

EXPLORING THE CONSUMERS' ACCEPTANCE OF ELECTRONIC RETAILING USING TECHNOLOGY ACCEPTANCE MODEL

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Summary

Following the approach of Pavlou (2003), we investigate key drivers for consumers' electronic retailing (e-tailing) acceptance that are integrated into TAM (technology acceptance model). TAM is one of the better known models for explaining the intention to use technology and it integrates two perceptions: usefulness and ease of use. The main purpose of this paper is to explore the relationship between perceived ease of use and perceived usefulness in accepting e-tailing among Croatian consumers. In particular, the focus of the paper is on the areas which influenced customer commitment and loyalty in e-tailing. The results of the quantitative study among Croatian consumers show that electronic retailing, e.g. purchasing via the Internet, would enhance consumers' effectiveness in getting product information and their effectiveness in purchasing products.

Key words: *technology acceptance model (TAM), electronic retailing (e-tailing), Croatia.*

1. INTRODUCTION

Consumers' acceptance of technology has been an important field of study. Although many models have been proposed to explain and predict the use of a system, the Technology Acceptance Model (TAM) has been the only one which has captured the most attention of the scientific community (Chuttur, 2009) and is a very important modelling approach in information technology research. It is one of the most widely re-

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searched models predicting information technology adoption (Gefen and Straub, 2000) and confirmed as one of the dominant theories in the area of e-commerce adoption by consumers (Cheung et al., 2003).

TAM model proposes that ease of use and usefulness predict application usage (Lederer et al., 2000). In other words, TAM model variables (perceived usefulness, PU, and ease of use, PEOU) are proposed as key drivers of e-commerce acceptance. The review of the available literature (Renko and Druzijanic, 2014) showed growing interest in electronic retailing (e-tailing) as one of recently growing innovative technologies in retailing. Çelik (2011) attributed this growth to e-tailing's distinct advantages for both consumers and retailers, such as shopping at round-the-clock convenience, decreasing dependence to store visits, saving travel costs, widening market area, lowering overhead expenses, supporting customer relations and offering a broad range of products (services).

The main goal of this study is to propose a theoretical and empirical explanation of the way the acceptance of electronic retailing is influenced by two perceptions: usefulness and ease of use (as the base of the TAM model). Accordingly, the purpose of this paper is to validate the TAM model with e-tailing (electronic retailing) as the users' application. Doing so could identify features of e-tailing that might contribute to its ease of use and usefulness. It could thus provide implications about the ease of use and usefulness for retailers in general.

2. THEORETICAL BACKGROUND

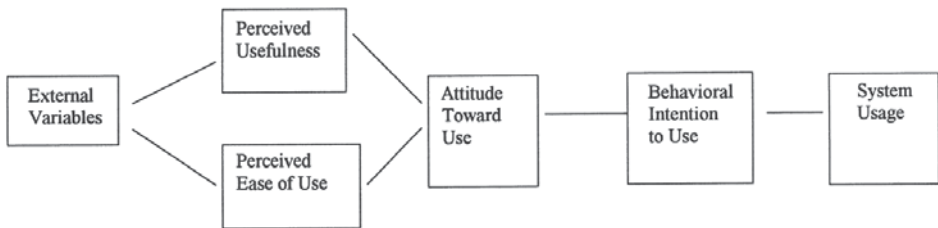
According to Schepers and Wetzels (2007, p. 91), the historical perspective of the TAM model can be traced back to Fishbein and Ajzen (1975) and their theory of reasoned action (TRA). According to that theory, both attitude towards an action and subjective norm have an impact on behavioral intention. It is considered one of the most influential theories in Information Systems (Benbasat and Barki, 2007) and an attempt to apply psychological factors to information systems and computer adoption (Schepers and Wetzels, 2007). There are also Pavlou and Fygenson (2006) who extended Ajzen's (1991) theory of planned behavior (TPB) to explain and predict the process of e-commerce adoption by consumers, which is captured through two online consumer behaviors: (1) getting information and (2) purchasing a product from a Web vendor. Pavlou (2003) predicts consumer acceptance of e-commerce by using technology acceptance model (TAM) variables: perceived usefulness and perceived ease of use.

Davis conceived that TAM's belief-attitude-intention-behavior relationship predicts user acceptance of information technology (Lederer et al., 2000, p. 270). Additionally, it is suggested that perceived usefulness and ease of use represent the beliefs which have led to the acceptance of information technology. Perceived usefulness is the degree to which a person believes that using a particular system would enhance his job performance, while perceived ease of use is the degree to which a person believes that using a particular system would be free of effort (Davis, 1989, p. 320). When speaking of e-tailing, perceived usefulness is consumers' perception of how e-tailing simplifies

and improves their shopping in terms of effectiveness, time and money savings, while perceived ease of use is consumers' perception of how easy it would be to learn how to use and navigate the online store.

The main constructs can be seen in Figure 1 which shows the generic technology acceptance model. As the original TAM variables in the generic model have not adequately captured the key beliefs that influence consumer attitudes toward information technology, there are several works using an extended TAM model (for example, Chen et al. (2002), Klopping and McKinney (2004), Lingyun and Dong (2008), etc.).

Figure 1: Generic technology acceptance model



Source: Lederer et al., 2000, p. 270

Figure 1 shows that apart from those two main constructs, there are also external variables such as (Çelik and Yılmaz, 2011, p. 154) personal characteristics (age, sex, income, education and culture), Internet experience, normative beliefs, shopping tendencies, online experience, safety, system quality, psychological perception (the perception of risk and benefit), online shopping experience etc.

Attitude toward use is the user's evaluation of the desirability of using particular information technology, while the behavioral intention to use is a measure of the likelihood that a person will use an application. Pavlou (2003, p. 73) noticed that although the number of Internet users was constantly increasing, more than 75 percent of online consumers abandoned their shopping carts before purchase. The fact is that traditional shopping offers additional social and cultural factors to consumers, which consumers who choose to use e-tailing will not encounter at all. Moreover, in traditional shopping, even if consumers finally decide not to purchase, their initial intentions when engaging in information exchange are typically to complete the ongoing transaction process if everything occurs according to their confident expectations. In contrast to traditional consumer behavior, online transactions have certain unique dimensions, such as (Pavlou, 2003, p. 73): (a) the extensive use of technology for transactions, (b) the distant and impersonal nature of the online environment, and (c) the implicit uncertainty of using open technological infrastructures for transactions.

Another important attribute that has not been studied in an online shopping context is online shopping anxiety. The adverse effects of conventional computer anxiety on the cognitive, affective and behavioral aspects of human-computer interactions

have been widely touted (Johnson and Marakas, 2000). Recent studies, however, indicate that computer anxiety might account for only a small percentage of consumers' fears of, aversions to and aggressions towards online shopping because many customers appear to be experienced in using a variety of communications hardware, software and protocols to access the Internet and accomplish their shopping tasks (Çelik, 2011). The final element in Figure 1 is system usage which presents a self-reported measure of time or frequency of employing the application (Lederer et al., 2000, p. 270).

The work of Çelik and Yılmaz (2011) is worth mentioning: it explained consumer acceptance of e-shopping by means of an extended model based on TAM. Namely, the authors produced an extended research model by adding perceived trust, perceived enjoyment, perceived information quality, perceived system quality and perceived service quality factors to the classical TAM. Moreover, Perea y Monsués et al. (2004) propose a framework based on the Technology Acceptance Model extended by exogenous factors and applied to the online shopping context, in order to increase the understanding of consumers' attitudes toward online shopping and their intention to shop on the Internet.

Literature review shows that TAM studies have been made in many technological fields (Schepers and Wetzels, 2007, p. 91): transactional web sites (Aladwani, 2002), electronic supermarkets (Henderson et al., 1998), e-commerce sites in selling books (Gefen and Straub, 2000), groupware (Lou et al., 2000), electronic payment systems (Plouffe et al., 2001) etc. However, most of the studies have not found a direct link between the perceived ease of use and information technology adoption. Moreover, studies in the TAM research stream are also inconsistent with respect to the effect of perceived ease of use on downstream effects and on the mediating effect of perceived usefulness (Gefen and Straub, 2000, p. 4).

Lederer et al. (2000) investigated TAM for work-related tasks with the World Wide Web as the application. They demonstrated that (1) ease of understanding and ease of finding predict the ease of use, and that (2) information quality predicts usefulness for revisited sites. Schepers and Wetzels (2007) criticize the TAM model, suggesting that there are two aspects which remain unclear: (1) the subjective norm that had a mixed and inconclusive role and (2) the settings used in testing the model. Sim et al. (2011) investigate the factors that affect the users' intention to adopt broadband by incorporating individual characteristics with the conventional Technology Acceptance Model.

Literature review suggests that quantitative research approaches have dominated the investigation of the TAM model. The work of Ma and Liu (2004) is worth mentioning - they provided a quantitative meta-analysis, but focused on three relationships: (1) perceived usefulness and perceived ease of use, (2) perceived usefulness and technology acceptance (use) and (3) perceived ease of use and technology acceptance (use). There is also the research of Legris et al. (2003) who performed a qualitative meta-analysis and concluded that TAM was a useful model but had to include human and social change process variables (e.g. the subjective norm).

3. RESEARCH METHOD

For the purpose of this paper, research was conducted, examining two perceptions of e-tailing: usefulness and ease of use of e-tailing among Croatian consumers on the sample of 1007 Croatian consumers. The research sample was a quota sample, the most important sample in the group of non-probabilistic samplings. A quota sample is often used in market research because of its simplicity and relatively good results. From all non-probabilistic samples, quota sample is, by its logic, the closest to a probabilistic sampling (Marušić and Prebežac, 2004). The method used in this study was online questionnaire. The questionnaire consists of the following major sections. The first section consists of statements related to the extent to which e-tailing meets the ease of use characteristics. The second section includes items asking the extent to which e-tailing meets the usefulness characteristics. The third section is devoted to demographics of the sample (results are shown in Table 1). Whenever possible, we developed items measuring the constructs by adapting existing scales developed and tested in previous research. As the original items were in English, we asked two researchers whose native language is English to check the translation validity.

The instrument gathered data on perceived usefulness (PU) and perceived ease of use (PEOU) via items adapted from the original TAM scales proposed by Davis (1989) and by Davis et al. (1989), and from the research of Gefen and Straub (2000), Lederer et al. (2000), Sim et al. (2011).

All the research constructs were measured using multiple-item 5-point Likert scales adapted from previous studies, with strongly disagree (1) and strongly agree (5) as the anchors. The research was conducted during September 2013. The collected data were analyzed using SPSS. Except from descriptive statistics calculations, significance of the findings was explored using Pearson correlation coefficient and Chi-square tests, depending on the various types of combination of variables that occurred.

Before using items for further analysis, testing the reliability with Cronbach's Alpha coefficient was conducted. The value of 0.833 (for perceived ease of use items) and 0.865 (for perceived usefulness items) respectively, suggest very good internal consistency reliability for scales used in this research (the recommended standard of 0.7 has been suggested by Nunnally (1978)). The *p* values were calculated to examine the level of statistical relationship between pairs of variables. The objectives were obtained using the conventional significance level of 0,05.

Table 1 portrays the demographic profiles of the respondents. The sample was made up of 30.1 percent males and 69.90 percent females. Respondents were generally well educated with 42.3 per cent holding a college or university degree and 43.5 per cent having a 4-year high school degree. Table 1 also identifies the respondents' occupation or employment status, and the sample mostly consists of industrial workers (45.5 per cent) and students (30.8 per cent). Respondents were mostly women (almost 70 per cent) and younger than 35 years.

Table 1: Demographics of sample (Total sample=1007 respondents)

Item	Percentage
<i>Gender</i>	
Female	69.9
Male	30.1
<i>Age (Years)</i>	
18-24	36.8
25-34	38.6
35-44	13.5
45-54	5.3
55+	5.8
<i>Education</i>	
Elementary	0.2
High school	43.5
College/University	42.3
Master degree	11.7
Doctoral degree	2.3
<i>Occupation/Employment status</i>	
Industrial worker	45.5
Owner of the company	9.6
Unemployed	10.7
Pensioner	3.4
Student	30.8

Source: survey

4. RESULTS AND DISCUSSION

In accordance with the main goals of the paper, the analyses, as well as the results, refer to two main constructs of the TAM model: perceived ease of use (PEOU) and perceived usefulness (PU). What follows is a short discussion of investigated themes and some interpretations.

Perceived ease of use of e-tailing

The analysis of the statements related to the perceived ease of use (PEOU) of e-tailing (Table 2) shows that the mean scores for all items that describe respondents' perception (on the 5-point Likert-type scale) are high (ranging from 3.50 to 3.89). Those findings suggest that respondents believe that e-tailing, e.g. purchasing and getting product information from a website would be free of effort (Pavlou and Fygenon, 2006). In order to find out whether some demographic characteristics (gender, age, the level of education, occupation) of the sample affect the respondents' perception of the ease of use of e-tailing, a Chi-square test was used. The Chi-square test shows significant relationships between all five statements related to the extent to which e-tailing meets the ease of use characteristics and the level of education. Accordingly, there is a statistically significant relationship between the respondents' education level and the ease of becoming skillful in using on-

line shopping ($\chi^2 = 48,208$, $df=20$, $p= 0,000$). The largest percentage of respondents (30 percent), who finished high school, believes that it was easy to become skillful in using online shopping. A statistically significant relationship is evident between the respondents' education level and the ease of using the Internet in general ($\chi^2 = 43,594$ $df=20$, $p= 0,002$), and the ease of using web sites for shopping ($\chi^2 = 34,663$, $df=20$, $p= 0,022$). Again, respondents with a high school educational level showed the highest belief in the ease of using the Internet (28.2 percent of respondents) and the ease of using web sites for shopping (21.5 percent of respondents). The Chi-square test also shows a significant relationship between the respondents' education level and the fact that online shopping does not require a lot of mental effort ($\chi^2 = 43,606$, $df=20$, $p= 0,002$). Finally, there is the statistically significant relationship between the respondents' educational level and the ease of using online stores to find what they want ($\chi^2 = 52,540$ $df=20$, $p=0,000$). In both cases, the highest percentage of respondents with high school education believed in those statements (25.7 percent and 26 percent of respondents respectively).

Table 2: Perceived Ease of Use (PEOU)

Item	Mean	St. deviation
It was easy to become skillful at using online shopping (PEOU1)	3.89	0.935
Internet is easy to use (PEOU2)	3.86	0.924
Web sites for shopping are easy to use (PEOU3)	3.50	0.839
Online shopping does not require a lot of mental effort (PEOU4)	3.56	0.921
It is easy to use online stores to find what I want (PEOU5)	3.62	0.807

Source: survey

Similar to Sim et al. (2011), there are statistically significant relationships between respondents' ages and the ease of becoming skillful in using online shopping ($\chi^2 = 72,167$ $df=24$, $p=0,000$), the ease of using the Internet in general ($\chi^2 = 75,557$, $df=24$, $p=0,000$) and the ease of using web sites for shopping ($\chi^2 = 47,200$ $df=24$, $p=0,003$). Respondents aged between 25 and 34 mostly believe (68 percent) that it is easy to become skillful in using online shopping. The highest percentage of respondents who believe that the Internet is easy to use (29.3 percent) and that shopping web sites are easy to use (19 percent) belongs to this age group (25-34 years).

The Chi-square test also shows a significant relationship between the respondents' occupation level and the ease of becoming skillful in using online shopping ($\chi^2 = 50,427$ $df=16$, $p=0,000$), and the ease of using the Internet in general ($\chi^2 = 47,058$ $df=16$, $p=0,000$). In both cases, industrial workers showed the highest level of commitment with those statements (35.8 percent and 34.1 percent respectively).

Perceived usefulness of e-tailing

The analysis of the statements related to the perceived usefulness (PU) of e-tailing (Table 3) shows that the mean scores for all items that describe respondents' per-

ception (on the 5-point Likert-type scale) are high (ranging from 3.10 to 3.79). Those findings suggest that respondents believe that e-tailing, e.g. purchasing via the Internet would enhance their effectiveness in getting product information and their effectiveness in purchasing products (Pavlou and Fygenon, 2006). In order to find out whether some demographic characteristics (gender, age, level of education, occupation) of the sample affect the respondents' perception of usefulness of e-tailing, a Chi-square test was used. The Chi-square test shows significant relationships among four items related to the extent to which the e-tailing meets usefulness characteristics and age, and is consistent with the study by Yang (2005). Thus, there is a statistically significant relationship between the respondents' age and the fact that the Internet provides faster searching and purchasing ($\chi^2 = 50,692$, $df=24$, $p= 0,001$) and that the Internet improves the quality of purchasing ($\chi^2 = 41,394$, $df=24$, $p= 0,015$). The largest percentage of respondents who agreed with those statements (24.1 percent) belonged to the group aged between 25 and 34. We should point out that in general, the largest percentage of respondents (42.6 percent) was not so sure whether the Internet had the opportunity to improve the quality of purchasing.

Also, there are statistically significant relationships between the respondents' age and the fact that the Internet is useful for searching and buying ($\chi^2 = 47,593$, $df=24$, $p= 0,003$) and that it enhances effectiveness of respondents' searching and buying ($\chi^2 = 38,500$, $df=24$, $p= 0,031$). In both cases, the largest percentage of respondents who agree with those statements were respondents 25-34 years old (28.1 percent and 21.1 percent, respectively).

Table 3: Perceived usefulness (PU)

Item	Mean	St. deviation
Internet enables me to search and buy faster (PU1)	3.59	0.947
Internet improves the quality of my purchasing (PU2)	3.10	0.973
Internet makes it easier to search for and purchase (PU3)	3.41	0.939
Internet is useful for searching and buying (PU4)	3.79	0.822
Internet enhances my effectiveness in searching and buying (PU5)	3.51	0.927

Source: survey

Additionally, the Chi-square test shows statistically significant relationships between the level of education and the fact that the Internet makes it easier to search and purchase ($\chi^2 = 33,563$, $df=20$, $p= 0,029$), as well as that it is useful for searching and buying in general ($\chi^2 = 66,106$, $df=20$, $p= 0,000$). In both cases, the largest percentage of respondents with high school education agrees with those statements (20.9 percent and 29.9 percent, respectively). The study is in accordance with the findings from Pijpers et al. (2001) as it is expected that users with higher education are more likely to search and make purchases through the Internet.

Following the methodological approach of Gefen and Straub (2000), Moon and Kim (2001) and Pavlou (2003), we investigated the direction and the strength of the relationship between perceived usefulness / perceived ease of use and the acceptance

of e-tailing. Accordingly, a correlation analysis was conducted. With the correlation significant at the 0.05 level (in identifying the strength of the relationship Dancey and Reidy (2002, p. 166) were followed), positive moderate relationships between the ten items were found. Those results are consistent with those in the notable works on e-commerce adoption (Pavlou, 2003; Schepers and Wetzels, 2007) by suggesting that there is a positive relationship between perceived usefulness and the perceived ease of use with the acceptance of Internet technology. Gefen and Straub (2000) discussed this relationship, showing that in most cases the perceived ease of use should affect use intentions through perceived usefulness. From the range of correlation coefficients, it seemed that the strength of each relationship varied slightly: from 0.226 to 0.581. Table 4 presents the strongest relationships.

Table 4: Correlation coefficient (the strongest relationships)

Construct	Pearson correlation coefficients
PEOU2- PU1	0.407**
PEOU2-PU3	0.405**
PEOU5-PU1	0.460**
PEOU5-PU3	0.427**

** Correlation is significant at the 0.05 level (2-tailed)

As we can see, there is a moderate positive association between respondents' beliefs that the Internet is easy to use and that it helps users in searching and buying faster. Moreover, there is a moderate positive association between respondents' beliefs that it is easy to use online stores to find what they want and that the Internet makes them search and buy faster.

5. CONCLUSION AND IMPLICATIONS

The acceptance of technological innovations has been an important field of study for over two decades now (Chuttur, 2009) and the technology acceptance model (TAM) has been thought to be the most powerful and parsimonious way to provide explanation for the acceptance or assessment of online shopping by a customer (Çelik, 2011). This study proposes a theoretical and empirical explanation of the way the acceptance of electronic retailing (e-tailing) is influenced by two perceptions – usefulness (PU) and ease of use (PEOU) – which are the basis of the TAM model. The results of the study among Croatian consumers show that respondents believe that e-tailing, e.g. purchasing and getting product information from a website would be free of effort and that e-tailing, e.g. purchasing via the Internet, would enhance their effectiveness in getting product information and their effectiveness in purchasing products. Moreover, this study provided empirical evidence for the relationship between perceived playfulness and perceived ease of use. This is not surprising, since many previous studies (for example, Hackbarth et al., 2003; Shang et al., 2005; Venkatesh, 2000) have reported the

same finding. In terms of the contribution of this study, it has extended previous research conducted in other developing and emerging nations, thus providing a clearer understanding of the intention to adopt e-tailing in Croatia. Additionally, some of the different demographic characteristics were found to be an important determinant of PEOU and PU in predicting the acceptance of e-tailing. Findings of this research can be useful also for Croatian e-tailers and marketing managers. Empirical results suggest that perceived usefulness and perceived ease of use have a positive impact on consumers in accepting e-tailing. This can be used when creating online strategies: presenting benefits of e-tailing to customers and creating an easily accessible online shop may help Croatian e-tailers to generate more sales.

6. LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

The present study has two limitations that should be taken into account when interpreting the results or generalizing them beyond the context of the study. First, several other factors, including Internet experience, normative beliefs, shopping tendencies, online experience, safety, system quality, psychological perception (the perception of risks and benefits), online shopping experience, availability, service quality and attitude, have to be included in the research instrument. Second, the instrument that gathered the data on PU and PEOU has to be extended based on the TAM related research. Third, in explaining the influence of the TAM model on the acceptance of e-tailing, further research should include other constructs of the model, not relying on PU and PEOU only. It would also be insightful to conduct a regression analysis to help demonstrate and describe the dependence among e-tailing adoption variables.

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ISTRAŽIVANJE O POTROŠAČKOM PRIHVAĆANJU ELEKTRONIČKE MALOPRODAJE PUTEV MODEL PRIHVAĆANJA TEHNOLOGIJE (TAM)

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Sažetak

Slijedeći pristup Pavloua (2003.), istražujemo ključne pokretače prihvatanja elektroničke maloprodaje (eng. e-tailing) od strane potrošača, koji su integrirani u TAM (model prihvatanja tehnologije, eng. technology acceptance model). TAM je jedan od poznatijih modela kojim se objašnjava namjeru korištenja tehnologije, te integrira dvije percepcije: korisnost i lakoću korištenja. Glavna svrha ovog rada je istražiti odnos između percipirane lakoće korištenja i percipirane korisnosti za prihvatanje elektroničke maloprodaje među hrvatskim potrošačima. Rad se posebno usredotočuje na područja koja utječu na privrženost i vjernost kupca u elektroničkoj maloprodaji. Rezultati kvantitativne studije među hrvatskim potrošačima pokazuju da bi elektronička maloprodaja, npr. kupovina putem Interneta, povećala djelotvornost u pribavljanju informacija o proizvodu, kao i djelotvornost u kupnji proizvoda.

Ključne riječi: *model prihvatanja tehnologije (TAM), elektronička maloprodaja (e-tailing), Hrvatska.*

JEL klasifikacija: L81, L86

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