretical gaps by challenging the literature of trust in MB. Then, the discussion is expanded by reviewing trust concepts in e-commerce to conceptualise trust in MB. Then, the factors influencing trust in MB are identified and introduced in the conceptual framework. Finally, the discussion implications and conclusion of the paper are discussed.

Theoretical Background

Trust has long been considered as an incentive in the formation of several satisfactory business relationships in many online contexts in particular e-finances domain (Yousafzai, Pallister, & Foxall, 2003). As trust deals with the expectation of a trustor regarding specific actions of a trustee and the risk related to these actions (McKnight & Chervany, 2001). likewise, users of MB expect that their bank will deliver banking services to them conveniently and properly through MB (Malaquias & Hwang, 2016). Thus, if these expectations are confirmed, users will build trust in MB, resulting in enhancing user satisfaction level (Baabdullah et al., 2019; Tam & Oliveira, 2016).

Regarding the theoretical approaches that have been used to investigate MB, the majority of trust studies in MB have applied information technology theories to identify factors influencing behavioural intention towards MB. Examples of overused frameworks include Technology Acceptance Model (TAM) (Malaquias & Hwang, 2019; Sharma, 2017), the Unified Theory of Acceptance and Use of Technology Model (UTAUT) (Alalwan et al., 2017; Choudrie, Junior, McKenna, & Richter, 2018) and Innovation Diffusion Theory (IDT) (Lin, 2011). Using this theory is rational due to the majority of MB research has focused on acceptance and adoption of MB. Concerning trust, most MB literature has focused on the role of initial trust in the adoption of MB. However, MB penetration these days is high (Baabdullah et al., 2019). Therefore, there is a need to shed light on trust impact on post-adoption behaviours such as satisfaction.

In line with this perspective, many scholars have highlighted the need to study actual behaviour, which can provide insights into the MB characteristics and other related factors that banking executives can leverage to enhance user satisfaction with MB (Kim, Shin, & Lee, 2009; Oliveira et al., 2014). This creates potential gaps in the literature regarding alternative models and theories to understand additional constructs and factors forming MB customer behaviour (Gu, Lee, & Suh, 2009; Lin, 2011; Tam & Oliveira, 2017a).

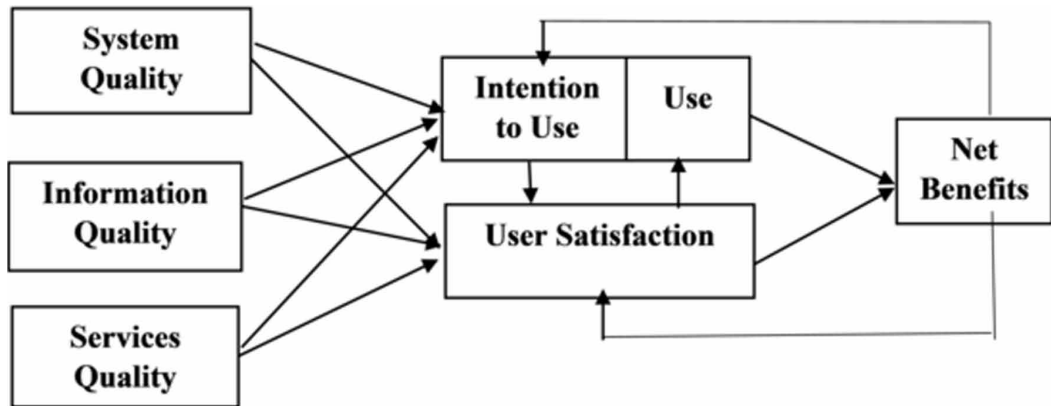
The most important contribution in assessing customer satisfaction in information systems is the information system success model (DeLone & McLean, 2003) (Figure 1). It provides a comprehensive understanding of information systems success by identifying and explaining the relationships among the factors that influence a specific system. DeLone and McLean (2003), present interrelationships between seven variables, which can be used to assess the success and effectiveness of information systems. These variables are (system quality, information quality, services quality, intention to use, use, satisfaction and net benefits).

The information system success model has been widely used to investigate satisfaction and continue use in numerous information systems contexts such as e-commerce (Wang, 2008); e-government (Wang & Liao, 2008); mobile learning system (H.-H. Lin, Wang, Li, Shih, & Lin, 2017). In this paper, the information system success model is used in developing a holistic framework to understand trust and satisfaction within MB. The reason for adopting this model is that it is the most appropriate theory to identify the factors associated with the MB system and can affect customer trust and satisfaction. As one main focus of this paper is on quality factors in MB, the (DeLone & McLean, 2003)' model seeks to provide an understanding of the quality factors on satisfaction and in turn, the success of information systems.

METHODOLOGICAL STRATEGIES TO CONDUCT THIS STUDY

In order to challenge existing assumptions in the field of MB and information systems satisfaction, this paper utilises the approach known as problematization (Nicholson et al., 2018); a pioneering approach which through the formulation of research questions aims to contest and challenge theories, approaches, methods and concepts within the dominant extant literature. This is a novel approach with a rich tradition, which in the view of Sandberg & Alvesson (2011, p. 32), is defined as an approach which aims to “*disrupt the reproduction and continuation of an institutionalised line of reasoning*”. The approach of problematization, while relatively new, has gained a certain level of momentum in

Figure 1. DeLone and McLean IS Success Model (DeLone & McLean, 2003)



the academy with researchers. For example, Bell, Kothiyal & Willmott (2017) using it to challenge and examine methodologies and their rigour in globalised management research, focusing on the debates about the globalisation of management research, while Dyer (2017) has used it to investigate strategies towards mega-project success. This approach is also utilised by Nicholson et al. (2018), who is a key advocate of this approach on his work on the framing of contributions and the different approaches taken by researchers.

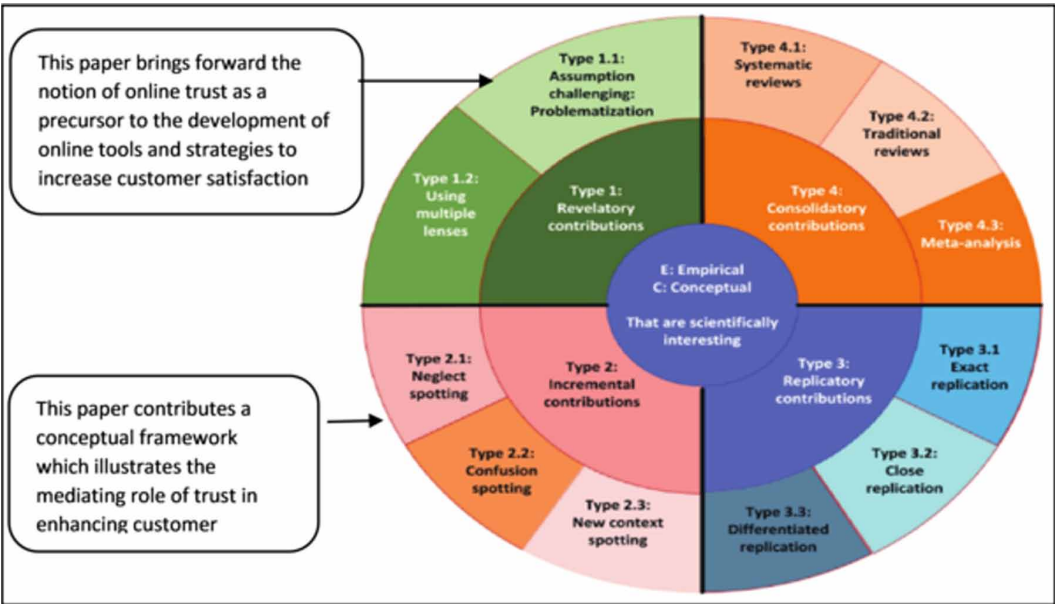
Alongside the notion of assumption challenging, this paper also employs gap-spotting, which is an element of research investigation within the remit of neglect spotting (Nicholson et al., 2018). These two approaches were chosen for a number of reasons, firstly within the area of MB and information systems a lot of the traditional literature does not go far enough in challenging the current thinking in this area, and secondly, the development of revelatory contributions can create new ways of knowing. It is important to note that while these approaches are relatively new, they do not have to be revolutionary or ground breaking, in many cases it can challenge moderate assumptions within existing theories or intellectual traditions (Sandberg & Alvesson, 2011). To highlight our strategies, Figure 2 illustrates the use of assumption challenging and gap spotting in developing the paper's contributions.

In order to implement and undertake a problematization and gap spotting approach, the authors investigated the two main databases in this area (Scopus, Science direct), and undertook a structured literature review. In the first stage, a search was carried out on Scopus and Science Direct as these databases include the majority of the high-ranking journals in the information systems and business fields. The time frame of the search of the literature covered the period between 2005 and 2020 to ensure obtaining comprehensive results. This stage aimed to apply criteria to exclude not related articles. The selection of the articles was limited to journal articles and did not include book chapters or conference proceedings. To ensure the quality of the selected studies, any article must be ranked in ABS ranking for business journals as one* and above.

The first step in the selection stage was searching for initial results. According to Figure 3, the number of the results, which were identified when typing the search keywords “mobile banking” in the Scopus and Science Direct databases, were 8432. The second step was to exclude the irrelevant results. The articles that duplicated in both databases, the articles that are not mainly related to MB and the ones that were not published in ABS journals were considered as irrelevant results. After excluding the irrelevant results, the total MB articles identified were 148.

As mentioned, the focus of the current research is centred on the role of trust in the post-adoption customer behaviour and in particular, the role of trust in the formation of customer satisfaction in MB. Therefore, the third step was to exclude the MB articles that are not focused on customer trust from the identified MB articles. This step led to the identification of 59 germane articles (Figure 3).

Figure 2. Neglect spotting and assumption challenging (Nicholson et al., 2018)



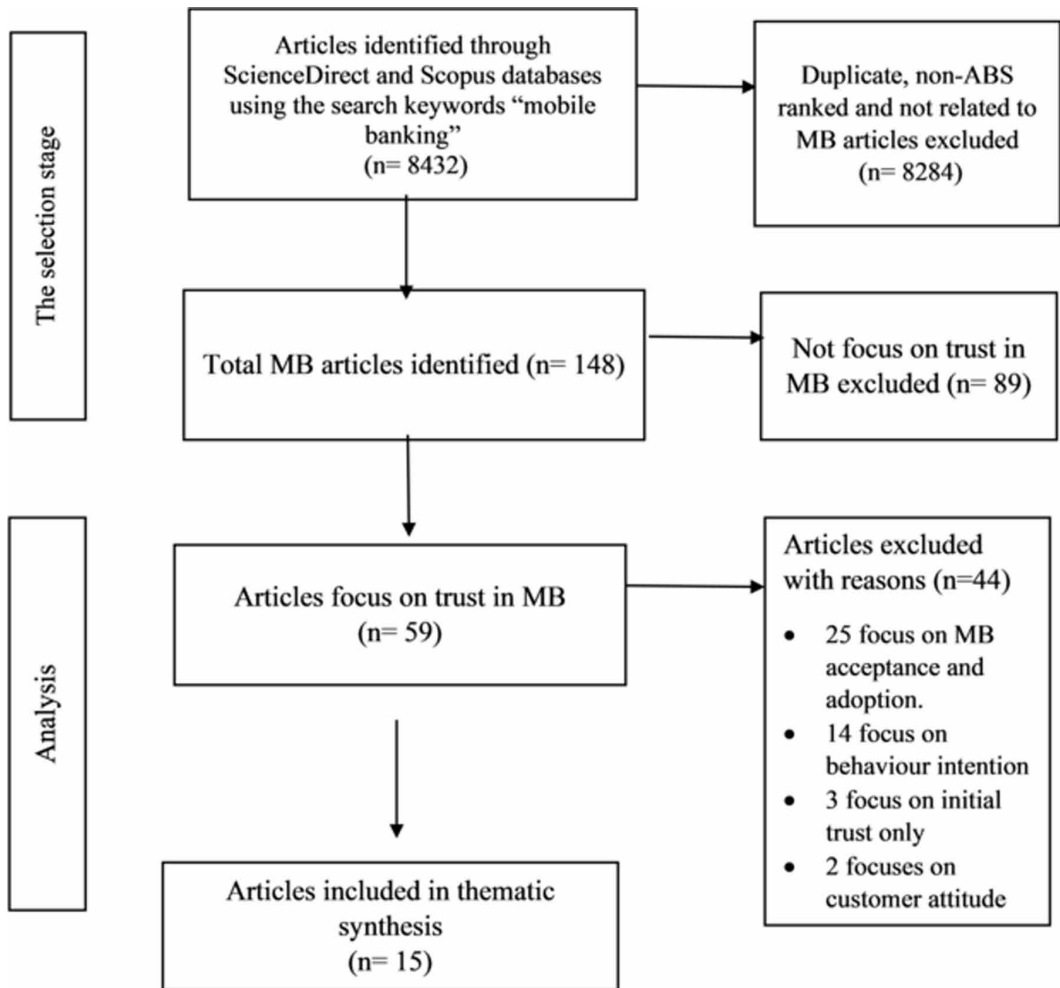
The second stage was to exclude the articles that do not focus on the role of trust in post-adoption behaviours. This procedure means that any article focuses on initial trust, the role of trust in the acceptance and adoption of MB or behavioural intention to use MB must not be considered. As a result, 44 articles were excluded for different reasons. 25 articles were focused on acceptance and adoption of MB, 14 articles focused on behaviour intention towards the use of MB, 3 articles focused on initial trust only, and 2 articles focused on customer attitude towards MB. As a result, 15 articles were selected to be included in the research for further discussion and to identify the gaps related to trust impact on the post-adoption customer behaviour.

When reviewing the 15 articles that consider the impact of trust on customer behaviours in MB in the post-adoption stage, it can be noticed that trust has been investigated from many angles. In addition, there are some gaps in this research area that need to be bridged. Table 1 depicts the key studies included in the analysis of the trust research concerning MB post-adoption customer behaviour.

The majority of studies in Table 1 focused on very limited aspects of MB, while ignoring the characteristics of a functional MB scenario, for example, quality factors and security issues (Arcand, PromTep, Brun, & Rajaobelina, 2017; Berraies, Ben Yahia, & Hannachi, 2017; Lee & Chung, 2009; Malaquias & Hwang, 2017; Thakur, 2014). One such case is in the research of Malaquias and Hwang (2016) who as part of their MB research adopted a number of factors such as *Task Characteristics*, *Social Influence and Risk*, while not taking into consideration other important components of MB such as quality factors. In addition, Malaquias and Hwang (2017) investigated mainly the impacts of social influence, gender, age, personal innovativeness and value perspectives. Other researchers such as Susanto, Chang, and Ha (2016) focused only on privacy, security factors and MB usefulness, while neglecting the other characteristics of the MB system. Thus, we argue that this paper is the first to take a holistic view and investigate components of satisfaction as part of MB.

Other research in this area argues that customer satisfaction is an outcome of trust (Liébana-Cabanillas et al., 2017; Sampaio et al., 2017), while others mix trust with its antecedents. One such example is the work of Sharma and Sharma (2019), who investigated trust as one antecedent influencing satisfaction and intention to use with other antecedents such as system quality and

Figure 3. A systematic literature review of trust research in MB



information quality. This approach muddies the waters slightly and can confuse the issue in terms of trust and satisfaction.

The authors' research and analysis of the literature make clear that there is no definitive and finalised consensus regarding trust concept in MB. This lack of clarity provides researchers with a significant amount of freedom to investigate this area at length and through problematization to identify issues and research gaps. Thus, based on this, the researchers argue that there are no studies that comprehensively investigate the factors that influence trust in the post-adoption stage of MB. This the authors argue, is a gap in the research, and the authors propose in this paper the understanding of the trust concept in MB by investigating the definitions, dimensions of trust. This is important for a number of reasons, McKnight and Chervany (2001) highlight the need for a consistent conceptualisation of trust in e-commerce contexts. This can enable scholars to communicate effectively with practitioners to offer them a practical solution for trust issues. Therefore, this paper aims to conceptualise trust in MB based on trust concept in e-commerce and to identify the factors that influence trust and in turn, customer satisfaction with MB.

Table 1. Key studies included the analysis of the trust research in MB

Study	Knowledge Gap/Contribution	Trust Antecedents	Trust Outcome	Theory used	Theoretical Limitations
(Lee & Chung, 2009)	Investigating the impacts of system quality and service quality on trust and satisfaction.	System quality and information quality	Satisfaction	D&M model	The study variables do not reflect the characteristics of the mobile environment.
(Thakur, 2014)	Characterising satisfaction and loyalty in MB.	N/A	Loyalty	trust – commitment theory	Other factors might affect customers' perception of trust in MB need to be further explored.
(Malaquias & Hwang, 2016)	Analysing the determinants of trust in MB.	Risk, age, gender, task characteristics, personal innovativeness and social influence	N/A	N/A	Further research is needed to investigate trust in MB.
(Susanto et al., 2016)	Investigating the determinants of continuance intention to use MB.	users' confirmation after the initial use of MB, Perceived security, perceived usefulness	Satisfaction	Expectation Disconfirmation Theory (EDT)	N/A
(Sampaio, Ladeira, & Santini, 2017)	Examining the moderating role of perceived justice in the relationship between the benefits of MB and the consequences of satisfaction with MB.	Satisfaction	N/A	The theory of justice	N/A
(Malaquias & Hwang, 2017)	Analysing the relationship between trust in MB and hedonic/utilitarian perspective values.	Utilitarian value of mobile devices, social influence, gender and personal innovativeness	N/A	N/A	different measurement methods are needed to evaluate hedonic and utilitarian perspective values
(Liébana-Cabanillas, Alonso-Dos-Santos, Soto-Fuentes, & Valderrama-Palma, 2017)	Determining the variables of loyalty in MB	Satisfaction	loyalty	N/A	other precedents can be added such as security and privacy
(Berraies et al., 2017)	Identifying the effects of perceived values of MB on customers trust, satisfaction and loyalty.	quality, price and emotional perceived values	Satisfaction and loyalty	N/A	Other variables are needed to investigate trust in MB, such as service quality. Further research to examine the mediating effect of trust and satisfaction
(Arcand et al., 2017)	Investigating the multidimensional concept of MB service quality and its impact on the relationship with customers.	Security/ Privacy and Practice.	Commitment and satisfaction	Trust commitment theory	N/A
(Trabelsi-Zoghalmi, Berraies, & Ben Yahia, 2018)	Understanding how customers evaluate mobile service quality in the context of MB.	Security/privacy, reliability and ease of use	Satisfaction and loyalty	N/A	Other variables can be considered to provide a better understanding of the study model
(Sharma & Sharma, 2019)	Understanding the actual usage of MB.	N/A	Satisfaction and intention to use	D&M model	N/A
(Poromatikul, De Maeyer, Leelapanyalert, & Zaby, 2019)	Examining the determinants of continuance intention to MB apps.	N/A	Continuance intention Satisfaction Perceived value	ECSI model	N/A
(Komulainen & Saraniemi, 2019)	Understanding user experience and related value of a new MB service.	N/A	Customer experience	N/A	N/A
(Malaquias & Hwang, 2019)	Comparing the determinants of MB use between Brazil and the US.	N/A	MB USE	TAM model	Inclusion of other constructs in the model.
(Mostafa, 2020)	Investigating the impact of the MB quality dimensions on customers' value co-creation intention.	N/A	Customer value co-creation intention	TAM model and (S-D) logic	Other moderating variables such as gender and social presence can be investigated

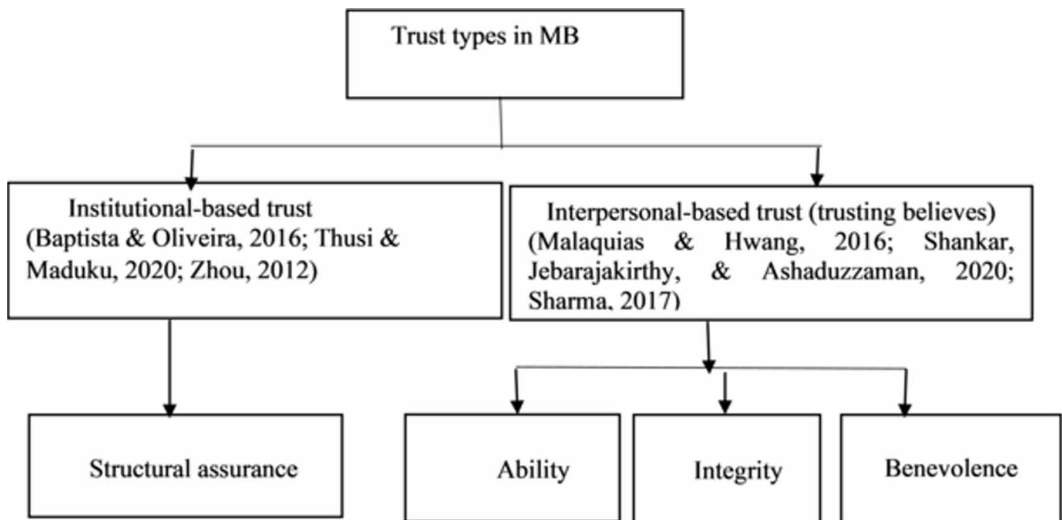
Types of Trust in MB

So far, this paper has emphasised the importance of trust as a critical factor in the success of most e-commerce services, such as MB. However, there is no consensus regarding trust's concept, antecedents and outcomes. This paper argues that this has come to fruition since the majority of trust

studies in MB are empirical, that narrow the conceptualisations to fit their type of research (McKnight & Chervany, 2001). In order to understand the factors that affect trust in MB, it is crucial to investigate the definitions and dimensions of trust and clarify the conditions in which trust will exist.

Due to its multidimensional characteristic and complexity, trust can be investigated from many perspectives and applied to several contexts (Mayer, Davis, & Schoorman, 1995). In the online environment, trust is considered as the key predictor that influences customer behaviour on the Internet (Gefen, Karahanna, & Straub, 2003; Liu, Lee, Liu, & Chen, 2018; McKnight, Choudhury, & Kacmar, 2002). The fundamental determinants of trust are the state of being vulnerable to the actions of other parties (Gefen, 2002; Jarvenpaa, Tractinsky, & Vitale, 2000; Mayer et al., 1995) and the expectation that the other party will behave in the interest of the trusting party (Rousseau, Sitkin, Burt, & Camerer, 1998; Yousafzai et al., 2003). As part of this paper and after reviewing trust literature in e-commerce, two key trust types are highlighted which this paper argues are essential aspects of building trust in MB; these are institutional-based trust and interpersonal-based trust. Figure 4 illustrates these two

Figure 4. Proposed trust types in MB



types and their dimensions in the MB context.

Institutional-Based Trust

Institutional-based trust is derived from sociology, and it is associated with the uncertainty related to the interchange process within and between institutions and on the behaviour that the individual expects from others (Doney, Cannon, & Mullen, 1998). This aspect of trust seems to be most relevant for understanding customer trust in MB as it deals with uncertain situations such as transactions and the trust-related behaviours here is determined by factors in the environment or the situation (McKnight & Chervany, 2001; Yousafzai et al., 2003). Institutional-based trust is based on two dimensions, namely situational normality and structural assurance. Situational normality refers to “one believes that the situation in a venture is normal or favourable or conducive to situational success” (McKnight & Chervany, 2001, p. 48). However, trust factors in information systems are manifold due to the differences in the technology used, target customers and the situation in each system (Moon & Kim, 2001). Hence MB’s customers cannot easily assess whether the MB application follows the normal procedures like other banks’ MB applications. In addition, researchers have proved that

situational normality cannot influence trust in MB (Gu et al., 2009). Therefore, situation normality is not considered in this paper.

Structural assurance, on the other hand, has been considered as a strong preceding of customer trust in the internet environment (Gefen et al., 2003). Structural assurance refers to individuals' beliefs that structures such as "guarantees, contracts, regulations, promises, legal recourse, processes, or procedures are in place that are conducive to situational success" (McKnight & Chervany, 2001, p. 48). Hence, structural assurance is considered in this paper as the main dimension of the institutional-based trust.

Interpersonal-Based Trust

This social psychology perspective of trust sees trust as it is the relationship that brings together the trustor and trustee and the risks related to this relationship (McKnight & Chervany, 2001). Researchers classified interpersonal-based trust into two categories, namely emotional trust and cognitive trust (Lewis & Weigert, 1985). Emotional trust refers to the trustor's confidence regarding security and convenience in relying on a specific trustee (Johnson & Grayson, 2005). Rempel, Holmes, and Zanna (1985) argue that emotional trust can only be developed if the relationship between the trustor and trustee is personal such as in the organisational contexts. However, this relationship does not exist in the e-finance contexts such as MB, and thus for the purposes of this paper the emotional trust will not be investigated in this paper.

Cognitive trust is also called trusting beliefs which refers to trustor's perceptions of the desirable characteristics of the trustee. It can be built if a trustor identifies rational reasons behind a relationship (Johnson & Grayson, 2005; Moorman, Zaltman, & Deshpande, 1992). For example, in the field of information systems, such as the MB system, customers' cognitive trust can be developed if they believe that MB has the essential qualities to deliver banking services through smartphones. Three dimensions have frequently been used to investigate trusting beliefs in the e-commerce literature and particularly e-finance, namely ability, integrity and benevolence (Mayer et al., 1995). These three dimensions can interpret the trustworthiness of banks in offering MB services.

Ability or competence in MB refers to customers' perception that the bank has capabilities such as skills and competencies to provide services conveniently and properly to meet their needs (Lin, 2011). This perception, in turn, can reduce customers' uncertainty and increase customer trust towards MB (McKnight & Chervany, 2001). Integrity indicates "the trustor's perception that the trustee adheres to a set of principles that the trustor finds acceptable" (Mayer & Davis, 1999, p. 124). Integrity in MB can be described as customers' belief that their bank provides them with timely and accurate information and fulfils its obligations (Yu et al., 2015). The term benevolence is generally understood to mean the trustor's belief that the trustee is willing to act in the trustor's best interest, not just its benefits (Mayer et al., 1995). For example, when customers feel that their bank supports them and does not behave opportunistically, they will be motivated to trust and continuously use its services (Malaquias & Hwang, 2016).

Finally, in addition to institutional-based trust and interpersonal-based trust, personality-based trust was identified (disposition to trust). This trust concept is derived from psychology (McKnight & Chervany, 2001). This type of trust is especially important for the formation of initial trust and becomes less important for established trust relationships or pre-existing trust beliefs (Luo, Li, Zhang, & Shim, 2010). In addition, it is challenging to predict user behaviours in the MB context due to that users are different concerning their willingness to trust (Mayer et al., 1995). Therefore, this type of trust is not considered in this paper.

Movement Towards a Cross-Disciplinary Framework

Based on the previous arguments regarding trust concepts in e-commerce, this research proposes that trust in MB is the willingness of customers to undertake banking using mobile Internet, expecting that the bank will keep its promises and fulfil its obligations (Yousafzai et al., 2003). As discussed, this

paper adopts the institutional-based trust and interpersonal-based trust perspectives to conceptualise trust in MB. Therefore, structural assurance is considered to represent the institutional-based trust. Besides, system quality, information quality and service quality represent the interpersonal-based trust. This paper argues that these three factors can reflect the ability and integrity of MB to provide customers with convenient banking services and useful banking information. Thus, trust plays a critical role between these four factors and customer satisfaction.

In addition to the four factors in the framework, task characteristics is added as a moderator factor that can affect the relationships between the independent variables and trust. Task characteristics represents the benevolence of the bank to act in the best interest of their customers, not only its interest. The following subsections discuss the previous factors in further detail and provide a theoretical basis for selecting them in this paper:

Structural assurance: based on the discussion in conceptualising trust in MB, structural assurance is used in this paper as the main dimension of the institutional-based trust. Structural assurance has been proven as a critical contributor in building users' overall trust in the online business setting, where there are uncertain situations (Pavlou & Gefen, 2004). Within the MB context, structural assurance is a key element that implies that favourable conditions such as security and privacy are in place so customers can feel protected (Oliveira et al., 2014). Compared to online banking, MB is built on wireless networks that may be perceived as more vulnerable to information interception. Therefore, in addition to the previous conditions regarding the online settings, structural assurance in MB involves procedures related to the wireless Internet such as encryption to ensure the success of transactions (Luo et al., 2010). Thus, if there exist enough structural assurances such as certification and regulations to ensure privacy and security, users can build their trust in MB because they may transfer their trust in these third-party mechanisms to MB. Hence, building trust in MB can result in achieving a high level of customer satisfaction. Prior research has found that structural assurance has a significant impact on the adoption and use of MB (Baptista & Oliveira, 2016; Oliveira et al., 2014; Zhou, 2012). This paper argues that in the MB context, the consideration of structural assurance can play an important role in enhancing customer satisfaction. Thus, this paper includes structural assurance in the conceptual framework to investigate overall trust in MB and the mediating effect of trust between structural assurance and customer satisfaction.

System quality: The concept of system quality in the information systems was explained by DeLone and McLean (1992) as the users' perceptions regarding the quality of the overall performance of a particular system. The importance of system quality in MB has been supported by several researchers who confirmed that systems quality has a significant influence on customer behaviour towards MB (Baabdullah et al., 2019; Motiwalla, Albashrawi, & Kartal, 2019; Tam & Oliveira, 2017b). Examples of the required capabilities in the MB system are ease of use, good navigation, good accessibility and attractive vision (Zhou, 2012). Thus, if customers perceive that the MB system has high-quality capabilities, they will develop trust in the MB system's ability, integrity and will be willing to transact using this system (Choudrie et al., 2018; Motiwalla et al., 2019). Based on the conceptualisation of trust in MB, system quality is considered in the study model to investigate its influence on the overall trust in MB and in turn, satisfaction.

Information quality: The influence of information quality on consumer behaviour in MB has been proved by many researchers (Motiwalla et al., 2019; Oliveira, Alhinho, Rita, & Dhillon, 2017). Information quality includes the desirable characteristics such as accuracy, timeliness and relevance of MB system (Trabelsi-Zoghalmi et al., 2018). As a result of the lack of experience, customers may need to depend on their perceptions of the quality of the information to build their trust in MB (Zhou, 2011). If the customer gains valuable banking information through MB, they may build trust in MB services, which, in turn, increase customer satisfaction with MB (Sharma & Sharma, 2019). This paper considers information quality as one of the main factors that can explain trust in MB and the mediating impact of trust on customer satisfaction. Investigating the influence of information quality can provide a better understanding of the impact of the overall trust on consumer behaviour in MB.

Service quality: this factor reflects the promptness, reliability, personalisation and assurance for a specific service (Gefen, 2002). In the MB context, customers always expect to obtain high-quality banking services using MB. To fulfil these expectations, banks are forced to continuously invest funds and efforts to enhance the quality of MB services (Choudrie et al., 2018). If customers gain quality services, for example, prompt, reliable, professional and personalised services using MB, they will perceive MB as it has a good ability to provide them with high-quality banking services (Lee & Chung, 2009; Zhou, 2013). This, in turn, will result in achieving a high level of trust which will be translated in enhancing customer satisfaction level (Gao & Waechter, 2017; Sharma & Sharma, 2019). Researchers have used service quality frequently to investigate the adoption and use of MB (Lee & Chung, 2009; Sharma & Sharma, 2019; Zhou, 2013). In this paper, service quality is added to the research model as an independent variable that influences trust and customer satisfaction via trust.

Task characteristics: The characteristics of technology are “computer systems (hardware, software, and data) and user support services (training, help lines, etc.) provided to assist users in their tasks” (Goodhue & Thompson, 1995, p. 216). These characteristics can influence behaviour and perception of users concerning new services and technology. Technology will positively influence the performance of customers when they perceive this technology as supportive that helps them with their daily tasks (Goodhue & Thompson, 1995). Similarly, in the MB context, the characteristics of tasks in the MB context can affect customer trust and satisfaction. Customers who need to check their account balance, manage their accounts at any time, and to transfer funds anytime and anywhere, tend to trust MB (Malaquias & Hwang, 2016).

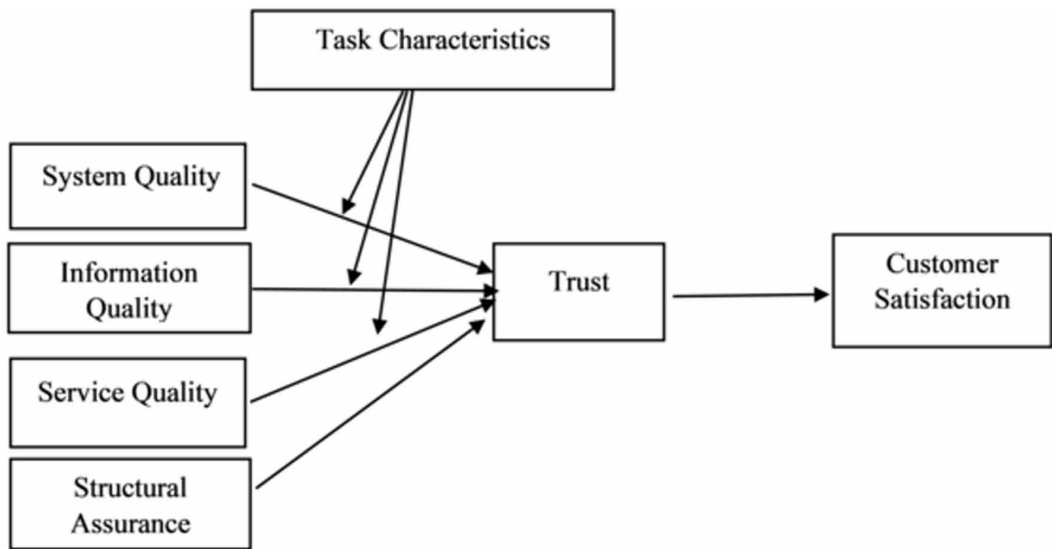
This paper argues that task characteristics can be used as a measure of the benevolence of MB as it deals with the support customers receive from the bank regarding their needs and interests. Task characteristics has been confirmed as an incentive, which encourages individuals to adopt MB (Baabdullah et al., 2019; Oliveira et al., 2014; Zhou, Lu, & Wang, 2010). However, in this paper, task characteristics is acting as a moderator can affect the potential positive relationships between the three quality factors in the model and trust. This is because task characteristics embodies the assurance that the bank will always act in the best interests of its customers. This can provide an understanding of the influence of task characteristics on consumer behaviour in the post-adoption stage.

Using the information system success model, the proposed conceptual framework of this paper includes trust as a mediator which forms customer satisfaction with MB. Structural assurance, system quality and service quality, information quality are independent variables added to measure trust and its impact on customer satisfaction. In addition, task characteristics is a moderator that affects the relationships between the three quality factors in the model and customer satisfaction. The proposed conceptual model is depicted in Figure 5.

DISCUSSION

This paper provides two significant contributions to knowledge to bridge the gaps identified in the MB literature regarding the role of trust in the post-adoption stage and its influence on consumer behaviour. This paper aimed to answer two key questions, which were RQ1. How can trust be conceptualised in MB? RQ2. What are the key factors which influence user trust and satisfaction in MB? Before answering the RQ2, it was important to understand how trust in MB can be conceptualised as there is no consensus concerning the dimensions and antecedents of trust in MB. In meeting the requirements of RQ1, this paper analysed the concept of trust in e-commerce to conceptualise trust in MB. Taking into consideration the features and functions of MB, this paper identified two types of trust that can explain trust in MB, namely institutional-based trust and interpersonal-based trust. Structural assurance is considered to represent the institutional-based trust. In addition, interpersonal-based trust was represented by three dimensions (ability, integrity and benevolence). These dimensions are used to evaluate customers' perceptions of the characteristics of MB and how these perceptions can influence trust.

Figure 5. Mobile banking trust and satisfaction model



For RQ2, this paper identified five key factors that influence trust in MB and, in turn, customer satisfaction. This paper argued that system quality, information quality, service quality are the three factors that assess the characteristics of MB, which reflect customers' perception of the ability and integrity of MB to provide banking services properly and conveniently, leading to a high level of trust and satisfaction. This is consistent with other prior research which links these three quality factors to trust (Gao & Waechter, 2017; Lee & Chung, 2009; Zhou, 2011, 2012). In addition, task characteristics reflects the benevolence of MB and will positively affect the relationships between the three quality factors and trust as MB users need to feel that they are a priority when the bank designs and delivers banking services through MB. This can enhance their perception of the MB characteristics, resulting in building trust in MB. Furthermore, structural assurance explains the institutional-based trust in MB. It evaluates customers' perceptions regarding the privacy and security of MB, which can affect trust. This agrees with other researchers who have found that structural assurance is a key factor influencing initial trust in MB (Gu et al., 2009; Zhou, 2011, 2012). However, this paper considers the impact of structural assurance on trust in the post-adoption stage and its impact on customer satisfaction through trust.

CONCLUSION AND IMPLICATIONS

As part of this paper, trust has been defined as a vital component to the online business environment; building customer trust can impact user behaviours in several respects. This paper reviewed the literature of trust in e-commerce and MB to propose a conceptual framework of customer trust and satisfaction in MB. The framework presents the significant relationship between trust and customer satisfaction. This paper, through the work of DeLone and McLean (2003), provides insights into the role of system quality, information quality, service quality and structural assurance in trust and satisfaction in MB. This paper also highlights the moderator role of task characteristics between the quality factors and trust.

Examining the hypotheses that can be formulated from the conceptual model of this research will contribute to a deep understanding of the role of trust in the formation of customer satisfaction with MB. A further advantage of this conceptual model is its potential to provide a framework for

MB practitioners to identify the antecedents of trust that need more attention in order to enhance customer trust and thus increase the customer satisfaction level. This is a crucial first step towards empirical research which can be developed through the implementation of rigorous hypothesis. In addition, these investigations can reveal further research gaps about how banks can enhance customers' perception regarding MB characteristics that shape trust and, subsequently, satisfaction. Research is also needed to apply this model in developing and developed countries to identify the differences regarding customer behaviour in MB.

Conflicts of Interest

We wish to confirm that there are no known conflicts of interest associated with this publication and there has been no significant financial support for this work that could have influenced its outcome.

Funding Statement

No funding was received for this work.

Process Dates:

Received: January 7, 2020, Revision: December 4, 2020, Accepted: January 25, 2021

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REFERENCES

- Alalwan, A. A., Dwivedi, Y. K., & Rana, N. P. (2017). Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust. *International Journal of Information Management*, 37(3), 99–110. doi:10.1016/j.ijinfomgt.2017.01.002
- Arcand, M., PromTep, S., Brun, I., & Rajaobelina, L. (2017). Mobile banking service quality and customer relationships. *International Journal of Bank Marketing*, 35(7), 1068–1089. doi:10.1108/IJBM-10-2015-0150
- Baabdullah, A. M., Alalwan, A. A., Rana, N. P., Kizgin, H., & Patil, P. (2019). Consumer use of mobile banking (M-Banking) in Saudi Arabia: Towards an integrated model. *International Journal of Information Management*, 44, 38–52. doi:10.1016/j.ijinfomgt.2018.09.002
- Baptista, G., & Oliveira, T. (2016). A weight and a meta-analysis on mobile banking acceptance research. *Computers in Human Behavior*, 63, 480–489. doi:10.1016/j.chb.2016.05.074
- Berraies, S., Ben Yahia, K., & Hannachi, M. (2017). Identifying the effects of perceived values of mobile banking applications on customers: Comparative study between baby boomers, generation X and generation Y. *International Journal of Bank Marketing*, 35(6), 1018–1038. doi:10.1108/IJBM-09-2016-0137
- Business Insider. (2019). *The disruptive digital trends transforming banking services in 2020*. Retrieved from <https://www.businessinsider.com/digital-banking?r=US&IR=T>
- Business Insider. (2020). *These are the top 5 UK financial institutions ranked by the mobile banking features consumers value most*. Retrieved from <https://www.businessinsider.com/uk-mobile-banking-survey-2020?r=US&IR=T>
- Choudrie, J., Junior, C.-O., McKenna, B., & Richter, S. (2018). Understanding and conceptualising the adoption, use and diffusion of mobile banking in older adults: A research agenda and conceptual framework. *Journal of Business Research*, 88, 449–465. doi:10.1016/j.jbusres.2017.11.029
- Deloitte. (2019). *The value of online banking channels in a mobile-centric world*. Retrieved from <https://www2.deloitte.com/us/en/insights/industry/financial-services/online-banking-usage-in-mobile-centric-world.html>
- DeLone, W. H., & McLean, E. R. (1992). Information Systems Success: The Quest for the Dependent Variable. *Information Systems Research*, 3(1), 60–95. doi:10.1287/isre.3.1.60
- DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. *Journal of Management Information Systems*, 19(4), 9–30. doi:10.1080/07421222.2003.11045748
- Doney, P. M., Cannon, J. P., & Mullen, M. R. (1998). Understanding the Influence of National Culture on the Development of Trust. *Academy of Management Review*, 23(3), 601–620. doi:10.5465/amr.1998.926629
- Ege Oruç, Ö., & Tatar, Ç. (2017). An investigation of factors that affect internet banking usage based on structural equation modeling. *Computers in Human Behavior*, 66, 232–235. doi:10.1016/j.chb.2016.09.059
- Gao, L., & Waechter, K. A. (2017). Examining the role of initial trust in user adoption of mobile payment services: An empirical investigation. *Information Systems Frontiers*, 19(3), 525–548. doi:10.1007/s10796-015-9611-0
- Geebren, A., Jabbar, A., & Luo, M. (2021). Examining the role of consumer satisfaction within mobile eco-systems: Evidence from mobile banking services. *Computers in Human Behavior*, 114, 106584. Advance online publication. doi:10.1016/j.chb.2020.106584
- Gefen, D. (2002). Nurturing clients' trust to encourage engagement success during the customization of ERP systems. *Omega*, 30(4), 287–299. doi:10.1016/S0305-0483(02)00032-4
- Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in Online Shopping: An Integrated Model. *Management Information Systems Quarterly*, 27(1), 51–90. doi:10.2307/30036519
- Goodhue, D. L., & Thompson, R. L. (1995). Task-Technology Fit and Individual Performance. *Management Information Systems Quarterly*, 19(2), 213–236. doi:10.2307/249689
- Gu, J.-C., Lee, S.-C., & Suh, Y.-H. (2009). Determinants of behavioral intention to mobile banking. *Expert Systems with Applications*, 36(9), 11605–11616. doi:10.1016/j.eswa.2009.03.024

- Jarvenpaa, S. L., Tractinsky, N., & Vitale, M. (2000). Consumer trust in an Internet store. *Information Technology and Management, 1*(1-2), 45–71. doi:10.1023/A:1019104520776
- Johnson, D., & Grayson, K. (2005). Cognitive and affective trust in service relationships. *Journal of Business Research, 58*(4), 500–507. doi:10.1016/S0148-2963(03)00140-1
- Kim, G., Shin, B., & Lee, H. G. (2009). Understanding dynamics between initial trust and usage intentions of mobile banking. *Information Systems Journal, 19*(3), 283–311. doi:10.1111/j.1365-2575.2007.00269.x
- Komulainen, H., & Saraniemi, S. (2019). Customer centricity in mobile banking: A customer experience perspective. *International Journal of Bank Marketing, 37*(5), 1082–1102. doi:10.1108/IJBM-11-2017-0245
- Lee, K. C., & Chung, N. (2009). Understanding factors affecting trust in and satisfaction with mobile banking in Korea: A modified DeLone and McLean's model perspective. *Interacting with Computers, 21*(5-6), 385–392. doi:10.1016/j.intcom.2009.06.004
- Lewis, J. D., & Weigert, A. (1985). Trust as a social reality. *Social Forces, 63*(4), 967–985. doi:10.2307/2578601
- Liébana-Cabanillas, F., Alonso-Dos-Santos, M., Soto-Fuentes, Y., & Valderrama-Palma, V. A. (2017). Unobserved heterogeneity and the importance of customer loyalty in mobile banking. *Technology Analysis and Strategic Management, 29*(9), 1015–1032. doi:10.1080/09537325.2016.1262021
- Lin, H.-H., Wang, Y.-S., Li, C.-R., Shih, Y.-W., & Lin, S.-J. (2017). The Measurement and Dimensionality of Mobile Learning Systems Success: Two-Stage Development and Validation. *Journal of Educational Computing Research, 55*(4), 449–470. doi:10.1177/0735633116671324
- Lin. (2011). An empirical investigation of mobile banking adoption: The effect of innovation attributes and knowledge-based trust. *International Journal of Information Management, 31*(3), 252-260. 10.1016/j.ijinfomgt.2010.07.006
- Liu, L., Lee, M. K., Liu, R., & Chen, J. (2018). Trust transfer in social media brand communities: The role of consumer engagement. *International Journal of Information Management, 41*, 1–13. doi:10.1016/j.ijinfomgt.2018.02.006
- Luo, X., Li, H., Zhang, J., & Shim, J. P. (2010). Examining multi-dimensional trust and multi-faceted risk in initial acceptance of emerging technologies: An empirical study of mobile banking services. *Decision Support Systems, 49*(2), 222–234. doi:10.1016/j.dss.2010.02.008
- Malaquias, R. F., & Hwang, Y. (2016). An empirical study on trust in mobile banking: A developing country perspective. *Computers in Human Behavior, 54*, 453–461. doi:10.1016/j.chb.2015.08.039
- Malaquias, R. F., & Hwang, Y. (2017). Mixing business and pleasure: Empirical implications for trust in mobile banking. *Journal of Electronic Commerce Research, 18*(3), 212–224.
- Malaquias, R. F., & Hwang, Y. (2019). Mobile banking use: A comparative study with Brazilian and U.S. participants. *International Journal of Information Management, 44*, 132–140. doi:10.1016/j.ijinfomgt.2018.10.004
- Mayer, R. C., & Davis, J. H. (1999). The effect of the performance appraisal system on trust for management: A field quasi-experiment. *The Journal of Applied Psychology, 84*(1), 123–136. doi:10.1037/0021-9010.84.1.123
- Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An Integrative Model of Organizational Trust. *Academy of Management Review, 20*(3), 709–734. doi:10.5465/amr.1995.9508080335
- McKnight, D. H., & Chervany, N. L. (2001). What Trust Means in E-Commerce Customer Relationships: An Interdisciplinary Conceptual Typology. *International Journal of Electronic Commerce, 6*(2), 35–59. doi:10.1080/10864415.2001.11044235
- McKnight, D. H., Choudhury, V., & Kacmar, C. (2002). Developing and Validating Trust Measures for e-Commerce: An Integrative Typology. *Information Systems Research, 13*(3), 334–359. doi:10.1287/isre.13.3.334.81
- Mohammadi, H. (2015). A study of mobile banking loyalty in Iran. *Computers in Human Behavior, 44*, 35–47. doi:10.1016/j.chb.2014.11.015

- Moon, J.-W., & Kim, Y.-G. (2001). Extending the TAM for a World-Wide-Web context. *Information & Management*, 38(4), 217–230. doi:10.1016/S0378-7206(00)00061-6
- Moorman, C., Zaltman, G., & Deshpande, R. (1992). Relationships between Providers and Users of Market Research: The Dynamics of Trust within and between Organizations. *JMR, Journal of Marketing Research*, 29(3), 314–328. doi:10.1177/002224379202900303
- Mostafa, R. B. (2020). Mobile banking service quality: A new avenue for customer value co-creation. *International Journal of Bank Marketing*, 38(5), 1107–1132. doi:10.1108/IJBM-11-2019-0421
- Motiwalla, L. F., Albashrawi, M., & Kartal, H. B. (2019). Uncovering unobserved heterogeneity bias: Measuring mobile banking system success. *International Journal of Information Management*, 49, 439–451. doi:10.1016/j.ijinfomgt.2019.07.005
- Nicholson, J., LaPlaca, P., Al-Abdin, A., Breese, R., & Khan, Z. (2018). What do introduction sections tell us about the intent of scholarly work: A contribution on contributions. *Industrial Marketing Management*, 73, 206–219. doi:10.1016/j.indmarman.2018.02.014
- Oliveira, T., Alinho, M., Rita, P., & Dhillon, G. (2017). Modelling and testing consumer trust dimensions in e-commerce. *Computers in Human Behavior*, 71, 153–164. doi:10.1016/j.chb.2017.01.050
- Oliveira, T., Faria, M., Thomas, M. A., & Popovič, A. (2014). Extending the understanding of mobile banking adoption: When UTAUT meets TTF and ITM. *International Journal of Information Management*, 34(5), 689–703. doi:10.1016/j.ijinfomgt.2014.06.004
- Pavlou, P. A., & Gefen, D. (2004). Building Effective Online Marketplaces with Institution-Based Trust. *Information Systems Research*, 15(1), 37–59. doi:10.1287/isre.1040.0015
- Poromatikul, C., De Maeyer, P., Leelapanyalert, K., & Zaby, S. (2019). Drivers of continuance intention with mobile banking apps. *International Journal of Bank Marketing*, 38(1), 242–262. doi:10.1108/IJBM-08-2018-0224
- Rempel, J. K., Holmes, J. G., & Zanna, M. P. (1985). Trust in close relationships. *Journal of Personality and Social Psychology*, 49(1), 95–112. doi:10.1037/0022-3514.49.1.95 PMID:11474726
- Rousseau, D. M., Sitkin, S. B., Burt, R. S., & Camerer, C. (1998). Not so different after all: A cross-discipline view of trust. *Academy of Management Review*, 23(3), 393–404. doi:10.5465/amr.1998.926617
- Sampaio, C. H., Ladeira, W. J., & Santini, F. D. O. (2017). Apps for mobile banking and customer satisfaction: A cross-cultural study. *International Journal of Bank Marketing*, 35(7), 1133–1153. doi:10.1108/IJBM-09-2015-0146
- Sandberg, J., & Alvesson, M. J. O. (2011). *Ways of constructing research questions: gap-spotting or problematization?* Academic Press.
- Sharma, S. K. (2017). Integrating cognitive antecedents into TAM to explain mobile banking behavioral intention: A SEM-neural network modeling. *Information Systems Frontiers*, 1–13. doi:10.1007/s10796-017-9775-x
- Sharma, S. K., & Sharma, M. (2019). Examining the role of trust and quality dimensions in the actual usage of mobile banking services: An empirical investigation. *International Journal of Information Management*, 44, 65–75. doi:10.1016/j.ijinfomgt.2018.09.013
- Susanto, A., Chang, Y., & Ha, Y. (2016). Determinants of continuance intention to use the smartphone banking services: An extension to the expectation-confirmation model. *Industrial Management & Data Systems*, 116(3), 508–525. doi:10.1108/IMDS-05-2015-0195
- Tam, C., & Oliveira, T. (2016). Understanding the impact of m-banking on individual performance: DeLone & McLean and TTF perspective. *Computers in Human Behavior*, 61, 233–244. doi:10.1016/j.chb.2016.03.016
- Tam, C., & Oliveira, T. (2017a). Literature review of mobile banking and individual performance. *International Journal of Bank Marketing*, 35(7), 1044–1067. doi:10.1108/IJBM-09-2015-0143
- Tam, C., & Oliveira, T. (2017b). Understanding mobile banking individual performance: The DeLone & McLean model and the moderating effects of individual culture. *Internet Research*, 27(3), 538–562. doi:10.1108/IntR-05-2016-0117

- Tan, E., & Leby Lau, J. (2016). Behavioural intention to adopt mobile banking among the millennial generation. *Young Consumers*, 17(1), 18–31. doi:10.1108/YC-07-2015-00537
- Thakur, R. (2014). What keeps Mobile Banking Customers Loyal? *International Journal of Bank Marketing*, 32(7), 628–646. doi:10.1108/IJBM-07-2013-0062
- Trabelsi-Zoghalmi, A., Berraies, S., & Ben Yahia, K. (2018). Service quality in a mobile-banking-applications context: Do users' age and gender matter? *Total Quality Management & Business Excellence*, 1–30. doi:10.1080/14783363.2018.1492874
- Wang, Y.-S. (2008). Assessing e-commerce systems success: A respecification and validation of the DeLone and McLean model of IS success. *Information Systems Journal*, 18(5), 529–557. doi:10.1111/j.1365-2575.2007.00268.x
- Wang, Y.-S., & Liao, Y.-W. (2008). Assessing eGovernment systems success: A validation of the DeLone and McLean model of information systems success. *Government Information Quarterly*, 25(4), 717–733. doi:10.1016/j.giq.2007.06.002
- Yousafzai, S., Pallister, J. G., & Foxall, G. R. (2003). A proposed model of e-trust for electronic banking. *Technovation*, 23(11), 847–860. doi:10.1016/S0166-4972(03)00130-5
- Yu, P. L., Balaji, M. S., & Khong, K. W. (2015). Building trust in internet banking: A trustworthiness perspective. *Industrial Management & Data Systems*, 115(2), 235–252. doi:10.1108/IMDS-09-2014-0262
- Zhou, T. (2011). An empirical examination of initial trust in mobile banking. *Internet Research*, 21(5), 527–540. doi:10.1108/10662241111176353
- Zhou, T. (2012). Understanding users' initial trust in mobile banking: An elaboration likelihood perspective. *Computers in Human Behavior*, 28(4), 1518–1525. doi:10.1016/j.chb.2012.03.021
- Zhou, T. (2013). An empirical examination of continuance intention of mobile payment services. *Decision Support Systems*, 54(2), 1085–1091. doi:10.1016/j.dss.2012.10.034
- Zhou, T., Lu, Y., & Wang, B. (2010). Integrating TTF and UTAUT to explain mobile banking user adoption. *Computers in Human Behavior*, 26(4), 760–767. doi:10.1016/j.chb.2010.01.013

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