

Young Consumers' Perception of Problems and Usefulness of Mobile Shopping Applications

Blaženka Knežević, Mia Delić

ABSTRACT

Objective: The objective of this paper is to explain how young consumers from Croatia perceive problems and usefulness of mobile shopping applications.

Research Design & Methods: The paper is based on descriptive statistics of data collected in a wide-range survey on mobile commerce attitudes within young population in Croatia. The questionnaire was designed upon recent literature in the fields of electronic and mobile commerce. The quantitative data analysis regarding mobile application problems and usefulness was conducted on 276 validated questionnaires.

Findings: The majority of young population in Croatia is experienced in smartphone usage and can be referred to as "handset generation". They express a high level of satisfaction regarding mobile purchasing and have positive attitudes towards the usefulness of mobile shopping applications. They are aware of mobile purchasing obstacles and risks and perceive some of them as very important.

Implications & Recommendations: The results of this study can be useful for researchers and practitioners in the retail industry. The findings can be used as a basis for adjusting policies towards mobile commerce within business strategies, not only in the retailing industry, but in other industries as well.

Contribution & Value Added: The paper is a valuable contribution to research fields of retail marketing, retail management, electronic commerce and, especially, mobile commerce because it deals with primary data collected in a specific geographical market. As the authors developed their own set of questions, the presented findings can be used as a basis for future research in various markets and groups of consumers.

Article type: research paper

Keywords: m-commerce; mobile applications; mobile browsers; risk perception; usability; students

JEL codes: L81, D12, M31

Received: 2 March 2016

Revised: 14 June 2016

Accepted: 15 October 2016

Suggested citation:

Knežević, B., & Delić, M. (2017). Young Consumers' Perception of Problems and Usefulness of Mobile Shopping Applications. *Entpreneurial Business and Economics Review*, 5(1), 43-58, DOI: <http://dx.doi.org/10.15678/EBER.2017.050103>

INTRODUCTION

Nowadays, the number of smartphone users increases rapidly, and thus the base of potential customers who will use their mobile devices for everyday pre-shopping, shopping and post-shopping activities increases. Therefore, the application of mobile technologies is one of inevitable trends in the technological development of modern retail industry. Mobile commerce today is not only mere purchase via a mobile device, but it is, also, the identification of the customer in terms of solutions applied to improve customer loyalty and automated payment transactions over the mobile phone.

Retailers have recognized the importance of this trend and are trying to attract customers by constantly improving the sales channels. The best way to do this is to offer retail applications designed for the most popular mobile platforms: iOS, Android, Windows Phone, and BlackBerry.

When considering mobile phones as a marketing and sales channel, most of the retailers focus primarily on transactions via mobile devices, i.e. the direct m-commerce. However, according to research by Deloitte (2013), a much more effective approach is to perceive mobile phones as an additional tool to in-store shopping. For example, in the UK the application of smartphones affects the 5.8% increase in the total sales in stores. Investments in improving mobile applications can help retailers to influence consumer behaviour. The percentage of consumers who make the conversion when purchasing thanks to smartphone increased by 12% compared to those who do not use mobile devices, given that the retailer's applications provide a significant experience and help consumers when making purchasing decisions (Deloitte, 2013).

The research study by eMarketer (2004) ranks positive factors influencing the choice of online channel into the following claims: (1) I save time by not going to store, (2) I can shop when stores are closed, (3) I avoid crowds on holidays, (3) I get better prices, (4) It is easy to search products, (5) I can get products that are not available in stores, (6) It is easy to do price comparison, (7) I can get free packaging and delivery, (8) I earn loyalty points, (9) It is easier to purchase from the digital wish list.

But when it comes to mobile commerce, advantages do not always outweigh disadvantages, also referred to as m-commerce obstacles and risks. Various authors explain and analyse a wide scope of negative issues related to mobile commerce and mobile shopping applications. Some of the issues are: limited buying power as there is still a narrow number of customers willing to purchase via smartphones; various technological issues, such as accessibility, connectivity and the speed of network or limitation of the mobile phone screens and mobile browsers; limited marketing possibilities caused by graphical limitations of smartphones; loss of personal face-to-face interaction with consumers; and many issues in the field of consumer privacy and security.

The aim of this paper is to explain how young consumers from Croatia perceive (1) problems of mobile applications and (2) usefulness of mobile shopping applications. The paper focuses on the analysis of data collected in a large-scale survey on mobile commerce attitudes within young population.

Firstly, the paper presents the contemporary literature on mobile commerce, smartphones and mobile applications and draws research hypotheses. Secondly, the design of the primary quantitative survey and research methodology are explained. Finally, the results focusing on mobile applications obstacles and risks,

together with the attitudes of young population towards the usability and usefulness of mobile applications as shopping tools are discussed.

LITERATURE REVIEW

According to Yuan and Cheng (2004), the rapid growth of mobile and smartphone industry transformed m-commerce into the next wave of e-commerce. M-commerce has become one of the key priorities in numerous business organisations (Ropers, 2001), and many of them target to invest in Apps development for various purposes (Tech Crunch, 2011).

With gaining popularity by m-commerce, more scholars and literature turned their attention to this electronic wireless medium and to major factors and determinants of m-commerce success. Kabir and Hasin (2011) highlighted the major m-commerce success factors as follows: System Quality (online response time, 24-hour availability, page loading speed, visual appearance), Content Quality (understandability, timeliness, and preciseness), Trust, Support (tracking order status, account maintenance, payment alternatives, Frequently Asked Questions), Mobility and Personalisation.

Several perceived consequences are stated as critical determinants in the context of mobile technology adoption in the existing literature: (1) perceived usefulness/value (Mahatanakoon *et al.*, 2006; Snowden & Spafford, 2006; Yang, 2005); (2) perceived ease of use (Cheong & Park, 2005; Kurnia *et al.*, 2006; Lin & Wang, 2005; Malhotra & Segars, 2005; Wai, 2012); (3) perceived risk (Laundon & Traver, 2007; Turban, 2008; Wai, 2012); (4) perceived enjoyment (Hong *et al.*, 2006; Pagani, 2004); and (5) perceived obstacles (Childs, 2013).

Perceived ease of use (PEOU) is an important determinant of user satisfaction; it refers to the degree to which the prospective user expects the target system to be free of effort (Dai, 2009). Applying the same concept in the context of Apps technology, Wai (2012) interpreted PEOU as "the extent to which users perceive the ease of interaction with Apps enables them to receive proper and useful information they need". For mobile phone users, the ease to use is a crucial factor (Cheong & Park, 2005; Snowden & Spafford, 2006) just like perceived usefulness (PU), the degree to which a person believes that engaging in online transactions via mobile commerce would enhance his performance. Perceived usefulness or value means that m-commerce creates value for customers by providing services and additional benefits when compared to traditional e-commerce applications (Tsagatidou & Pitoura, 2001). These are the two vital elements in the Technology Acceptance Model (TAM) which influence individuals' attitudes towards using the system. Based on previous research, usefulness and ease-of-use may positively affect customer's satisfaction (Ribbink *et al.*, 2004).

The conceptual idea of perceived risk suggests any transactions or behaviours involving risk which may cause negative or unpleasant consequence (Wai, 2012). There are various problems and risks in electronic commerce. Turban (2008) defines three levels of building confidence in electronic commerce activities: (1) confidence in Internet retailer, (2) trust in the Internet as a sales channel, and (3) confidence in the business environment and legal framework. On the other hand, there are several problems associated with online shopping as given in the literature (Laundon & Traver, 2007): the security of card operations, the protection of privacy and personal information, delivery costs, product quality, product return policy, delays in delivery, and other problems. Consumers may be unaware that their personal information is distributed for non-authorised use.

Previous studies indicate that perceived risk is a multi-dimensional construct in m-commerce contexts (Featherman & Pavlou, 2003; Lim, 2003; Martins *et al.*, 2014). Several authors (Featherman & Pavlou, 2003; Yang *et al.*, 2014) adopted five-dimensional measurement of perceived risk in m-payment: (1) perceived financial risk (consumer perception about the possible monetary loss caused by the usage of m-payment), (2) perceived privacy risk (a lot of private information, like phone numbers, social security numbers, pin code, consumption locations, shopping records is required in the m-payment process), (3) perceived performance risk (user's perception of the possibility of the m-payment system malfunctioning and not working as intended or advertised, and thus being unable to provide the desired services), (4) perceived psychological risk (consumer's perception of any possible psychological frustration, pressure, or anxiety resulting from the use of m-payment), and (5) perceived time risk (any possible time loss due to the usage of m-payment).

According to Brockett (2012), web owners and companies conducting business over the Internet and through mobile devices have to protect themselves from four major operational risk exposures related to: technical deficiencies, legal deficiencies, physical security, and privacy risks. The physical limitations (size, memory, illuminated screens, limited power, etc.) of a mobile device often force application developers to make security versus performance trade-offs. As Ghosh and Swaminatha (2001) stated, these limitations can force application developers to give up security features, such as encryption, in an effort to improve online performance.

Another dimension determining mobile technology adoption, satisfaction, is defined as pleasantness and fulfilment, which is users' post-purchase evaluation and affective response to the overall product and service experience (Wai, 2012). In the mobile-service context, Wu and Wang (2005) believe that satisfaction has predictive power on consumers' post-usage behaviours, and affects the user's motivation to make recommendation to potential customers, by bringing greater efficiency to business in maintaining their competitive advantages.

Content reliability is proven as the most influential parameter effecting customer satisfaction significantly. In terms of content reliability, Choi (2008) highlighted four difficulties or problems in m-commerce: (1) it is hard for a mobile device to show enough pre-information about content in the text form because of the limited screen size and difficulty in controlling the device; (2) customers are not willing to use pre-listening service due to additional costs; (3) all the content from various providers cannot be individually verified; and (4) due to the immaturity of the system for reviewing experienced services in m-commerce, it is difficult to obtain directly postscripts or notes after using the services.

In his research, Childs (2013) identified several concerns or obstacles regarding the use of shopping applications, clustered as mechanical or perceptual concerns, which are adopted in this research: (1) Mechanical Concerns (shortens the phone's battery life, not confident store layout, difficult to read information on the display panel, over notification from retailer, frequency of updating, the amount of memory space required, slow response time within the store's environment, and cumbersome navigation); (2) Perceptual Concerns – time/value proposition is not adequate, insufficient dollar savings, underpromotion and the lack of awareness of mobile applications, smartphone coupons not welcomed at checkout, concern for smartphone theft, privacy intrusion, too many undesired requests (surveys, personal info, etc.).

In conclusion, m-shopping holds potential in the rapidly growing world of digitally connected smartphone owners. Most of the research into m-commerce investigates mobile transaction in general usage, not specific to smartphone applications context. Regarding the upcoming smartphone applications' popularity and the importance of the understanding of influential factors of customers' satisfaction, this study emphasises the key components which affect consumers' adoption of Apps-commerce.

Based on the analysed literature, the following hypotheses are proposed for this research:

- H1:** Majority of young consumers in Croatia are experienced users of mobile phones and mobile shopping applications.
- H2:** Young consumers in Croatia understand obstacles and risks of mobile shopping applications usage.
- H3:** In young population from Croatia the usability of mobile shopping applications is highly evaluated.

MATERIAL AND METHODS

The quantitative survey on student population took place in April 2015. The digital questionnaire was distributed through social networking platform – Facebook and Google Classroom, official pages of University courses, to students at various study programmes of the University of Zagreb, Croatia. The main objective was to understand young smartphone users' perception and attitudes towards smartphones and mobile applications as shopping tools in the aspects of convenience, content reliability and customer satisfaction.

Based on the questionnaire components from previous studies, a modified questionnaire was developed. The questionnaire was structured into 6 sections. The questionnaire constructs and objectives of each section are detailed in Table 1. An online questionnaire included questions of different types: one choice question, multiple choice questions and Likert scale ranking questions. As this paper focuses on the results from third, fourth and fifth section of the survey, the research analysis will cover only those survey sections.

The target group of the questionnaire focuses on the smartphone users aged between 18 and 35. This target group is suggested with highest potential of smartphone apps adoption due to its high acceptance of new technology and purchasing power. The total number of respondents to this survey is 285. Table 2 shows relative frequency of sample characteristics.

As shown in Table 2, there were 74% of female and 26% of male students in the sample. The gender structure of the sample was in accordance with the student population within faculties of social sciences in Croatia, but the questionnaire did not include questions on the study field and we cannot claim that students from other scientific fields did not take part in the survey. Moreover, all respondents are aged between 18 and 35, in which almost 60% of respondents were from the age group of 18-24. The largest proportion of students (34%) have monthly income (in terms of allowances, scholarships, wages and/or part time job fees) higher than 2000 kunas (i.e. higher than 260 EUR). About 55% of the survey participants held the bachelor degree, followed by the group of high school education which accounted for 37.5% correspondingly, while only 7.4% owned master degree or above.

Table 1. Questionnaire structure and objectives

Section	Objectives	Questions are designed according to
Section 1: Personal information	to collect demographic data	Strugar <i>et al.</i> (2011); Choi <i>et al.</i> (2008)
Section 2: Smartphone and mobile applications usage	(1) to assess the smartphone penetration rate; (2) to eliminate smartphone non-users from further analysis	Strugar <i>et al.</i> (2011); Turban (2008, p. 66)
Section 3: Users' perception towards mobile applications for buying products/services	(1) to gather respondents' attitude towards mobile applications for buying products/services based on different consequences, to examine satisfaction level in different aspects (e.g. time /money); (2) to explore: ease of use, barriers to the use, risk perception, perceived value	Strugar <i>et al.</i> (2011); Wai (2012); Childs (2013); Brockett, Golden (2012); Turban (2008, pp. 431-434 and 452-453); Laundon, Traver (2008, pp. 492-498); Featherman, Pavlou, (2003)
Section 4: Users' perception of mobile browsers characteristics	(1) to gather respondents' attitude towards mobile commerce based on various characteristics, such as: convenience, system quality, content reliability, perceived price level, visibility; (2) to examine the relative importance of the mobile browsers characteristics	Strugar <i>et al.</i> (2011); Wai (2012); Childs (2013); Turban (2008, pp. 443-446 and 844-845); Laundon, Traver (2015, pp. 157-158 and 492-493)
Section 5: Users' perception of customer service and satisfaction with mobile commerce	(1) to gather respondents' attitude towards mobile commerce based on customer service and customer satisfaction; (2) to examine the relative importance of these premises	Choi <i>et al.</i> (2008); Turban (2008, pp. 421-422 and 433-434, 443)
Section 6: Users' attitudes to future progress of mobile commerce	to evaluate users' perceptions of future progress of mobile commerce and mobile applications	Choi <i>et al.</i> (2008); Laundon, Traver (2015, pp. 218-223 and 538-539)

Source: own work.

Table 2. Characteristics of the sample

CHARACTERISTIC	OPTIONS	RELATIVE FREQUENCY (%)
age	18-24 25-30 31-35	58.9 37.2 3.9
gender	male female	26 74
highest level of education	high school bachelor master or higher	37.5 55.1 7.4
monthly income (including allowances, scholarships, wages and/or part time job fees)	less than 65 EUR 65-130 EUR 130.1-260 EUR more than 260 EUR	15.1 27.4 23.5 34

Source: own work.

RESULTS AND DISCUSSION

For the purpose of this paper, quantitative descriptive analysis was performed, absolute and relative frequencies were calculated. For Likert-scale questions mean, standard deviation and modal values are presented and t-test was applied, as suggested by Boone & Boone (2012). Even though some statisticians negate such solutions, numerous business studies accept and apply such an approach (Lüthje & Franke, 2003; Fayolle *et al.*, 2006; Zellweger & Sieger, 2012; Ozaralli & Rivenburgh, 2016; Wach & Wojciechowski, 2016).

The majority of respondents use smartphones (96.8%), while only 3.2% do not use smartphones as a primary mobile device. Respondents who do not use smartphones were excluded from further analysis, so further analysis was based on 276 validated questionnaires. In addition, those respondents who are smartphone users were asked for how many years they have used smartphones in their everyday life. The majority of respondents have used smartphones for more than 2 years (Figure 1).

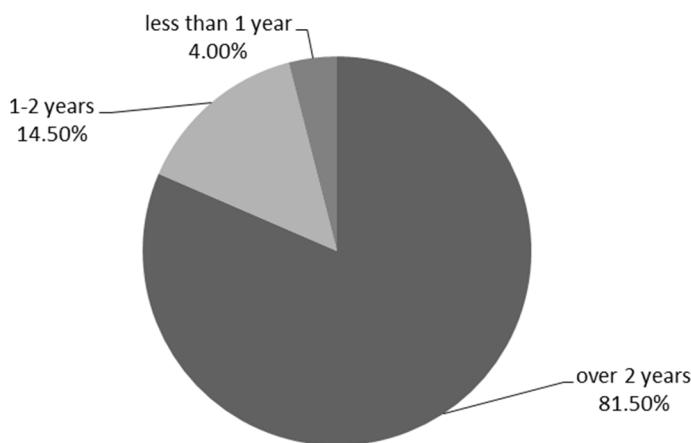


Figure 1. The proportion of respondents according to experience in using smartphones

Source: own work.

Furthermore, Smartphone users were asked to estimate how many hours per day they spend on using mobile applications. 40.2% of smartphone users claim that they spend between one and two hours a day, 19.90% spend two or three hours, 12% spend more than three hours, while 27.9% (less than one third) spend less than one hour per day on mobile applications' usage. Following this, we can conclude that this student generation has been growing up with digital technology since their later childhood and that they are using their smartphones extensively, which empirically proves Turban (2012, p. 279) who claims the "handset culture" existence among young generation, where cell phones are inevitable part of their lifestyle. In addition, Turban (2012, p. 279) states they are major online buying force which makes and spends reasonable amounts of money. Also, Smith's (2013) findings emphasise that the penetration of smartphone technology is substantial, growing, and assures its growing involvement in

shopping behaviours. Our findings prove that there is the existence of such handset generation in Croatia as well; therefore, H1 hypothesis is accepted.

Discussion of Results on the Perception of Mobile Shopping Obstacles and Risks

This survey tested a great number of claims regarding the motives, benefits, usefulness and other positive aspects of smartphone usage and some of them are already discussed in Knezević *et al.* (2015) research. The authors discussed the penetration rate of mobile commerce in younger population in Croatia, and came to the conclusion that there is 30.4% of active mobile buyers who purchase several times a year via their mobile phones. In addition, 18% of them use specialised mobile applications for retail purchases. The data analysis applied and explained in the paper by Knezević *et al.* (2015) showed that, from the point of view of young mobile shoppers, the most popular product group bought online is “tickets”, while the saving of time and the availability of service 24/7 are recognised to be the most important motives for using mobile applications in retail purchasing within student population in Croatia. Moreover, three main values of mobile shopping applications in comparison to traditional shopping are: (1) a wide range of information, (2) real-time and updated information and available products, and (3) recommendation based on individual history. Therefore, this paper is oriented towards obstacles, risks and attitudes towards mobile applications rather than mobile commerce in general and mobile commerce benefits, as those topics were scrutinised in Knezević *et al.* (2015).

Table 3 shows observed statements on obstacles of mobile applications ranked by the rating average.

Table 3. Perception towards obstacles of mobile applications usage

Answer Options	MEAN	MOD	Mod /TOTAL (%)	(4+5) / TOTAL (%)
The use of mobile applications shortens the phone's battery life	4.04	5	41.6	72.0
Frequency of updating mobile applications	3.65	4	42.4	62.4
Too many undesired requests (surveys, personal info, etc.)	3.61	4	32.5	57.6
Overnotification from retailer	3.60	4	33.6	54.4
Amount of memory space required	3.60	4	37.6	60.0
Difficult to read information on display panel	3.43	4	40.8	52.0
Apps is underpromoted (lack of awareness)	3.40	4	36.0	44.4
Smartphone coupons not welcomed at checkout	3.03	3	44.0	34.4

Note: 1 - “Not Important”; 2 - “Mostly unimportant”; 3 - “Neutral”; 4 - “Mostly important”; and 5 - “Very Important”.
Source: own work.

Three main obstacles as perceived by our respondents are: (1) The use of mobile applications shortens phone's battery life, (2) Frequency of updating mobile applications and (3) Too many undesired requests (surveys, personal info, etc.). Three of the statements are rated below 3.5 which is used as a limit for the purpose of this research, indicating positive attitudes if the observed mean values are higher. Therefore, t-test was used to explain statistical significance of this negative difference between the observed mean and a limit of 3.5, i.e. hypothetic mean. Calculated p-values were 0.5136 for statement “Difficult to read information on display panel” and 0.5322 for “Apps is underpromoted (lack of awareness)”. Therefore, the existing negative difference is not statistically significant for $\alpha=0.05$ or $\alpha=0.10$ for those two statements. Meanwhile, p-

value for statement "Smartphone coupons not welcomed at checkout" is 0.0000, which means that negative attitude toward this statement is statistically significant for $\alpha=0.05$.

The observed obstacles were differently evaluated in Childs' (2013) research where shortening the phone's battery life and the frequency of updating mobile applications obstacles were evaluated with minor importance. Also, the amount of memory space required is considered as an unimportant obstacle in Childs' research, as opposed to this study where the amount of memory space required is evaluated as an important factor of mobile applications' usage.

When reconsidering mobile applications as a communication channel with a targeted market, it is important to know what the perceived risks are when mobile applications are used as shopping tools.

As illustrated in Table 4, most of respondents believe the payment procedure in mobile applications is safe (67.20%), the service provider can protect their personal information (57.50%). However, for all other statements, respondents have neutral or negative opinions, i.e. summarised positive attitudes are below 50%. Moreover, calculated means for each offered statement are below 3.5 (as a presumed measurement of positive attitude). This negative mean difference is statistically significant at $\alpha=0.05$ for statements regarding legal framework (Q25) and return policy (Q26) and at $\alpha=0.1$ for statement regarding product expectations (Q27). At the same time, small negative mean difference for (Q29) is not statistically significant at all. The exception to the rule is positively evaluated statement "I believe the payment procedure of electronic in-Apps purchase is safe." with average grade 3.6350 (above tested 3.5, which indicates the level of positive attitude) confirmed as statistically relevant at $\alpha=0.05$.

Nonetheless, we have to point out that Table 4 shows the existence of a respectively large number of respondents who do not have an opinion on the statements Q25, Q26 and Q27. This leads us to the conclusion that even this young population is not very well informed on m-commerce issues and there is an opportunity for marketers to use this fact when promoting m-business initiatives. First of all, they should inform and educate consumers on issues, risks and policies which are applied in this area.

On the basis of the given explanation, we conclude that H2 hypothesis is not accepted. Even though young consumers understand the obstacles to installing and using mobile applications (see Table 3), their awareness and understanding of the legal framework regarding customer protection together with their knowledge on retailers' and providers' policies can be significantly improved (see Table 4).

Table 4. Risks of using mobile applications

	Q25 Legal framework	Q26 Return policy	Q27 Product Expectations	Q28 Safe payment	Q29 Privacy protection
average grade (MEAN)	3.3474	3.2770	3.4030	3.6350	3.4950
standard deviation	1.0216	1.0669	0.9075	0.8663	0.9236
MEDIAN	3 - neutral	3 - neutral	3 - neutral	4 - mostly agree	4 - mostly agree
MEDIAN/TOTAL	34.50%	39.80%	40.70%	57.50%	48.70%
MODAL VALUE	4 - mostly agree	3 - neutral	3 - neutral	4 - mostly agree	4 - mostly agree
MODAL VALUE/TOTAL	35.40%	39.80%	40.70%	57.50%	48.70%
Confidence interval (95%)	3.23 >3.35> 3.47	3.16 >3.28> 3.41	3.29 >3.40> 3.50	3.54 >3.63> 3.74	3.38 >3.49> 3.60
(mostly agree + agree)/TOTAL	46.90%	39.90%	46.30%	67.20%	57.50%
P-value for t-test $\mu=3.5$ ($\alpha=0.05$)	0.0086	0.0005	0.0723**	0.0090	0.9272*

Note: 1 - "strongly disagree"; 5 - "strongly agree"; * difference between OBSERVED MEAN and HYPOTHETIC MEAN ($\mu=3.5$) is not statistically significant for $\alpha=0.05$ or $\alpha=0.10$; ** statistically significant at $\alpha=0.10$; Evaluated statements: Q25 "Existing legal framework of customer protection regarding privacy and security is sufficient.;" Q26 "I believe retailers may provide comprehensive refund and exchange policy in apps-commerce.;" Q27 "I am confident that there is no discrepancy of actual product performance relative to expectation.;" Q28 "I believe the payment procedure of electronic in-Apps purchase is safe.;" Q29 "I am confident that service provider may protect my personal information."

Source: own research.

Discussion of the Results on the Usability and Usefulness of Mobile Applications as Shopping Tools

To maintain a long-term return in business, retaining customer satisfaction in the Apps purchase and usage is essential to ensure profitable repeat business. The satisfaction level affects the user's motivation to make recommendation to potential customers (Wai, 2012), and brings greater efficiency to businesses in maintaining their competitive advantages.

Therefore, respondents were asked to specify their opinion towards mobile shopping ease of use which is also claimed to be one of the motives or one of the obstacles to m-commerce acceptance by consumers. For each sentence regarding statements on easiness, they were asked to choose a level of agreement. According to the data in Table 5, we can observe relatively high grades for each proposed statement. The only statement which was evaluated below 4 was "I prefer personalised user interface design" with average grade of 3.6, but compared to the t-test mean of 3.5, this mean difference is not statistically significant at $\alpha=0.05$. Therefore, we can conclude that smartphone users are mostly satisfied with the level of usability issues which are tested in this survey. These results are generally similar to Wai's (2012) research findings, where simple and user-friendly interface design and easiness of learning to use mobile applications for purchasing are rated as highly preferable.

Moreover, respondents were asked for an opinion on 3 statements regarding the level of satisfaction from the purchasing process via mobile applications. In Figure 4 customer

satisfaction and perceived value rating average are shown, from which it can be observed that majority of respondents agreed with all 3 statements on the usefulness of mobile shopping via mobile applications. On the basis of the presented results, we can conclude that young consumers express a high level of satisfaction regarding mobile online purchasing, which is in line with Wai (2012). This finding is of great interest for marketers, because the positive attitude of consumers towards a marketing channel (in this case m-commerce) makes it easier to introduce and promote activities done within or through a particular channel. As it can be observed in the graph (Figure 4), positive answers prevail and are around 70%, if we sum up options "4- mostly agree" and "strongly agree". Average grades (means) were calculated and for each option the average grade exceeded 3.85. Also, p-values of t-test at the hypothetic mean $\mu=3.5$ ($\alpha=0.05$) were below 0.0001 for each option. Therefore, we can conclude that there are positive attitudes when discussing the satisfaction with the usage of mobile applications and that this finding is statistically relevant.

Table 5. Value of easiness of Apps to purchase products or services

	I prefer simple and user-friendly interface design	Learning to use mobile applications for purchasing products/services is easy to me	My interaction with mobile applications for purchasing products/services is clear and understandable	I prefer personalised user interface design (e.g. number of items displayed per page, colour, music)
average grade (MEAN)	4.176	4.160	4.088	3.600
standard deviation	0.8986	0.8270	0.8615	1.0625
MEDIAN	4 - mostly agree	4 - mostly agree	4 - mostly agree	4 - mostly agree
MEDIAN/TOTAL (%)	40.0	43.2	50.4	31.2
MODAL VALUE	5 - strongly agree	4 - mostly agree	4 - mostly agree	3 - neutral
MODAL VALUE/TOTAL (%)	42.4	43.2	50.4	31.2
confidence interval (95%)	4.02 >4.18> 4.33	4.01 >4.16> 4.31	3.94 >4.09> 4.24	3.41 >3.6> 3.79
(important + very important)/TOTAL (%)	82.4	81.6	83.2	54.4
P-value for t-test $\mu=3.5$ ($\alpha=0.05$)	0.0000	0.0000	0.0000	0.1113*

Source: own research.

According to the presented findings, young consumers agree that mobile shopping applications are easy to use (Table 4) and they express a high level of satisfaction with the usage of mobile applications (Figure 4). Therefore, we can conclude that H3 hypothesis is accepted.

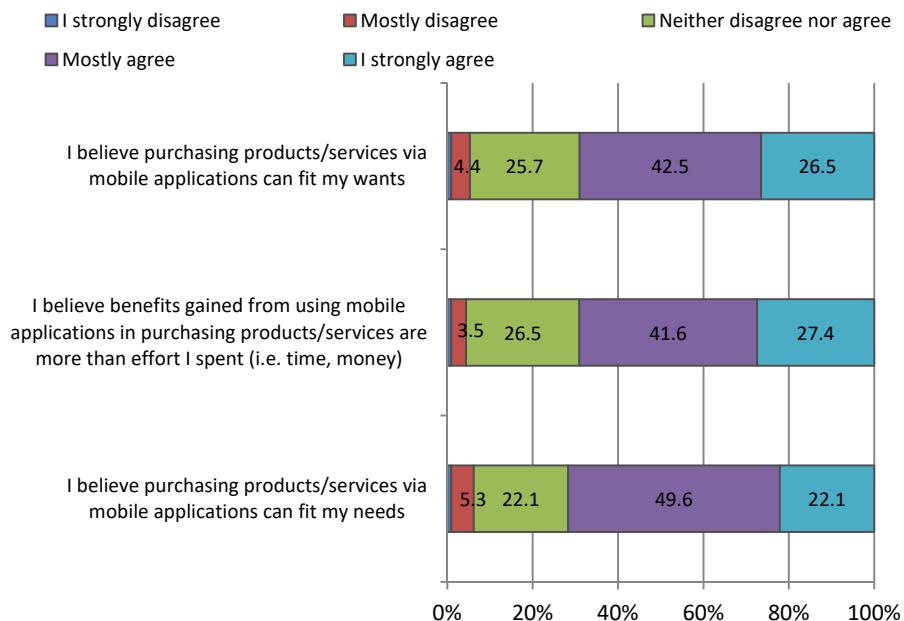


Figure 2. Perceived value and satisfaction with using mobile applications

Source: own work.

CONCLUSIONS

The base of potential customers who will use their mobile devices for everyday shopping activities is increasing due to a rapidly growing number of smartphone users. Therefore, mobile commerce has become one of the key priorities in many business organisations (Ropers, 2001), especially those oriented towards final consumers, such as the retail industry in particular. A respective number of authors analyse and explain various aspects of mobile commerce starting from defining its benefits toward emphasising its obstacles, risks and disadvantages. However, there is a scarcity of research studies in some geographical areas, such as Eastern Europe.

Therefore, this paper focused on the attitudes of young consumers in Croatia. The survey took place in April 2015 and 285 respondents filled in the questionnaire. Out of them only 3.2% were not smartphone users and majority of them (81.50%) have been using this technology for more than 2 years. Therefore, we accept H1: "Majority of young consumers in Croatia are experienced users of mobile phones and mobile shopping applications".

However, there are several concerns in young population regarding mobile application usage and those are: (1) The use of mobile applications shortens the phone's battery life, (2) The frequency of updating mobile applications and (3) Too many undesired requests (surveys, personal info, etc.). This finding can serve marketers as a basis for improvements in this area. In addition, we have to emphasise that around 20% of respondents expressed disagreement with the claims related to the (1) comprehensive refund

policies, (2) the privacy of the consumer' data and (3) the sufficiency of the legal framework for customer protection regarding privacy and security. Therefore, marketers should pay more attention to making more efforts to communicate policies in those areas to targeted consumers. Hypothesis **H2**: "Young consumers in Croatia understand the obstacles and risks of mobile shopping applications usage" cannot be accepted (based on the gathered empirical data) because there is a lack of knowledge in the area of the legal framework and awareness of retailers' and providers' policies.

Nonetheless, we can observe that young consumers in Croatia have a positive attitude towards the usefulness of mobile shopping via mobile applications, which is in line with Wai (2012). Therefore, hypothesis **H3**: "In young population from Croatia the usability of mobile shopping applications is highly evaluated" is accepted. Marketers could use these findings when introducing promotional activities within or through a particular mobile commerce channel.

The main limitation of this research is its focus on a particular consumer group (young consumers) at the particular market (Croatia), so the findings cannot be generalised for the whole population in Europe or for all consumer groups in the market. Therefore, we suggest further research on various groups of consumers and at various markets in order to make comparison and conduct further analysis. Moreover, in this research we applied the basic descriptive data analysis, and in future analysis we suggest the application of more complex statistical methods, such as inferential statistical analysis.

REFERENCES

- Boone, H.N., & Boone, D.A. (2012). Analyzing Likert Data, *Journal of Extension* [On-line], 50(2), Available at: https://joe.org/joe/2012april/pdf/JOE_v50_2tt2.pdf
- Brockett, P., & Golden, L. (2012). Managing risk in mobile commerce. *International Journal of Electronic Business*, 10(2), 167-185.
- Cheong, J. H., & Park, M. C. (2005). Mobile internet acceptance in Korea. *Internet Research*, 15(2), 125-140.
- Childs, N. M. (2013). *Digital Grocery Commerce: Exploring the Potential for Grocery Shopping Apps*. The peck fellowship year one research report 2013, available at: <http://www.sju.edu/int/academics/hsb/foodmarketing/academy/peck/files/Peck%20Fellowship%202013%20Final1.pdf>
- Choi, J., Seol, H., & Lee, S. (2008). Customer satisfaction factors of mobile commerce in Korea. *Internet Research*, 18(3), 313-335.
- Choi, J., Seol, H., Lee, S., Cho, S., & Park, Y. (2008). Customer satisfaction factors of mobile commerce in Korea. *Internet Research*, 18(3), 313-335.
- Dai, H., & Palvia, P. C. (2009). Mobile Commerce Adoption in China and the United States: A Cross-Cultural Study. *The DATA BASE for Advances in Information Systems*, 40(4), 43-61.
- Deloitte (2013). *The dawn of mobile influence: Discovering the value of mobile in retail*. Available at: <http://www2.deloitte.com/content/dam/Deloitte/uk/Documents/consumer-business/deloitte-uk-the-dawn-of-mobile-influence-final.pdf>, 3-4.
- Fayolle, A., Gailly, B., & Lassas-Clerc, N. (2006). Effect and Counter Efect of Entrepreneurship Education and Social Context on Student's Intentions. *Estudios de Economía Aplicada*, 24(2), 509-523.
- Featherman, M.S., & Pavlou, P.A. (2003). Predicting e-services adoption: a perceived risk facts perceptive. *International Journal of Human-Computer Studies*, 59(4), 451-474.

- Ghosh, A., & Swaminatha, T. (2001). Software security and privacy risks in mobile e-commerce. *Communications of the ACM*, 44(2), 51-57.
- Ghosh, A.K., & Swaminatha, T.M. (2001). Software security and privacy risks in mobile e-commerce. *Communications of the ACM*, 44(2), 51-57.
- Hong, S.J., Thong, Y.L., & Tam, K.Y. (2006). The effects of post-adoption beliefs on the expectation-confirmation model for information technology continuance. *International Journal of Human-Computer Studies*, 64(9), 799-810.
- Kabir, G., & Hasin, A.A. (2011). Evaluation of customer oriented success factors in mobile commerce using fuzzy AHP. *Journal of Industrial Engineering and Management*, 4(2), 361-386.
- Knežević, B., Delić, M., & Knego, N. (2015). Smartphones and Mobile Applications as Shopping Tools – Attitudes of Young Retail Consumers in Croatia. *Handel wewnętrzny*, 5(358), 188-202.
- Knezevic, B., Jakovic, B., & Strugar, I. (2014). Potentials and Problems of Internet as a Source of Purchasing Information – Experiences and Attitudes of University Students in Croatia. *Business, Management and Education*, 12(1), 138-158.
- Kurnia, S., Smith, S.P., & Lee, H. (2006). Consumers' perception of mobile internet in Australia. *E-Business Review*, 5(1), 19-32.
- Laundon, K.C., & Traver, C.G. (2007). *E-commerce*. Pearson, Prentice Hall.
- Laundon, K.C., & Taver, C.G. (2015). *E-commerce 2015: Business, Technology, Society*. Pearson.
- Lin, H.H., & Wang, Y.S. (2005). Predicting consumer intention to use mobile commerce in Taiwan. *Proceedings of the International Conferences on Mobile Business*, Sydney, Australia.
- Lüthje, C., & Franke, N. (2003). The 'making' of an entrepreneur: testing a model of entrepreneurial intent among engineering students at MIT. *R&D Management*, 33(2), 135-147.
- Mahatanankoon, P., Wen, H., & Lim, B. (2006). Evaluating the technological characteristics and trust affecting mobile device usage. *International Journal of Mobile Communications*, 4(6), 662-681.
- Malhotra, A., & Segars, A.H. (2005). Investigating Wireless Web Adoption Patterns in the U.S.. *Communications of the ACM*, 48(10), 105-110.
- Ozaralli, N., & Rivenburgh, N.K. (2016). Entrepreneurial intention: antecedents to entrepreneurial behavior in the U.S.A. and Turkey. *Journal of Global Entrepreneurship Research*, 6(3), 1-32.
- Pagani, M. (2004). Determinants of adoption of third generation mobile multimedia services. *Journal of Interactive Marketing*, 18(3), 46-59.
- Ribbink, D., Van Riel, A.C.R., & Liljander, V. (2004). Comfort your online customer: quality, trust and loyalty on the internet. *Managing Service Quality*, 14(6), 446-456.
- Smith, A. (2013). *Smartphone Ownership 2013*. Available at: <http://www.pewinternet.org/2013/06/05/smartphone-ownership-2013/>
- Snowden, S., & Spafford, J. (2006). Technology acceptance and m-commerce in an operational environment. *Journal of Enterprise Information Management*, 19(5), 525-539.
- Ström, R., & Vendel, M. (2013). *The value of mobile marketing for consumers and retailers: a literature review*. Available at: <http://www.diva-portal.org/smash/get/diva2:603301/FULLTEXT01.pdf>
- Strugar, I., Knežević, B., & Jaković, B. (2011). *The Croatian students' attitude towards on-line shopping – perception and expectations of new generation shoppers*. Annals of DAAAM for 2011 & Proceedings of the 22nd International DAAAM Symposium/ Katalinić, Branko (ur.). Vienna: DAAAM International, Vienna, 83-84.
- Tsangalidou, A., & Pitoura, E. (2001). Business models and transactions in mobile electronic commerce: Requirements and properties. *Computer Networks*, 37, 221-236.
- Turban, E. (2008). *Electronic Commerce*. 1st Edition, Prentice Hall.

- Turban, E. (2012). *Electronic Commerce 2012: A Managerial and Social Networks Perspectives*. 7st Edition, Pearson.
- Wach, K., & Wojciechowski, L. (2016). Entrepreneurial Intentions of Students in Poland in the View of Ajzen's Theory of Planned Behaviour. *Entrepreneurial Business and Economics Review*, 4(1), 83-94.
- Wai, T.K. (2012). *The study of consumer attitudes towards Smartphone applications commerce in Hong Kong fashion retail industry*. Thesis. Institute of Textiles & Clothing, The Hong Kong Polytechnic University.
- Wu, J.H., & Wang, S.C. (2005). What drives mobile commerce?: An empirical evaluation of the revised technology acceptance model. *Information & Management*, 42(5), 719-729.
- Yang, K. (2005). Exploring Factors Affecting the Adoption of Mobile Commerce in Singapore. *Telematics and Informatics*, 22(3), 257-277.
- Yang, Y., Liu, Y., Li, H., & Yu, B. (2014). Understanding perceived risks in mobile payment acceptance. *Industrial Management & Data Systems*, 115(2), 253-269.
- Zellweger, T., & Sieger, P. (2012). Entrepreneurial orientation in long-lived family firms. *Small Business Economy*, 38(1), 67-84.



Authors

The contribution share of authors is equal and amounted to 50% each of them.

Blaženka Knežević

Associate Professor at the Department of Trade at the Faculty of Economics and Business Zagreb. She graduated from the Faculty of Economics & Business – Zagreb, where she received PhD Degree in Social Sciences, in the field of Economics in 2008. She teaches courses at undergraduate, graduate and post – graduate level at the Faculty of Economics and Business Zagreb and Faculty of Economics Sarajevo (Bosnia and Herzegovina). Blaženka Knežević gave guest lectures in many Universities in Europe, such as: University of Stirling, Cracow University of Economics, Vilnius Gediminas Technical University, and University of Belgrade, etc. She has published more than 50 papers in scientific journals, chapters in books and proceedings of international scientific conferences. She is a reviewer and/or a member of editorial boards in many peer review academic journals in the field of business administration, marketing and management. She is a member of programme committees of several international academic conferences. She is actively engaged in a number of scientific projects. Her research interests are: economics of electronic commerce, information systems in retailing, procurement management and retail supply chains.

Correspondence to: Izv.Prof. dr.Knežević Blaženka, University of Zagreb, Faculty of Economics, Department of Trade, Trg J.F.Kennedy 6, HR-10000 Zagreb, Croatia, e-mail: bknezevic@gmail.com

Mia Delić

Teaching and Research Assistant at the Department of Trade at the Faculty of Economics and Business Zagreb. She enrolled a doctoral programme in Business Economics at the Faculty of Economics & Business – Zagreb, in 2012. She teaches courses at the undergraduate and graduate level at the Faculty of Economics and Business Zagreb. Mia Delić gave guest lectures at Cracow University of Economics in 2013 and Vilnius Gediminas Technical University in 2015. She visited Cardiff University Business School in 2015 as a visiting researcher for three months where she collaborated with a number of research experts from Logistics and Operations Management Section, the Centre for Automotive Industry Research, and the Centre for Advanced Manufacturing Systems. She has published more than 20 papers in scientific journals, chapters in books and proceedings of international scientific conferences. She is an editorial secretary of the academic journal Business Excellence. She is actively engaged in a number of scientific projects. Her research interests are: electronic commerce, information systems in retailing, procurement management, supply chain management and additive manufacturing technologies.

Correspondence to: Mia Delić, University of Zagreb, Faculty of Economics, Department of Trade, Trg J.F.Kennedy 6, HR-10000 Zagreb, Croatia, e-mail: mdelic@efzg.hr

Acknowledgements and Financial Disclosure

The article came into being within the project entitled ‘Innovations in Supply Chains in Conditions of Retail Internationalization’ [in Croatian: ‘Inovacije u lancima opskrbe u uvjetima internacionalizacije maloprodaje’] financed by University of Zagreb, Croatia, conducted by Blaženka Knežević and team in the year 2015 and 2016.

Copyright and License



This article is published under the terms of the Creative Commons
Attribution – NoDerivs (CC BY- ND 4.0) License
<http://creativecommons.org/licenses/by-nd/4.0/>