

# HOW NOVELTY SEEKING SHAPES THE RELATION BETWEEN PERCEIVED USEFULNESS AND ATTITUDES TOWARDS THE MOBILE BANKING

IZVORNI ZNANSTVENI RAD/ ORIGINAL SCIENTIFIC PAPER

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**Autori/Authors:**

**VESNA BABIĆ-HODOVIĆ**  
PROFESSOR  
UNIVERSITY OF SARAJEVO  
SCHOOL OF ECONOMICS AND BUSINESS  
SARAJEVO, BOSNIA AND HERZEGOVINA  
VESNA.BABIC-HODOVIC@EFSA.UNSA.BA

**MAJA ARSLANAGIĆ-KALAJDŽIĆ**  
ASSISTANT PROFESSOR  
UNIVERSITY OF SARAJEVO  
SCHOOL OF ECONOMICS AND BUSINESS  
SARAJEVO, BOSNIA AND HERZEGOVINA  
MAJA.ARSLANAGIC@EFSA.UNSA.BA

**ABSTRACT**

In the banking sector, mobile banking is one in the most recent types of services introduced with an aim to retain customers. Trend of mobile banking development is strongly connected with the penetration of mobile devices in every-day life as well as with customers' behavior which is based on the transfer of activities from various spheres of their lives in virtual world. This study investigates how consumers' perceptions of mobile banking usefulness impacts the attitude towards mobile banking, conditioned by the level of novelty seeking expressed by that consumer. Based on services marketing and technology acceptance literature, we test these relationships on a sample of 581 mobile banking users. Results show that consumers' novelty seeking negatively moderates the positive relationship between perceived usefulness of the mobile banking and the attitude towards the mobile banking. Implications of the findings are considered, and the future research directions identified.

**KEY WORDS:** mobile banking, attitude towards the bank, novelty seeking, perceived usefulness.

**1. INTRODUCTION**

Technical development and increasing competition in financial sector influence on the transformation of financial services. This transformation causes development of strong connection between financial services and technological innovation. Concretely, focusing on a banking industry, new banking services and new channels are the most visible examples of this transformation. In example, Internet and mobile banking are types of electronic banking services which customer accept faster than other services. Innovation in telecommunications, escalation of wireless telecommunication and development of platform for providing services, as well as high level of mobile devices penetration, boost development of mobile value added services (Keen & Mackintosh, 2001). This makes mobile banking one of the most popular types of the new banking services.

New forms of banking services supported by technological development create challenges but also opportunities for banks and other financial companies. They have opened new area of competition on the one hand, while on the other hand created new alternatives for cost reduction and increasing customer satisfaction and consequently customer loyalty. Both categories, introducing technology in service providing and acceptance of new services, depend upon different factors related to customer personal traits.

Perceived usefulness and novelty seeking between potential customers have very important roles among others have crucial importance for technology innovation adoption and innovative services acceptance. Therefore, our study is focused on understanding these two important factors for new technology acceptance for the "innovators" and "early adopters" as key segments for innovation adoption and penetration (Rogers, 2003) – perceived usefulness and novelty seeking (Agarwal & Prasad, 1998; Davis, 1986; Robinson et al, 2005). We examine following research questions in this paper: How consumers' perceptions of mobile banking usefulness impacts the attitude towards mobile banking?,

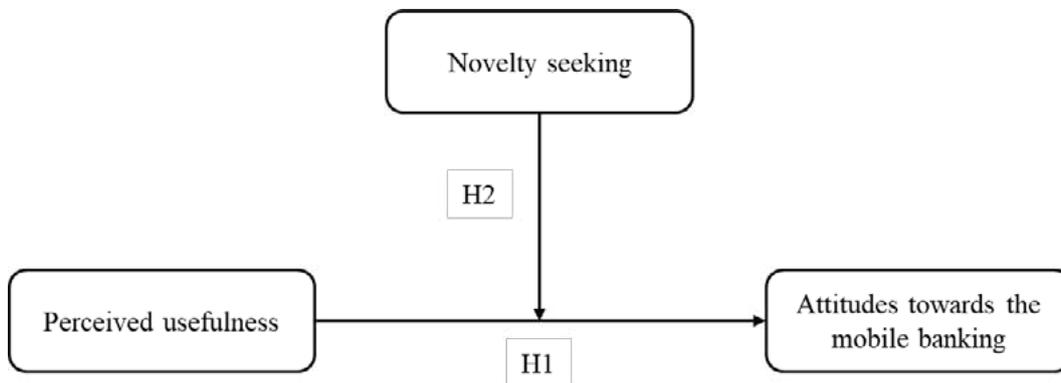
and How is the above relationship conditioned by the level of novelty seeking expressed by that consumer? Based on previously developed information systems acceptance models we suggest that customers' evaluation of perceived usefulness of mobile banking sector impacts the attitude toward mobile banking (Yoon & Steege, 2012). Furthermore, we examine novelty seeking as the personal trait of consumers as the moderator of the previously defined relations between perceived usefulness and attitudes regarding mobile banking services (Dabholkar & Bagozzi, 2002).

In the following parts of the paper we will present the conceptual framework of our research as well as the theoretical background. Furthermore, we will present the methodology for the empirical part of the study, as well as the results. Finally, we will discuss the findings and provide conclusions and further research directions.

## 2. CONCEPTUAL FRAMEWORK AND THEORETICAL BACKGROUND

Based on the assumptions of TAM model (Davis, 1989) and also expectations of potential consumers behavior regarding adoption of technological innovation in banking we develop a conceptual framework that is presented in Figure 1.

Figure 1: Conceptual framework



Source: Authors

Our aim is to explain and better understand customer attitude towards the mobile banking. Namely, attitude towards the new technology and new products or services has an important role in understanding customer's behavior and new offer acceptance (Pavlou, 2003; Smith et al, 2008). Hence it is considered as the very important antecedent towards customer adoption of new products or services that further lead towards the loyalty to the company. In the context of banking services, mobile banking attitudes can be viewed as attitudes toward mobile banking acceptance or continuous using mobile banking services.

According Schierz et al. (2010) and Davis (1989) attitudes of an individual has a significant dimension in influencing technology acceptance and using. Yang and Yoo (2004) suggest that attitudes are related to individual's intention and decision to use new technology. Thus, attitudes can be used to anticipate individual behavior since positive attitudes lead to acceptance and continuous using of mobile banking (Karjaluoto, Mattila & Pento 2002). In order to understand how elements of the conceptual framework are related in the model, we first analyze mobile banking in general and then relate perceived usefulness and novelty seeking to consumer attitudes towards the mobile banking.

### 2.1. Mobile banking

Authors often stress that mobile banking (m-banking) presents one of the most important strategic changes in retail banking in last few decades (e.g. Tam & Oliveira, 2017). Mobile banking creates possibilities for banks to offer new types of services and solutions for customers' problems. In combination with other bank channels, m-banking creates an excellent base for customer-centric approach and creates the opportunity for a customer to use banking services anytime from anywhere (Lee & Chung, 2009; Martins et al, 2014). Essentially, mobile banking and Internet banking offer the same transaction for users and they are often perceived as similar alternative of self-service channels (Thakur, 2014), still mobile banking increase customer independence and mobility (Shaikh & Krjaluoto, 2015).

An interest in acceptance of mobile banking exists on both sides of the relationships. Customers are enabled with better mobility, while banks capitalize on decreasing physical encounters, collecting new information and ultimately, lowering down their costs. That is, banks often encourage customers to switch to self-service technology mostly because of the

fact that online channels create benefits from cost savings and efficient cross-selling activities (Hoehle & Huff, 2012; Sharma & Govindaluri, 2014; Sharma et al, 2015). However, offering services through different channels (multi-channels or omni-channels) supports the development of strong relationships between customers and banks (Baptista & Oliveira, 2016; Komulainen & Makkonen, 2018; Laukkanen, 2007).

Authors offered a lot of definitions of mobile banking such as: channel through which customers interacts with a bank via mobile devices (Barnes & Corbitt, 2003); wireless service delivery channel providing increased value for customers' banking transactions (Laukkanen, 2007); subset of e-banking or online banking and refers to the shift of conducting financial transaction from wired networks to wireless networks (Kim, Chan & Gupta, 2007); innovative method for accessing banking services via a channel whereby the customer interacts with a bank via a mobile device (Luo et al, 2010); any form of banking transaction that is carried out through a mobile device (Koksal, 2016). After all Tam and Oliveira (2017, p 1046) proposed "broadly inclusive" definition: "*M-banking is a service or product offered by financial institutions that makes use of portable technologies.*" Zhou, Lu and Wang (2010) also suggest pretty wide definition where they explain it as the access to banking networks via wireless protocols that are used by mobile terminals.

Basically, technology development changed the paradigm of retail banking services with new services and new points of interaction between banks and customers (Ensor & Wannemacher, 2015). Thanks to mobility they have opportunity to customized services to the customers' wishes and requests on time and place they suggest (Floh & Treiblmaire, 2006). Furthermore mobile banking technology creates benefits: a) for the customer – reducing time and expenses by offering services to the customers without visiting a branch or phone calls to a bank's customer service center (Hoehle et al, 2012; Kim et al, 2007, 2009); b) for the bank – affording banks benefits as a result of attracting new customers and retaining current ones, but also cost savings (Hoehle & Huff, 2012).

When it comes to adoption of new technology, different authors suggest different antecedents: perceived usefulness (e.g. Hanafizadeha et al, 2014); novelty seeking and resistance to innovation as personal traits (e.g. Laukkanen et al., 2008); demographic factors (e.g. Amin et al, 2007; Laukkanen et al, 2007) and many others. Studies were focused on the impact that these factors have on the customer attitudes (e.g. Püschel et al, 2010), behavioral intention and usage (e. g. Luo et al, 2010). In the context of making decision about mobile banking acceptance, Hui-Yi (2014) suggests that decision to use a mobile banking services is usually personal decision rather than group decision, and that novelty seeking as a personal trait is relevant for favorable decision in this context.

When it comes to banks perspective, m-banking creates possibilities for increasing number of transactions between customers and banks, launching new services through cross-selling and up-selling in current service lines, improve service efficiency and cost effectiveness as well as increasing customer loyalty and satisfaction (Sharma & Govindaluri, 2014; Sharma et al, 2015). Furthermore, from the banks perspective m-banking have been transformed from being simply online banking to the point of differentiation and a source of potential revenue for proactive banks (Ensor & Wannemacher, 2015). It helps banks to attract potential customer and retain old ones both most important issues for their sustainability and success (Gu et al, 2009). However, all benefits and opportunities for customers or banks depend on the level of mobile banking adoption on the market which further depends on the customers' personal traits and factors affecting their behavior. Next sections include explanation of novelty seeking as customer trait and perceived usefulness as the relevant determinants of attitudes towards the mobile banking.

## 2.2. Perceived usefulness

Technological development causes a lot of changes between producers and providers in many industries, especially services. Innovations and new product and services are especially important for industries such as telecommunication, banking and IT software and solutions development. In that context customer perception of innovation usefulness and their interests for new technology are in the focus of this paper.

There are several different theoretical models that explain innovation and newness acceptance. Technology Acceptance Model (TAM) designed by Davis (1989) is one of the most known and applied theory in an area of information technology adoption. It is based on the Innovation Diffusion Theory (IDT) designed by Rogers (2003). TAM model includes two main factors affecting acceptance of new technology: perceived usefulness and perceive easy to use. Currently perceived usefulness seems to be more influencing factor for technology acceptance, since a lot of innovation launched last years are designed and created as very simple and user friendly options. That makes customers and users highly experienced, decreased their perception of risk and reluctance to new technology acceptance. So customers in 21st century are ready to use technological innovation without thinking of innovation complexity and challenges in their using. This is one of reasons why this study is focused on perception of usefulness but not on perception of ease to use.

In the context of technology acceptance Davis (1989, p 320) defined perceive usefulness “*as the degree to which a person believes that using a particular technology-based service will enhance his or her job performances*”. Other authors also discuss impacts of usefulness on an individual’s professional performances more than personal lives and values (Rauniar et al., 2014). As a consequence, it has been recognized as an important factor related to the attitudes towards new technology acceptance (Bhatti, 2007; Kim et al, 2007; Laforet & Li, 2005) as well as its positive relations with attitudes towards various types of mobile services (Bhatti, 2007; Chau & Lai, 2003; Kim et al, 2007; Venkatesh, 2000; Venkatesh & Morris, 2000).

This definition applied to mobile banking acceptance understands perceived usefulness related to the m-banking as the mean for bank services usage. Previous studies found that perceived usefulness influence the intention to shop online (Tong, 2010) and present one of the most important dimensions affecting consumers’ online experience (Chen & Barnes, 2007). Furthermore, perceived usefulness has significant effect on the users’ intention towards using online banking services, primarily Internet and mobile banking adoption (Akturan & Tezcan, 2012; Amin, 2009; Chong, Ooi, Lin & Tan, 2010). Moreover, Riquelme and Rios (2010) state that perceived usefulness has a significant role for the adoption of mobile banking services. Perceived usefulness according Amin et al. (2007) is one of key variables related to a person’s viewpoint towards intention to use a new technology while intention is a mediator in utilizing the system. Cheah et al. (2011) consider perceived usefulness as one of the most important factors affecting mobile banking acceptance; Igbaria and Iivari (1995) claim that it is key factors affecting mobile banking acceptance while Davis et al. (1992) insist on the fact that perceived usefulness is highly associated with the intention to use technology and that perceived usefulness influence on the customers’ attitudes that further lead to technology acceptance. Therefore, we hypothesize:

H1: Perceived usefulness positively impacts attitudes towards the mobile banking.

### 2.3. Novelty seeking

Inherent novelty seeking is explained as the degree to which a person is receptive to new ideas (Hirschman, 1980; Midgley & Dowling, 1978). In the case of new technologies, it explains individual’s willingness to try and/or accept new technology (Agarwal & Prasad, 1998; Robinson et al, 2005) and it considers as a relatively stable individual trait related both to personal and professional life. Authors found highly innovative individuals being more engaged in searching information about new trends in technology and ready to start to use new products and technology before others i.e. to be leaders in acceptance new ideas and products (Dabholkar & Bagozzi 2002; Lafferty & Goldsmith, 2004; Lafferty et al, 2005; Robinson et al, 2005).

In that context, novelty seeking is associated with positive attitudes regarding technological innovation and also impulsive decision making (Cloninger et al, 1993). It is based on the predispositions that individuals looking for new services (Venkatraman & Price, 1990) which are different in comparison with already available ones. For individuals recognized as highly seekers it appears as motivation to search for originality which further affects the adoption of innovative products (Manning et al, 1995). Manning et al. (1995) also found that novelty seeking was positively correlated with the first stage of innovation acceptance (Roger, 1993, 2006) and product awareness; novelty seekers have more favorable attitudes toward innovations and higher level of adoption of new products or services. That means that novelty seeking indirectly affects customer intentions and behavior especially regarding new technological innovation (Ajzen & Fishbein, 2005). Furthermore, authors connect novelty seeking with personal traits suggesting that it is driven by curiosity and sensation seeking (Jang & Feng, 2007). Based on these findings, we expect that there will be differences in the relationship between perceived usefulness and attitudes towards the mobile banking between consumers who are novelty seekers, as opposed to the ones who are not seeking novelties in their life. Therefore, in this study novelty seeking is assessed as a conditioning factor for the relationship between the perceived usefulness and attitudes regarding mobile banking and we hypothesize:

H2: Novelty seeking moderates the relationship between perceived usefulness and attitudes towards the mobile banking.

## 3. METHODOLOGY

In order to test the developed conceptual model, we conducted a quantitative study by employing an online questionnaire. In setting-up the questionnaire, pre-developed scales were used to measure constructs of interest, namely: perceived usefulness (Tran & Corner, 2016), novelty seeking (Dabholkar & Bagozzi, 2002), attitude toward mobile banking (Grabner-Kräuter & Faullant, 2008). The questionnaire items were assessed by using a Likert scale from 1-7 (where 1 = strongly disagree and 7 = strongly agree).

The study was conducted in a developing European country, using a database of banks users and a random sample of 3,000 users. Use of mobile banking was an eliminatory question in the questionnaire. We received 581 valid responses (19.37% response rate). When it comes to the sample characteristics: 65% were female, with the average age being 28 years (SD = 9.38), and average income being 576 EUR (SD = 568.94). Most of the participants (50.6%) have completed undergraduate studies and are employed (59.4%).

#### 4. RESULTS

Prior to testing the hypotheses, we conducted a confirmatory factor analysis (Anderson & Gerbing, 1988) in LISREL, as well as the discriminant validity analysis (Fornell & Larcker, 1981) to ensure psychometric properties of the measures are in line with the requirements (see Table 1).

**Table 1:** Confirmatory factor analysis and discriminant validity

#	Construct	Loadings	CR	1	2	3
1	Perceived usefulness (5 items)	0.79-0.89	0.94	<b>0.72</b>		
2	Novelty seeking (3 items)	0.87-0.92	0.93	0.21	<b>0.81</b>	
3	Attitude toward mobile banking (3 items)	0.90-0.94	0.95	0.64	0.17	<b>0.87</b>
Model fit: df = 137, $\chi^2 = 434.20$ , RMSEA = 0.06, NNFI = 0.98; CFI = 0.98; SRMR = 0.03; GFI = 0.92						

Notes: AVEs are on diagonal in bold, correlations are below the diagonal, CR = Composite reliability.

CFA model shows a good model fit (df = 137,  $\chi^2 = 434.20$ , RMSEA = 0.06, NNFI = 0.98; CFI = 0.98; SRMR = 0.03; GFI = 0.92) and the factor loadings are within an acceptable range (lowest being 0.67, and highest being 0.98). Furthermore, all composite reliabilities for our constructs are higher than 0.87. Average variances extracted are all higher than 0.70, and since the highest correlation between the constructs is 0.66, it is clear that AVEs are higher than squared correlations in all cases which ensures discriminant validity.

In order to test the hypotheses, we used the PROCESS routine (Hayes, 2017) and estimated a moderation model (Model 1) with 5,000 bootstrap samples and 95% confidence intervals. Results are presented in Table 2.

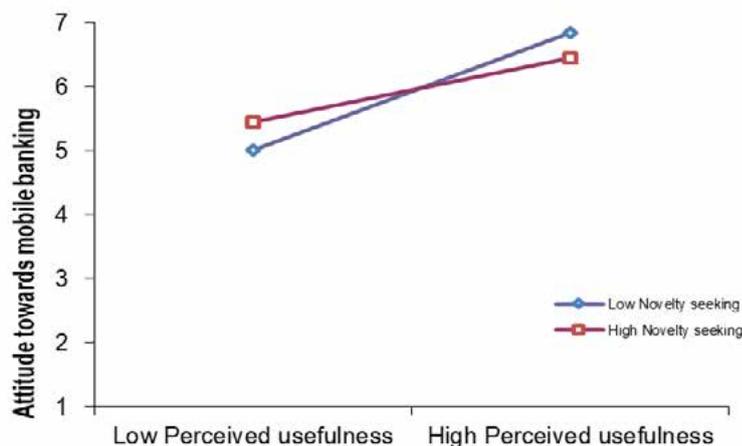
**Table 2:** Results of the study

Description	Coefficient (Standard error)	Confidence interval
<i>Dependent variables</i>		
Perceived usefulness	0.797*** (0.034)	(0.732 - 0.863)
Novelty seeking	0.003ns (0.026)	(-0.048 - 0.055)
<i>Interaction term</i>		
Perceived usefulness x Novelty seeking	-0.056*** (0.016)	(-0.088 - -0.023)
R <sup>2</sup>	0.593	

Notes: Attitudes towards mobile banking = dependent variable; \*\*\* - p < 0.001, ns – not significant.

Source: Authors

From the Table 1 we can observe that the impact of perceived usefulness positively and significantly impacts attitudes towards the mobile banking (B = 0.797, p < 0.001). This confirms our Hypothesis 1. We further see that novelty seeking does not have a direct effect on the attitudes towards the mobile banking, while it moderates the relationship between perceived usefulness and attitudes towards the mobile banking. The interaction effect is negative and significant (B = -0.056, p < 0.001) which suggests that novelty seeking suppresses the positive effect of perceived usefulness on attitudes towards the mobile banking. We further graphically present the interaction effect in focus (Figure 2).

**Figure 2:** Graphical presentation of the interaction effect

Source: Authors

From the graphical presentation of the effect we can see that for the individuals who are not novelty seekers higher the perceived usefulness, higher the attitude towards the mobile banking. Conversely, with the individuals who are highly willing to try new technology and hence high on novelty seeking are lowering down their attitudes towards the mobile banking as the perceived usefulness increases. From the results we can conclude that Hypothesis 2 is confirmed as well. Finally, we see that our model has great explanatory power for the attitudes towards the mobile banking as it explains 59% of its variance ( $R^2 = 0.593$ )

## 5. DISCUSSION AND CONCLUSIONS

This study examines the interplay between perceived usefulness, novelty seeking and attitudes towards the mobile banking. We focus on perceived usefulness as one of the important factors of technology acceptance as well as on the novelty seeking as a relevant personal trait that can also be related to the technology acceptance.

In order to understand how consumers' perceptions of mobile banking usefulness impacts the attitude towards mobile banking and how is the above relationship conditioned by the level of novelty seeking expressed by that consumer, we conducted an empirical study that shows that perceived usefulness positively and significantly impacts attitudes towards the mobile banking and that novelty seeking does not have a direct effect on the attitudes towards the mobile banking, while it negatively moderates the relationship between perceived usefulness and attitudes towards the mobile banking.

Theoretically, we have confirmed the positive link between the perceived usefulness and attitudes towards the technology acceptance on the example of mobile banking services. This helps in achieving generalizability of the theoretical link (Davis, 1989). Furthermore, it shows that mobile banking services are indeed regarded as new technologies that are to be understood through the usefulness of its characteristics. Furthermore, we show that novelty seeking does not impact attitudes directly, but that it does condition the relationship between perceived usefulness and attitudes. This shows that perceived usefulness plays more important role for forming high and positive attitudes towards the mobile banking if the customer is not a novelty seeker. While for the novelty seeking customers, the relationship between perceived usefulness and mobile banking is suppressed as the usefulness implies that the mobile banking service is getting "old" and immediately not interesting to this kind of consumers.

When it comes to managerial implications, this study is relevant for bank managers and marketers that are forming campaigns for mobile banking users. In general sense, we see that perceived usefulness is a very important characteristic that this service needs to satisfy in order to have a positive attitudinal response from customers. However, managers should take into account personal traits of customers and they may even segment the customers based on such traits. Novelty seeking degree can be a relevant base for segmentation, as we can see that customers behave differently based on the level of novelty seeking they exhibit.

Regarding research limitations, our study focuses on one determinant of well accepted TAM model and on only one individual trait. Future research should assess other individual traits (such as personality traits) and their role in the model and control for factors such as price sensitivity and advertising efforts of banks. In order to get better understanding into consumers' behavior, studies should also compare mobile banking and Internet banking users. Finally, future research should shed light on the role of potential moderators of the identified relationships.

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## KAKO POTRAGA ZA INOVACIJAMA OBLIKUJE ODNOS IZMEĐU PERCIPIRANE KORISNOSTI I STAVOVA PREMA MOBILNOM BANKARSTVU

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### SAŽETAK

U bankarskom sektoru, mobilno bankarstvo je jedna od najnovijih vrsta usluga uvedenih s ciljem zadržavanja klijenata. Trend razvoja mobilnog bankarstva snažno je povezan s prodiranjem mobilnih uređaja u svakodnevnom životu, kao i ponašanjem korisnika koje se temelji na prijenosu aktivnosti iz različitih sfera njihovih života u virtualni svijetu. U radu se istražuje kako percepcija potrošača o korisnosti mobilnog bankarstva utječe na stav prema mobilnom bankarstvu, uvjetovan razinom traženja novosti (inovacija) koju je taj potrošač izrazio. Sukladno marketingu usluga i literaturi o prihvaćanju tehnologije testirani su ti odnose na uzorku od 581 korisnika mobilnog bankarstva. Rezultati pokazuju da traženje inovacija negativno ublažava pozitivan odnos između percipirane korisnosti mobilnog bankarstva i odnosa prema mobilnom bankarstvu. U radu se razmatraju rezultati i sugeriraju se buduća istraživanja.

**KLJUČNE RIJEČI:** mobilno bankarstvo, stav prema banci, traženje inovacija, percipirana korisnost.