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EFFECTS OF THE SOCIAL ENVIRONMENT ON CONSUMERS' INTENTION TO USE MOBILE COMMERCE

Efekti društvenog okruženja na nameru potrošača da koriste mobilnu trgovinu

Abstract

The widespread use of mobile phones has contributed to their use in business purposes, primarily in the area of commerce and financial services. In the contemporary digital environment, mobile commerce is the field of business activity which is in continuous expansion. In recent years, the use of mobile commerce in the Republic of Serbia also has high growth rates. In accordance with the concepts of numerous studies in the field of mobile commerce, the aim of this paper is to identify the key drivers of customer satisfaction and intentions to use the mobile services. The proposed research model includes two key variables contained in many technology acceptance models – the performance expectancy/usefulness and the effort expectancy/ease of use, but the model is particularly focused on the social environment presented through two components: personal influence and social networks. The survey was conducted on a sample of 402 respondents. The relationships between the variables of the research model were analyzed, regarding the use of mobile commerce, at the level of two segments of respondents: innovators and followers. Application of a multi-group analysis and segmentation of the respondents on the basis of this specific criteria gives special value to this paper. The paper provides useful practical implications, particularly in the field of use of social networks in order to create promotional and educational campaigns through which citizens can learn about the characteristics, benefits and the use of mobile commerce.

Keywords: *consumer, mobile commerce, satisfaction, intention to use, social environment.*

Sažetak

Široka upotreba mobilnih telefona doprinela je njihovom korišćenju i u poslovne svrhe, pre svega u oblasti trgovine i finansijskih usluga. U savremenom digitalnom okruženju, mobilna trgovina predstavlja polje poslovne aktivnosti koje je u kontinuiranoj ekspanziji. Mobilna trgovina poslednjih godina doživljava trend rastućeg korišćenja i u Republici Srbiji. U skladu sa konceptima brojnih studija iz oblasti mobilne trgovine, cilj rada je identifikacija ključnih pokretača satisfakcije korisnika i namere budućeg korišćenja mobilne trgovine. Predloženi istraživački model obuhvata dve ključne varijable koje sadrže mnogi modeli za prihvatanje novih tehnologija — očekivane performanse/korisnost i očekivani napor/lakoću korišćenja, ali model je posebno fokusiran na društveno okruženje koje je u radu predstavljeno kroz dve komponente: personalni uticaj i društvene mreže. Istraživanje je sprovedeno na uzorku od 402 ispitanika. Analizirani su odnosi varijabli istraživačkog modela na nivou dva segmenta ispitanika: inovatora i sledbenika u pogledu korišćenja mobilne trgovine. Primena višegrupne analize i segmentacija ispitanika po osnovu ovog specifičnog kriterijuma daju posebnu vrednost radu. Rad pruža i korisne praktične implikacije, posebno u domenu korišćenja društvenih mreža u cilju kreiranja promotivnih i edukacionih kampanja putem kojih se građani mogu upoznati sa karakteristikama, koristima i načinom korišćenja mobilne trgovine.

Ključne reči: *potrošači, mobilna trgovina, satisfakcija, namera korišćenja, društveno okruženje.*

Introduction

The digital market has recorded high rates of growth during the last 10 years. In 2018, 1.8 billion people performed their shopping online [27]. In 2019, the total volume of trade within the online market accounted for USD3.530 billion, while in 2022 it is expected to reach USD6.540 billion, which will represent around 22% of the total value of global retail [27]. The development of the online market has significantly influenced the changes in business performance and within business orientation of companies, as well as the change of the business model of almost all market-oriented companies, and especially trade companies, producers of products intended for final consumers, as well as companies which do business in service areas where high competitive pressure is expressed.

Mobile commerce is certainly an important area, i.e., the use of mobile devices for shopping and sales of products, services and contents, and its availability at any time and from any place stands out as the main advantage. Bearing in mind the high potential of mobile commerce, the interest of companies and researchers about what influences the consumers to start and continue using mobile commerce is increasing and it is also the subject of analysis within this paper.

The most important contribution of this paper is the examination of the influence of social surroundings, broken down into today`s two key components – personal influence and very popular and influential social networks. The other significant contribution of this paper is that it compares the perceptions and differences in attitudes of two, to date rarely compared groups – the innovators, i.e., users with high degree of personal innovativeness and readiness to try new things among the first consumers and the followers, i.e., users who accept novelties only after they have been accepted by the critical mass of innovators.

The consumers on the digital market

Within the contemporary period, the span of products and services which are being sold within the digital surroundings has been so spread that it is difficult to identify the category which is not present. The total value of online shopping in 2017 was estimated at around USD1.900 billion worldwide [12]. Online shopping is performed globally and on all continents regardless of the differences in economic development of particular geographic regions. According to the research performed by KPMG, the average number of online transactions on an annual level by every individual inhabitant is around 9.2 in Latin America, 11 in Africa, 11.9 in Eastern Europe and in Russia, 16.1 in Australia and Oceania, 18.4 in Western Europe, 19 in North America and 22 in Asia [12].

The growth in smart phone use has significantly contributed to the growth of the online market. Consumers use computers to gather information and perform shopping within the online surroundings, which is categorized by literature as e-trade or e-commerce. Besides computers, over the last ten years, smart phones have been used more and more. The use of smart phones within the online market to perform transactions represents a unique evolution of the online market, so besides the term e-commerce, the term m-commerce is used more and more frequently. Smart phones have enabled the people to be more often connected to the internet, to communicate with friends, browse the information on brands, products and services, as well as to perform transactions. Smart phones have significantly improved the efficiency of the online market and have contributed to its development. In 2017, the total achieved volume of sales via m-commerce was USD151 billion, which accounted for around 35% of the total amount of online market trade.

Thanks to the development of smart phones, the number of consumers using mobile phones in performing the process of online transactions has increased significantly. An extremely rising trend can be seen worldwide concerning the users of this type of phone, which contributes to the development of the online markets. For example, in 2018, 87% of U.S. population was connected via smart phones to the internet, which has significantly contributed to the growth of the information flow via this network channel [6]. The number of smart phones used worldwide has been intensively increasing over the last years. During the same period, m-commerce is also characterized by high growth rates. For example, e-Marketer (2017) estimated that, even

during 2017, two-thirds of the internet users in USA were shopping via mobile phones (in 2012 only one-fourth of the users used to do that), and that already in 2021 the retail via mobile devices would account for more than a half of the total e-retail on the U.S. market, which is also confirmed by research made by Business Insider (2019). In 2017, in Europe, more than a third of retail transactions came from mobile devices (Business Near, 2018) and it is estimated that in the United Kingdom already during 2020 half of the retail transactions will come from the same source (e-Marketer 2020). On the other hand, the Nodus report (2018) estimates that the total value of transactions in m-commerce during only 5 years, from 2014 to 2019, has increased by the unbelievable 1,300%.

The analyses of digital consumer behavior are extremely important due to the growth of their influence on the income generated by market-oriented companies. Digital consumers use online surroundings in order to facilitate the buying transaction for themselves – the gathering of information on products and services, the analyses of experience by other consumers and the simplification of the process of buying goods and services using online shops [23].

Within the analyses of digital surroundings, it has been noted that there are individuals who spend a lot of time online and who can be characterized as highly active persons in online surroundings. The consumers which are highly active within the digital surroundings are divided into four relatively homogeneous groups [31]:

- *brand lawyers* – consumers who significantly contribute to the brand promotion within the digital surroundings. They are very often present within social networks and are active participants in the majority of communication concerning brands. They often post comments and pictures concerning different brands they are using or which they are interested in. The intensity of posts on average varies from once a day to once a week;
- *digital moms* – consumers who actively share advice on products and services which they are using in online surroundings. Their posts almost have the form of blogs. This group of digital consumers is predominantly formed by women who follow with great attention the posts of other consumers in online surroundings and different video contents;
- *digital transmitters* – consumers who tend to transfer their own experience from consumption and use of different products and services via social networks in a creative and original way. They post photos and video contents from personal life – the event at the restaurant, their own business surroundings, etc. The basic motive for posting of this group is not the influence on others, but rather making the impression or drawing attention to one's own lifestyle. This type of consumers indirectly transmits its own experiences from consumption and influences other consumers. In the future, it is expected that this group will post video contents more often than photos; and
- *millennial generation* – the new generation of consumers who spend a significant part of time in digital surroundings. They prefer communication, arrangements and advice taking from their friends via online channels of communication. They are well informed about different online shops and places where they can find out detailed information on characteristics of different services. They actively follow comments and grades left by other consumers within the online surroundings.

The influences on consumer behavior within the digital surroundings are multiple, complex and insufficiently researched, which represents a challenge for a great number of researchers from the area of business economics.

Literature review and the research model

The research of consumer behavior and the determination of factors which influence their decision to accept some new technology, such as m-commerce, has a long history and is usually based on some of the well-known, traditional theories and models on consumer behavior and technology acceptance, such as the technology acceptance model (TAM), diffusion of innovation theory (DOI), the unified theory of acceptance and use of technology (UTAUT) and many others. The TAM model is one of the most famous and mostly used models within this area. It was suggested by Davis (1989) and up to now, with smaller

appendices and modifications, it has successfully been used in studies regarding the acceptance of numerous mobile technologies, such as m-commerce [12], m-services [38] or mobile payment systems [17].

Some newer research indicates that TAM model is too simple for a complex process of decision making [34]. That is why UTAUT, as the most advance model is used, suggested by Venkatesh and created by unifying eight up to that moment accepted theories and models of consumer behavior [33]. UTAUT has also been very successfully tested in studies on accepting mobile technologies, such as for example m-commerce [21], m-advertising [34], m-banking [39] or m-tourism [30].

UTAUT is used as the basic theoretical model within this paper as well, i.e., two variables have been retrieved from it:

- *perceived performance* can be defined as the degree to which the consumer believes that the use of m-commerce will bring it benefits [7], and generally this variable is very similar to the variable perceived usefulness from the TAM model; and

- *perceived effort* is usually defined as the perceived degree of simplicity of using m-commerce [7], and is very similar to the variable perceived simplicity of use from the TAM model.

Satisfaction is one of the basic variables which are used in marketing, in studies on consumer loyalty [21], and can generally be described as the fulfillment of the expectation of the consumer, if the product or service characteristics tend to be better compared to what the consumer expected. In that case, the degree of satisfaction is greater and vice versa [37]. The influence of perceived performance or perceived effort or their equivalents on the user satisfaction of m-commerce users has been researched in numerous previous studies [1], [16], [21], [29], [37].

As one additional factor of influence on consumer decisions are social surroundings, i.e., attitudes, opinions and behavior of close and influential persons such as friends, relatives, firm management and others that must be taken into consideration and stressed [21]. This influence on the consumer can come by different channels, but within this research, two most important channels by the authors' opinion have been analyzed [21]:

- *personal influence.* Under personal influence a direct, personal contact of the consumer with the people from nearby surroundings is assumed, which is in literature considered to be the strongest and most persuasive;

- *social networks.* Social networks represent a contemporary phenomenon and a place where a great number of users express their own opinions and experience, including those connected with new technologies and services, and these attitudes have the influence onto a significant number of social network users.

Figure 1 shows the research model of the study.

Figure 1: Research model of the study
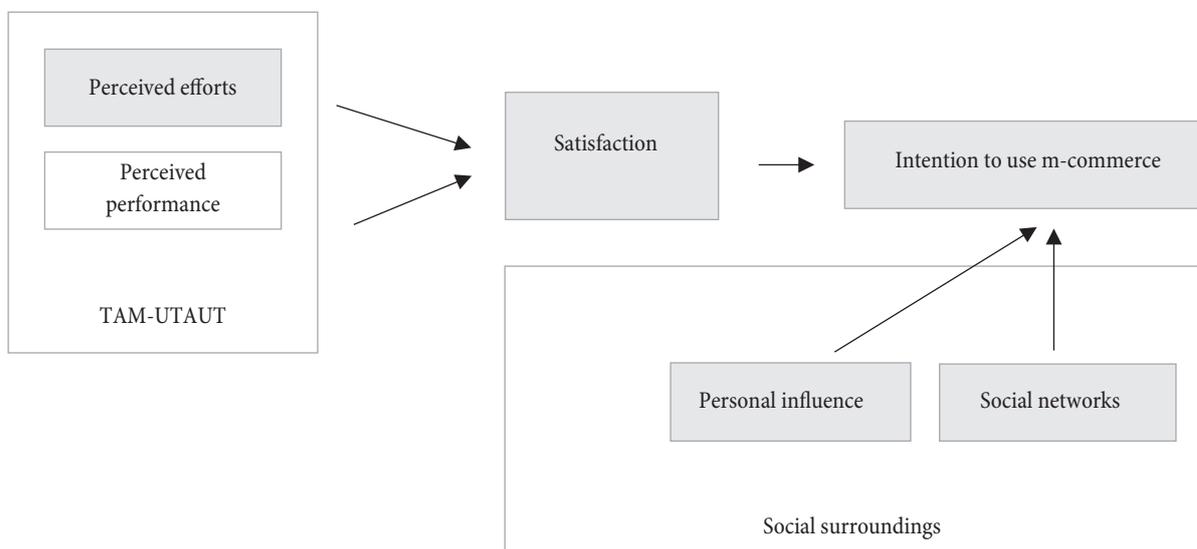
The aim of the paper is to find out if there are differences, according to the proposed model, in behavior patterns of users divided into two categories:

- *innovators*, i.e., innovative users who tend to try new technologies among the first; and
- *followers,* i.e., users who accept new technologies and services later on, after being accepted and recommended by the critical mass of innovators.

The literature referring to the acceptance of new mobile technologies does not offer much research which has dealt with the topic in question. Chawla and Joshi (2017) have used cluster analysis according to attitudes on the intention of using m-banking and have formed three clusters: the leaders, the followers and the late comers, and have shown that there are statistically significant differences among their attitudes and intentions [5]. Lee and Son (2017) have researched the effects of consumer innovativeness on the use of mobile applications and have also shown that there are significant differences in the behavior of innovators and non-innovators within the area [18]. Finally, the Güngör study has also shown statistically significant differences in behavior models of innovators and followers regarding the acceptance of mobile applications for payment [13].

The methodology of the empirical study

Gathering of primary data has been carried out in a two-week period, whilst the potential respondents have been contacted at the exit of two major shopping centers in Belgrade, the capital of the Republic of Serbia. In order for the sample to include people from different demographic and socio-economic profiles, the survey has been realized during weekdays and weekends. At the very beginning of the conversation, the respondents have been informed that the data were gathered for scientific purposes and in order not to be under time pressure while filling out the questionnaire, those people who have accepted to participate in the research have left the interviewers their e-mail address. After that, the interviewers have sent an e-mail with the instructions regarding questionnaire filling out and the link which would enable the access to the questionnaire. Seven days later, 402 validly filled out

questionnaires have been collected. It is important to point out that the sample included only those people who have declared to have used the mobile phone in order to effect some sort of shopping or business transaction over the last year. When it comes to the demographic structure, women were present in a slightly higher percentage (52.2) compared to men (47.8). Similar distribution was present regarding the age as the criterion for respondents' division, since younger respondents (up to the age of 34) accounted for 53.7% of the sample, while the older respondents, who had 35 or more years, accounted for 46.3% of the sample.

While filling out the questionnaire the respondents have expressed their degree of concordance with the statements on a seven-degree Likert scale. All the statements within the questionnaire expressed the aspects of usefulness, the ease of using m-commerce, the general level of satisfaction and the intention of future use of m-commerce, as well as the influence of social surroundings on the use of mobile services. When it comes to social surroundings, the research model encompassed the two key variables: personal surroundings (comprised of family, friends and colleagues of the respondents) and social networks.

The model contains a total of six latent variables, i.e., it encompasses, besides the variables which denote the aspect of social surroundings, also the two basic variables of the known models for accepting mobile technologies (usefulness/perceived performance and ease of use/perceived effort), the satisfaction and the intent of future use. The basis for formulating the statements was comprised of relevant studies from the area of m-commerce and m-payment systems [32].

The analysis of data firstly included the calculation of frequencies in order to obtain the demographic structure of the sample and then the reliability analysis as well as confirmative factor analysis with the intention to test the internal consistency of statements, the variable concordance and the validity of the model. The main analysis within the empirical study is represented by a multi-group model of structured equations, which was used to determine the differences in tested relationships of variables between the two analyzed groups of respondents: innovators and the followers. This was the main aim of

the empirical study, since all respondents were placed in one of the two mentioned groups depending on whether they were among the first in their surroundings to start using mobile phones for the needs of effecting different payments, or not.

To be precise, when we are talking about the tested relations between variables, the paper analyzes the effects of perceived performance and perceived effort on consumer satisfaction, as well as the effects of satisfaction, personal surroundings and social networks as an intent of future use of m-commerce.

The results of the study

Before analyzing the relationship between variables of the research model within the level of identified segments, the model reliability measurement has been performed. For every individual construction the value has been calculated using the Cronbach's Alpha coefficient. The obtained results clearly confirm that all variables of the model were measured by internally concordant statements, since in all cases the value of the Cronbach's Alpha coefficient surpasses the threshold of 0.7 (the value of the Cronbach's Alpha coefficient: perceived performance = 0.9; perceived effort = 0.94; social networks = 0.94; personal influence = 0.94; satisfaction = 0.90; the intention to use m-commerce = 0.92).

The values of the concordance index have been calculated by using the confirmative factor analysis (Table 1). In the case of all indices the gained values surpassed the adequate concordance thresholds or the obtained values were somewhat below the standardly defined thresholds. The values of the coefficients SRMR and RMSEA were below the threshold of 0.1 [28]. Also, the values of the indices RFI, NFI, CFI, TLI were higher than the threshold of 0.9 [14].

On the other hand, the value of the GFI index was somewhat lower than the threshold of 0.9, while the χ^2/df was also somewhat over the threshold value of 3 recommended by Carmines and McIver [4]. Talking about concordance and model validity, it is important to emphasize that the values of all coefficients of correlation between individual variables and statements by which

they were measured were higher than 0.7, which implies the convergent validity of the model.

Table 1: The indices of model concordance

Index	Value
χ^2 / df	3.31
RFI	0.91
GFI	0.88
NFI	0.93
CFI	0.95
TLI	0.94
SRMR	0.05
RMSEA	0.08

RFI – relative fix index; GFI – goodness-of-fit index; NFI – normed fit index; CFI – comparative goodness of fit; TLI – Tucker-Lewis Index; SRMR – standardized root mean square residual; RMSEA – root mean square error of approximation.

The heart of the empirical analysis within this paper are the results of the multi-group model of structural equations. This analysis has offered the possibility to test the relationships between variables of the proposed model at the level of two segments: innovators and followers (Table 2). This is a very specific segmentation of consumers which has up to now rarely been used in field marketing research.

Table 2: Testing the moderating effects (the criterion of segmentation: innovativeness regarding the use of m-commerce)

Effect	innovators	p value	followers	p value	z value
PP → SAT	0.495	0.000	0.170	0.009	-3.213**
PE → SAT	0.355	0.000	0.053	0.576	-2.447*
SN → IU	0.308	0.000	0.354	0.000	0.600[ns]
PI → IU	0.467	0.000	0.359	0.018	-0.621[ns]
SAT → IU	-0.021	0.819	0.431	0.019	2.193*

** The result is significant at the level of 0.01
* The result is significant at the level of 0.05
[ns] The result is not significant
PP – perceived performance
PE – perceived effort
SN – social networks
PI – personal influence
SAT– satisfaction
IU – the intention to use m-commerce

If we focus on the segment of the innovators, it can be stated that all effects are statistically significant, apart from the influence of satisfaction on the intention to use m-commerce in the future. At first glance, the result seems surprising, but the innovators are those consumers who among first in their surroundings started effecting different payments via mobile phone, who are familiar with the use of modern information-communication

technologies, so they are committed in the long-term to the use of m-commerce and have the clear intention of using it, despite certain reasons which can cause their current dissatisfaction.

The satisfaction can be influenced by numerous factors, and in the case of innovators' perceived performance, i.e., the advantages offered by m-commerce stand out as a very strong driver of satisfaction. Precisely the advantages are probably the most important reason for the future use of m-services. On the other hand, within the segment of the followers, there is a notably weaker influence of usefulness on satisfaction, but also a more expressed influence of satisfaction on the intention of future use of m-services. The only insignificant effect within the segment of the followers refers to the relationship between the perceived effort and user satisfaction.

By using a comparative analysis of the segments, it can be concluded that differences appear in three out of five tested effects. Interestingly, there are no statistically significant differences when it comes to the influence of the two components of social surroundings on the intention of future use. These effects are significant in both segments, which indicates that people from the nearby surroundings of the consumer, as well as social networks have significant influence on their intentions regarding the use of m-commerce in the future.

Conclusion

The present study offers several important contributions. Firstly, within the territory of the Republic of Serbia there is still not a great number of empirical research when it comes to m-commerce, which has been expanding during the last years, contributed to by the growing trend of digitalization, not only in business, but in everyday life activities. Secondly, the comprised model is based on the main assumptions of known global models for accepting mobile technologies, due to which it can be stated that the model importance is contributed to by its strong theoretical basis. Thirdly, the model also includes two variables which denote the aspect of social surroundings, which makes the model specific. Fourthly, the innovative note of the empirical study is based on a unique and up to

now rarely used segmentation of consumers on innovators and followers.

It is interesting to note that the influences of perceived performance and perceived effort on satisfaction are much stronger within the segment of innovators. Namely, the multi-group analysis has shown the existence of a statistically significant difference between the tested effects within the two analyzed groups. The result seems logical since innovators have started long before the followers to use the m-commerce and mobile services since this fits into the "digital" lifestyle concept of these consumers.

The followers also perceive m-commerce as a useful means of realization of different payments, but to a much smaller extent than innovators. If the attention is drawn to the two components of social surroundings (personal influence and social networks), it can be noted that the intention of innovators regarding the use of mobile services is much more influenced by close people from direct surroundings compared to social networks. Within the segment of the followers, the situation is different, i.e., in this segment the influence of social networks on the intentions of using the services is somewhat higher than the influence of families, friends and colleagues. Such a result is probably the reflection of the fact that a greater number of followers are still not familiar enough with the concept of m-commerce, due to which numerous information regarding it are gathered via social networks and different forums.

Since the influence of perceived performance on the consumer satisfaction is statistically significant in both segments, the providers of m-services need to point out the aspect of usefulness of these services within their marketing campaigns, the possibility to perform transactions quickly, with lower costs, from any place and at any time. It is important for people to get familiar with the fact that m-commerce simplifies the realization of business activities and contributes to the improvement of work performance.

Bearing in mind the fact that personal influence and social networks significantly determine the intention of using services within both segments, it is necessary to motivate the consumers to actively share their experience regarding m-commerce with other consumers via social

networks and online forums. In this manner, mobile providers can use the positive effects of the interpersonal communication, where even the negative comments can be a very important source of feedback information in order to improve the different aspects of m-commerce. By using social networks, not only promotional but also educational campaigns can be implemented which would enable the people to get to know the characteristics, advantages and the way of using m-commerce. It is also important to identify the opinion leaders and influencers and to include them within the loyalty programs in order to stimulate the spreading of the positive interpersonal campaign.

This research has several limitations. Firstly, the research model has encompassed only two potential drivers of satisfaction, and within future research it is desirable to include a greater number of variables in order to clearly see which among them has the most importance in determining satisfaction. Within the present study, in the segment of the followers, a much higher influence of usefulness on satisfaction compared to ease of use can be noted. But, with the model widening, an insight could be gained into other antecedents of satisfaction as well. The limitation of the study is also presented in the fact that it does not test the indirect effect of expected performance on the intent of use (via satisfaction), which would be very useful to carry out in the segment of innovators, where perceived performance has a strong influence on satisfaction, whilst the general level of satisfaction has not been differentiated as a statistically significant antecedent of intention.

Within future research, it is desirable to gather primary data in other countries of Southeastern Europe as well, thus gaining conditions for the realization of a multicultural study. Moreover, it is desirable to strengthen the quantitative analysis with the results of qualitative in-depth interviews with the mobile service providers.

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