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CUSTOMER SATISFACTION AND LOYALTY FACTORS OF MOBILE COMMERCE AMONG YOUNG RETAIL CUSTOMERS IN CROATIA

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ABSTRACT

Mobile technology has begun to transform the way young retail consumers shop, allowing them more intermediate control over purchasing process. With competition accelerating in retail industry, mobile devices have been used widely in delivering value-added services. Hence, mobile commerce is likely to make a strong influence on business activities, consumer behavior, as well as national and global markets. The purpose of this paper is to identify key factors influencing customer satisfaction and loyalty in mobile commerce by empirically-based research questionnaire. Based on previous literature, the paper builds sets of customer satisfaction and loyalty constructs for mobile commerce. Significant constructs and their relationships are examined by m-commerce satisfaction model employing structural equation model. Research findings indicate that all constructs significantly affect Smartphone customers' satisfaction, except for the price. Furthermore, satisfaction has moderately strong influence on Smartphone customer' loyalty. The implication of this research to researchers and practitioners is discussed.

KEYWORDS
Mobile commerce, customer satisfaction, customer loyalty, young customers, Croatia.

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INTRODUÇÃO

Development of the mobile devices and related technologies as a new type of communication service created new opportunities in various digital contents of mobile commerce. Although popularity of mobile commerce cannot be only explained by popularity of mobile devices (Anckar and D'Incau, 2002), potential benefits of this new transaction channel cannot be neglected. Mobile commerce has been predicted as the new upcoming trend in retail trade by several researches (Kalakota and Robinson, 2001; Liang and Wei, 2004). According to Eurostat (2014) about 7% of EU population use handheld devices for purchasing while mobile purchasing penetration already exceeded 15% of population in the UK, Swedish, Danish and Norwegian market. This shows that mobile technologies are opening new opportunities for all participants in the retail supply chain. Yang and Forney (2013) highlight the effect of rapid adoption of mobile Internet and smartphones on capitalizing the new channel to serve the customers in the retail industry, enhancing their shopping experience by becoming a personal shopping assistant.

Due to benefits of m-commerce unlike existing types of commerce as well as its rapid growth, an increasing discussion on m-commerce appears in the literature in recent years (Choi et al, 2008; Dai and Palvia, 2009; Gupta and Madan, 2012; Kabir and Hasin, 2011; Lin and Wang, 2006; Wu and Wang, 2005). Moreover, customer satisfaction and loyalty in mobile commerce as key factors to m-commerce success are still not sufficiently examined - most of the researches paid attention to the customer's intention to accept m-Internet, rather than customer satisfaction in mobile commerce.

The student population is referred to as a large part of consumer Y generation in the research literature, highly aware of using digital tools in different purposes even in the process of buying goods and services (Archana and Heejin, 2008; Rahman and Azar, 2011). Hence, better understandings in consumers' behavioral intentions are of great importance to retailers and marketers in order to find the young consumers' attitudes towards convenience, functionality, price and reliability of mobile technology regarding retail purchasing processes.

In order to cover the research gap to this matter, this research aims to identify critical factors affecting customer satisfaction and loyalty in m-commerce. Firstly, the paper gives an overview of theoretical foundations for the key attributes of m-commerce, by focusing on those which have a great influence on mobile commerce satisfaction and loyalty according to

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previous research in the literature (Bruner and Kumar, 2003; Choi et al., 2008; Kabir and Hasin, 2011; Kalakota and Robinson, 2001; Wu and Wang, 2005). Section two deals with the relevant studies to obtain both theoretical and methodological background. The research design is explained in Section three, whilst the results and model outcome are analyzed in Section four. The paper ends with discussion and conclusions in the final Section.

MOBILE COMMERCE DEFINITIONS AND ATTRIBUTES

Since mobile commerce is fully enabled throughout wireless technology, Chaffey (2007: 132) defines mobile commerce as electronic transactions and communications conducted by using different mobile devices and with the wireless connection. Also, Laundon and Traver (2007: 84) emphasize that mobile commerce is using traditional e-commerce models by leveraging wireless technologies.

According to Tiwari and Buse (2007), mobile commerce is described as any transaction, involving the transfer of ownership or rights to use goods and services, which is initiated or completed by using mobile access with the help of electronic devices, such as Personal Digital Assistant (PDA) or Smartphone. Tarasewich et al. (2002: 42) defined mobile commerce as "all activities related to a (potential) commercial transaction conducted through communications networks that interface with wireless (or mobile) devices". Many business organizations target to invest in mobile applications development for various purposes in coming years. Therefore, recognizing the potential value of running business in electronic format (e.g. mobile commerce) is essential to retailers.

Despite many advantages derived from mobile commerce adoption, this technology development is seriously challenged by slow customers' adoption process. Therefore, enhanced functionality of mobile devices and purchasing applications require an in-depth understanding of customers' perceptions.

2.1. Attributes affecting Mobile Commerce satisfaction and loyalty

Many researchers have studied influential factors on customer satisfaction and loyalty in current electronic commerce (e-commerce), while the mobile commerce satisfaction (m-satisfaction) research is still in its infancy. However, mobile commerce succeeded many attributes from electronic commerce success model.

Though customer satisfaction is different from customer acceptance, Lee et al. (2007) measured the success of e-commerce as the intention to adopt e-commerce tools. Choi (2008) adopted ten different factors affecting m-commerce satisfaction and loyalty, considering reliability to be the most important

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factor influencing m-satisfaction and indirectly m-loyalty. Dai and Palvia (2009) identified nine factors affecting mobile commerce adoption: (1) perceived value added; (2) innovativeness; (3) security perception; (4) privacy perception; (5) perceived usefulness; (6) perceived ease of use; (7) perceived cost; (8) compatibility; (9) perceived enjoyment; and (10) subjective norm. Their results have shown that among those factors only innovativeness, privacy perception, perceived usefulness, compatibility and perceived enjoyment showed positive influence on mobile commerce adoption. Kim and Stenfield (2004) studied consumers' mobile internet service satisfaction and their continuance intentions, and investigated the relationship between satisfaction and new technology adoption. They used four different factors influencing overall satisfaction: (1) information quality, (2) connection quality, (3) ease of use and (4) service charge.

According to Chen and Hitt (2002) and Plouffe et al. (2001) high cost is the one of essential factors considered by consumers when deciding whether to use mobile commerce. Furthermore, Wu and Wang (2005) emphasize business concerns, privacy protection, security, and a risk free environment as the breakpoints for mobile commerce popularity. In their research model they adopted the extended technology acceptance model (TAM2), integrated with the innovation diffusion theory (IDT), perceived risk, and cost. The main attractive factors for the customer, according to Kabir and Hasin (2011) research, are the trust and mobility factors. In addition, content quality, system quality, use, support, personalization factors are also important.

Zhao et al. (2012) explored customer satisfaction in mobile services using multiple dimensions. In their study, service quality included: (1) interaction quality, (2) environment quality, and (3) outcome quality. They confirmed positive effect on satisfaction for all three service quality dimensions. Other studies also explored service quality dimensions and their influence on customer satisfaction. Özer et al. (2013) developed customer satisfaction model with five antecedents, namely: (1) compatibility, (2) entertainment, (3) ease of use, (4) availability, and (5) perceived risk. They found that availability and ease of use were the most influencing dimensions. Kuo et al. (2009) revealed that service quality positively affects perceived value and customer satisfaction in mobile services. They analyzed four service quality dimensions: (1) content quality, (2) navigation and visual design, (3) management and customer services, and (4) system reliability. According to Lin and Wang (2006) perceived value and trust positively influence customer satisfaction, and further influence customer loyalty.

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Tabela 1 - Customer satisfaction and loyalty factors of mobile commerce.

Factor	Description	Researchers
Convenience	Perceived ease of use	Cheong, Park (2005), Choi (2008), Chong and Marthandan (2008), Clarke, Flaherty, 2003, Kim et al. (2005), Dai, Palvia (2009), Ofori et al. (2016), Özer et al. (2013), Wu, Wang (2005), Yang (2005)
Functionality	Ease of navigation	Bhattacherjee,(2001), Choi (2008), Kim et al. (2007), Özer et al. (2013)
Price	Cost Perceived level of price	Cheong, Park (2005), Choi (2008), Ghinea, Angelides (2004), Mallat (2007), Mao et al. (2005), Dai, Palvia (2009), Wu, Wang (2005)
Reliability	Perceived system quality Compatibility Product Perceived content quality	Cheong, Park (2005), Choi (2008), Kim et al. (2005), Kuo et al. (2009), Lin and Wang (2006), Wu, Wang (2005)
Visibility	Size of image/text Readability of information	Bruner, Kumar (2003), Choi (2008), Kim et al. (2005), Kuo et al. (2009)

This paper adopted five essential factors for mobile satisfaction and loyalty from previous research, which are categorized into (1) convenience, (2) functionality, (3) price, (4) reliability and (5) visibility. Convenience refers to the degree to which customer considers navigating through m-commerce transactions free of effort. Functionality represents the simplicity and frequency of using mobile technologies regardless time and place. Price factor refers to the degree of perceived level of possible expenses to m-commerce adoption. Reliability represents the degree to which customer perceives the quality of goods and services purchased through m-commerce channels, while visibility shows the perceived customers satisfaction to visual information and site design. Sub-factors and previous researchers of each driver are shown in Table 1.

Based on the derived important factors listed in Table 1 and features of m-commerce, an m-satisfaction model that applies SEM and hypothesizing relationships is developed. The m-satisfaction model obtains information about relationships among listed factors and the customer satisfaction consequences as well as the degree of their effects on customer loyalty.

Customer satisfaction refers to the overall satisfaction and perceived value of m-

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commerce usage. Oliver (1999) defines satisfaction as pleasantness and fulfillment, which is customers' post-purchase evaluation and affective response to the overall product and service experience. In the mobile-service context, the extent of customers' assessment derived from their current m-commerce usage experience affecting their satisfaction level is examined in this study. Customer loyalty as the final variable in m-satisfaction model represents the degree of relationship between the service provider and consumer. The existing literature contains several researches which confirmed positive relationship between customer satisfaction and loyalty (Heller et al., 2003; Lin and Wang, 2006; Wai, 2012).

METHODOLOGY AND SAMPLE

The research survey was conducted on student population in 2015. The quantitative data was collected through online questionnaire in Google Docs. The questionnaire was distributed through social network platform Facebook and through Google Classroom.

Based on the questionnaire components of prior studies, a modified questionnaire was developed, which consisted of three main parts: (1) Personal information, (2) Smartphone and mobile technologies usage, and (3) Customers attitude towards mobile commerce adoption. All questionnaire items were measured by five-point Likert scale. The questionnaire constructs and descriptions of each section are shown in Table 2.

Male and female respondents aged between 18 and 35 were surveyed. According to the Pew Research Centre's Internet & American Life Project (2011) about mobile technologies adoption, the working group aged between 25 and 34 is the highest Smartphone adoption group with 58%, followed by the young generation aged between 18 and 24 with 37%. With a similar adoption trend within the Croatian market, the target group of the questionnaire focuses on the Smartphone customers aged between 18 and 35. A large sample size provides more data for analysis. To ensure high explanatory power of result, the target respondents of this survey is 303. Table 4 shows relative frequency of sample characteristics.

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Figure 1 - M-satisfaction model.

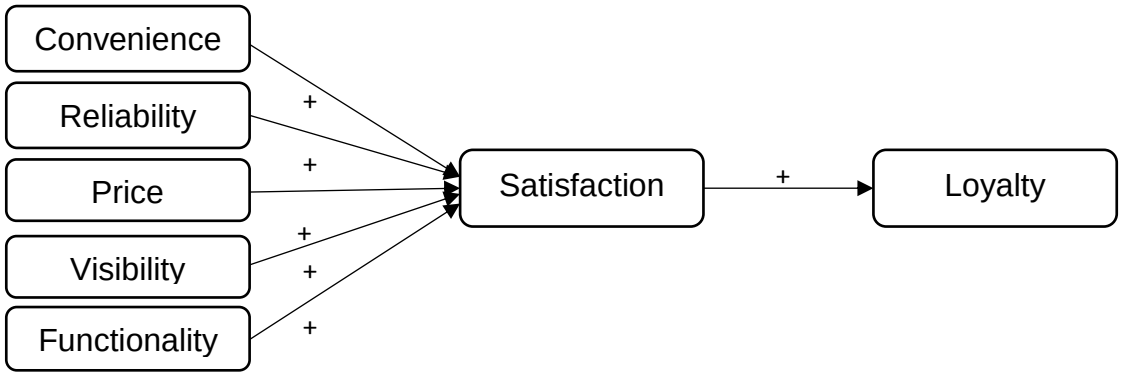

Tabela 2 - Questionnaire construct and objective

	Content	Objective
Section I	Personal information	– to collect demography information
Section II	Smartphone and mobile technologies usage	– to eliminate non-Smartphone customers – to examine the Smartphone penetration rate in Croatia – to gather mobile applications usage pattern
Section III	Customers' perception towards mobile technologies for buying products/ services (convenience, functionality, loyalty, price, reliability, satisfaction, visibility)	– to gather respondents' attitude towards mobile technologies for buying products/services based on different consequences – to examine the relative importance of these consequences – to examine satisfaction and loyalty level in different aspects

Tabela 3 - Sample characteristics

Characteristic	Options	Relative frequency (%)
gender	male female	25 75
years	18-24 25-30 31-35	61 36 3
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	15,8 26,4 23,6 34,2
the highest level of education	high school bachelor master or more	40,4 52,4 7,2
Smartphone usage	yes no	96,4% (=292) 3,6% (=11)
the mobile applications download	only free free and sometimes payable payable	86,3 12,7 1

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The majority of students use Smartphones as a primary mobile device (96.4%). There are only a few non-Smartphone users in the sample (3.6%). Among the population of Smartphone users (292), there were 238 respondents (81.5%) with over 2 years' experience of Smartphone usage, followed by the group with 1-2 years' usage experience (14.4%). The remaining part of the sample (4,1%) was the customers with up to one-year experience. From these results we can conclude that this student generation has been familiar with mobile technology from their teenage ages.

According to the research results, majority of students in Croatia do not purchase via mobile devices (35.2%), while 30% of them are purchasing 2 to 6 times per year. 26.6% of respondents are purchasing once per year, while only 8.2% are online shoppers on a regular basis (more than 6 times per year). There are great differences when analyzing types of products and services that students buy via mobile devices. Mobile shoppers within student population usually buy tickets (64.2% mobile shoppers within population). Next product group is "clothing, footwear and fashion accessories" (43.3% online shoppers within population). Around 19% of respondents are buying travel arrangements and products/services for health and beauty. While in the group food and beverages, consumer electronics, books and computer equipment there are less than 10% of mobile shoppers within student population.

ANALYSIS AND RESULTS

In this section, Smartphone and mobile technologies usage pattern are discussed in details, including mobile applications for buying products/services. In order to understand customer satisfaction and loyalty a survey has been conducted to ask young Smartphone users about their m-commerce perceptions and experience. The Smartphone customers are asked to rate their experience with m-commerce applications on a scale representing seven latent variables, namely (1) convenience, (2) functionality, (3) loyalty, (4) price, (5) reliability, (6) satisfaction, and (7) visibility, using five point Likert scales. The survey questions asked are presented in Appendix 2 and m-satisfaction model is shown in Figure 1. The model and research design are in line with similar studies conducted for the retail industry (Hair et al., 2013).

To test the research hypothesis and investigate the relationships between antecedents of customer satisfaction and their satisfaction and loyalty, this study used SmartPLS software. All model estimations were conducted on mean-centered data using the path weighting scheme (Ringle et al., 2005). Descriptive statistics and normality of data were calculated using the SPSS software.

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The results of assessments of the reflective measurement model are presented in Table 4. The Cronbach's alpha and composite reliability measures indicate high levels of internal consistency of the reflectively identified constructs. From Table 4, such values are shown to be larger than 0,7, so high levels of internal consistency reliability have been demonstrated (Bagozzi and Yi, 1988; Hair et al., 2012; Wong, 2013). Average Variance Extracted (AVE) values are calculated to check convergent validity and it is found that all of the AVE values are greater than the acceptable threshold of 0,5 (Bagozzi and Yi, 1988; Wong, 2013), so convergent validity is confirmed.

According to the research results (Table 4 and Figure 2), five latent variables (convenience, reliability, price, visibility, and functionality) moderately explain 60,1% of the variance in Smartphone customer's satisfaction. All five variables and satisfaction together explain 38,4% of the variance of Smartphone customer's loyalty.

The constructs also meet the Fornell-Larcker criterion of discriminant validity (Fornell and Larcker, 1981) meaning that all the constructs are sufficiently distinct for structural model assessments (Table 5). Furthermore, an examination of absolute standardized outer loadings (Appendix 1) indicates a sufficient level of indicator reliability with all loadings exceeding the acceptable value of 0,7.

The inner model path estimations suggest that functionality has the strongest effect on satisfaction (0,328), followed by reliability (0,281), convenience (0,164), visibility (0,127), and price (0,046). Except for price, all hypothesized path relationships are statistically significant (Table 6). Moreover, satisfaction has moderate effect on Smartphone customer's loyalty (0,622) and the relationship is statistically significant. Thus, it can be concluded that functionality, reliability, convenience and visibility are good predictors of Smartphone customer's satisfaction, and satisfaction is strong predictor of their loyalty.

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Tabela 4 - Assessments of measurement model quality

	Cronbach's Alpha	R Square	Composite Reliability	AVE
Convenience	0,786	n.a.	0,876	0,704
Functionality	0,835	n.a.	0,924	0,859
Loyalty	0,828	0,601	0,919	0,851
Price	0,825	n.a.	0,884	0,657
Reliability	0,727	n.a.	0,880	0,785
Satisfaction	0,803	0,384	0,910	0,835
Visibility	0,874	n.a.	0,940	0,887

Tabela 5 - Discriminant validity assessment

	Convenience	Functionality	Loyalty	Price	Reliability	Satisfaction	Visibility
Convenience	**0,839**						
Functionality	0,531	**0,927**					
Loyalty	0,542	0,499	**0,922**				
Price	0,529	0,388	0,380	**0,810**			
Reliability	0,614	0,599	0,465	0,522	**0,886**		
Satisfaction	0,609	0,667	0,622	0,481	0,681	**0,914**	
Visibility	0,589	0,519	0,489	0,589	0,628	0,597	**0,942**

Tabela 6 - Path coefficients

Relationships	Path coefficient	t-statistics*	p-value
Convenience → Satisfaction	**0,164**	2,993	0,003
Reliability → Satisfaction	**0,281**	4,481	0,000
Price → Satisfaction	0,046	0,871	0,384
Visibility → Satisfaction	**0,127**	1,881	0,061
Functionality → Satisfaction	**0,328**	5,519	0,000
Satisfaction → Loyalty	**0,622**	12,877	0,000

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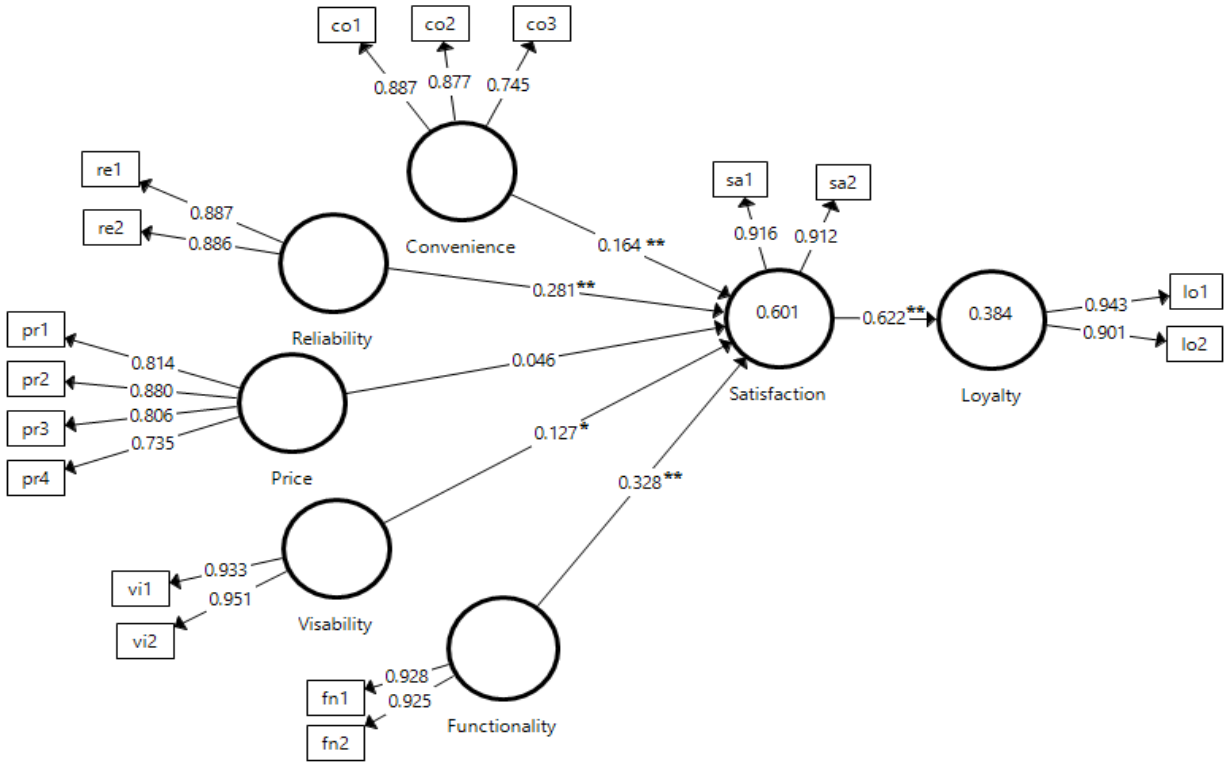
Figure 2 - M-Internet satisfaction model and results



DISCUSSION AND CONCLUSIONS

The purpose of this study was to demonstrate how mobile commerce providers can improve their business by understanding the antecedents of customer satisfaction with m-commerce applications and relationships among their satisfaction and loyalty. Through a survey of the young Smartphone customers and the subsequent structural equation modelling in SmartPLS, the important factors that lead to customer satisfaction and loyalty are identified.

In this research, Smartphone customers are found to care about functionality for m-Internet and appropriateness of a screen size for m-Internet. With loadings of 0,928, and 0,925 respectively, they are good indicators of functionality. Mobile commerce providers should not overlook these basic elements of their service because functionality has been shown to significantly influence customers' satisfaction level, and, consequently, their intent to continuously use m-commerce. Previous studies also found that technology and device compatibility positively affect customers' satisfaction (Bhattacherjee, 2001; Özer et al., 2013). Moreover, the study revealed that various content offers and availability of

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services and contents are important indicators of customers' satisfaction. Other studies confirmed that reliability significantly influence customer satisfaction (Choi et al., 2008; Kuo et al., 2009). Knežević et al. (2015) also found that availability of the service and information about products are main values of mobile applications shopping in comparison to traditional shopping. Other elements that are important for Smartphone customers' satisfaction include: easiness of approach and navigation through the m-commerce content, together with the design of screens that facilitates m-commerce. Numerous studies pointed out the importance of ease of use for customer satisfaction and behavioural intentions (Chong and Marthandan, 2008; Ofori et al., 2016; Özer et al., 2013; Wu and Wang, 2005). The results revealed that fulfilling the customers' expectations regarding a level of price for using m-Internet does not significantly impact their satisfaction due to its weak effect (0,046) in the linkage. The result can be explained by the fact that target population in this research were students who mostly download free applications and contents. However, the results indicate that functionality of devices, variety of content and its reliability are more important and effective strategies for mobile commerce providers than a simple price reduction (Choi et al., 2008). Based on the research results, the mobile commerce providers should (re)design their m-commerce applications to achieve: functionality (e.g. customization across devices), reliability (e.g. availability of content and services), convenience (e.g. ease of use), and visibility (e.g. design of screens).

The analysis of inner model shows that convenience, functionality, price, reliability and visibility together can explain 60,1% of the variance in customers' satisfaction, and satisfaction explains only 38,4% of customers' loyalty. It is an important finding because it suggests that there are other factors that mobile commerce providers should consider when exploring customers' loyalty and satisfactions in future research.

There are several limitations that should be considered in this study. Firstly, the scope of findings is limited. Majority of respondents were from the young generation aged between 18 and 30, while respondents aged between 31 and 35 accounted for only 3% in the sample. The results cannot be generally applied because higher education students' shopping experiences and perceptions might be different from other Smartphone customers. For example, they mostly use free mobile applications. Secondly, the study was conducted in Croatia and, therefore, it may not be generalized to other countries with different level of Smartphone penetration. Finally, the model in this study explained only 60% of the

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variance in satisfaction and 38% of the variance in loyalty. Accordingly, future studies should include additional constructs to explain Smartphone customers' satisfaction and loyalty. In particular, the satisfaction antecedents may include the level of enjoyment or entertainment.

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APPENDIX

Appendix 1 Construct indicator loadings

	Convenience	Functionality	Loyalty	Price	Reliability	Satisfaction	Visibility
co1	0,887						
co2	0,877						
co3	0,745						
fn1		0,928					
fn2		0,925					
lo1			0,943				
lo2			0,901				
pr1				0,814			
pr2				0,880			
pr3				0,806			
pr4				0,735			
re1					0,887		
re2					0,886		
sa1						0,916	
sa2						0,912	
vi1							0,933
vi2							0,951

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Appendix 2 Construct indicator scale items

Scale item	Item description
co1	Approach to content after access to m-Internet is easy.
co2	Navigation content is easy.
co3	Speed of m-Internet is rapid.
fn1	Functionality of the mobile device I currently use is appropriate for m-Internet.
fn2	Screen size of the mobile device I currently use is appropriate for m-Internet.
lo1	I will continuously use m-commerce.
lo2	I will continuously use m-commerce provided by the mobile telecommunication company that I currently subscribe, even though other companies offer me similar service or benefits.
pr1	A level of price for using m-Internet is appropriate.
pr2	A level of download price via m-Internet is appropriate.
pr3	I can afford prices for access to m-Internet.
pr4	I will use m-Internet even though content price is increased.
re1	Various content I want are offered via m-Internet.
re2	Services and content I want are always available.
sa1	Content download via m-Internet is useful for me.
sa2	Overall process from access and search to download via m-Internet is satisfying.
vi1	Overall design of screens offered through m-Internet is satisfying.
vi2	Overall design of screens offered through m-Internet is constructed to help customer's convenience.

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