

# Individual determinants of propensity to make purchases as part of e-commerce and m-commerce in Polish young consumers

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## Abstract

The article focuses on identifying shopping intention within e-commerce and m-commerce among Polish young consumers (aged 15–24 years) and personal factors (attitude and gender) which differentiate it. Based on surveys carried out among 383 students from Kraków, the authors collected data which were statistically analysed (ANOVA). The results show a greater propensity to make a purchase by young consumers in the context of e-commerce. The intention to do shopping online (e-commerce and m-commerce) is dependent on the attitude towards these channels. Gender, on the other hand, differentiates only variables related to e-commerce.

**Paper type:** research article

**Keywords:** consumer behaviour, e-commerce, m-commerce, online shopping, shopping intention, young consumers

## Introduction

In times of global connectivity and new methods of communication within a company, consumers also get new opportunities to acquire and exchange information that may serve as a basis for purchasing decisions. They can use the Internet at var-

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ious stages of making purchasing decisions, such as, the search for information on the supply market, the implementation of activities related to making a purchase (making an order, payments) or the use of after-sales services. They are part of the process of online shopping (online shopping behavior, online buying behaviour) which consists of activities aimed to purchase goods via the Internet.

The virtual environment poses challenges to specialists in sales and marketing forcing them to acquire competencies needed to implement activities under the new Web-based sales channels: e-commerce and m-commerce. In the literature available, there are more and more studies systematizing knowledge in this field, but due to the interdisciplinary nature of the issue, this area requires further exploration.

The article is an attempt to determine the factors influencing the propensity of Polish young consumers (aged 15–24 years) to make purchases within e-commerce and m-commerce. Due to the fact that the search for answers to questions about the determinants of young consumers' buying behaviour using the Internet goes beyond the scope of the study, a limited number of explanatory variables for selected individual factors was used (attitudes and gender of the respondent). Having conducted a review of the literature available, the authors chose the Technology Acceptance Model (TAM) as a theoretical basis. Therefore, the purpose was to check whether the intention to purchase on the Internet (e-commerce and m-commerce) depends on the attitude towards purchasing within e-commerce, the attitude towards doing shopping with the use of mobile devices and the perceived usefulness of these sales channels. The implementation of the purpose required conducting primary research and applying the methods of statistical analysis.

## 1. Shopping via the Internet – e-commerce and m-commerce

The widespread use of tablets and smartphones led to the creation of a new sales channel – online shopping done with the use of mobile devices (m-commerce) which is treated as an extension of electronic commerce (e-commerce).

In the literature, there are many unclear definitions of e-commerce and m-commerce. Having analysed some of these definitions, one can draw a conclusion that e-commerce refers to the process of exchange (sale and purchase) within which consumers have access to information about the offer in real time and purchase goods via the Internet, along with the implementation of payment and after-sales service (Li, Dong, & Chen, 2012). M-commerce is an addition allowing consumers to conduct online transactions via a mobile device. Thus, in a narrow sense, m-commerce can be treated as a transaction conducted via the mobile communication network (Okazaki, 2005). However, researchers often emphasize that these actions are electronic commerce activities carried out in a mobile environment, and,

therefore, relate to the sale and purchase transactions, communications, exchange of information and making payments (Xu & Yang, 2012).

The studies available shed light on fundamental similarities and differences between m-commerce and e-commerce relating to the transaction context and access (Coursaris & Hassanein, 2002; Xu & Yang, 2012). E-commerce is dedicated to the promotion and implementation of the transaction while m-commerce, due to the limitations resulting from the wireless network access protocol, can perform these functions to a lesser extent. Moreover, in the case of e-commerce, access to the broadband Internet, which is used by means of computers, is a necessary condition. Despite the similarities, such as, convenience and time saving, there are significant differences in the Internet usage depending on access. Compared to fixed (wired) networks, the use of wireless mobile devices allows for personalized, universal and temporally and spatially unlimited access to the market offer (Malik, Kumra, & Srivastava, 2013).

Okazaki (2005) emphasizes that in the light of these differences and similarities an important and seldom analysed question is whether m-commerce can be an effective alternative to e-commerce, which requires the comparison of the buying behaviour of people using different sales channels.

Understanding the mechanism of online shopping and consumer behaviour associated with it is important for companies wishing to operate effectively on the Internet.

## 2. Individual determinants of online shopping

Consumer behaviour on the Internet is studied by the representatives of many scientific disciplines, including marketing, social psychology and computer science (Moshrefjavadi, Dolatabadi, Nourbakhsh, Poursaeedi, & Asadollahi, 2012). The attractiveness of the issue stems from the specificity of the medium which is constantly evolving and, thus, enforces the need to examine the existing literature models and regularities concerning online consumer behaviour.

Research on consumer behaviour on the Internet has been intensively developed since the 90s, but knowledge in this area is still incomplete and requires further exploration and systematization.

Few researchers have attempted to conduct a systematic review of the studies available. Cheung, Chan and Limayem (2005), analysing 355 research papers from years 1994–2002, showed that research conducted in this area is mostly fragmentary and does not allow for making generalizations within the theory. Similar conclusions were reached by Varnali and Toker (2010) when reviewing research on m-marketing, including m-consumer behaviour. When analysing papers from years 2000–2008, they stressed that research is in the early stages of development, pointing to the in-

consistency of the results and their fragmentation. It stems in part from the fact that research has been conducted mainly in Western markets, in the absence of representation of other parts of the world (Gong, Stump, & Maddox, 2013).

The awareness and knowledge of the decision-making process on the Internet is important from the perspective of the marketing initiatives taken, and, therefore, it is often the subject of analysis (Constantinides, 2004). Research in this area focuses on the decision-making process (including shopping intention, purchase and its continuation) and explanatory factors. Both areas are represented in studies on e-commerce and m-commerce. At the same time, according to a review conducted by Cheung with his team (2005) and Varbali and Toker (2010), the focus was primarily on the factors preceding the purchase. The behaviour of consumers after the purchase (satisfaction with their purchases online or consumer loyalty) were analysed to a lesser extent.

An attempt to describe the overall online decision-making process was undertaken by Gong and Maddox (2011). They used the model of Engel, Kollat and Blackwell (1968) which assumes the consumer going through the following stages: from awareness of the need, to seeking information and evaluation of the offer, from purchase to post-purchase evaluation. The studies on the process of making purchasing decisions underline the importance of the Internet as a source of information about the existing offer, regardless of whether the purchase takes place in the framework of the traditional sales channel or online (Singh, Ratchford, & Prasad, 2014), and focus on the sources of information used (Aydin & Selcuk, 2014), including the informal sources (Hsu, Lin, & Chiang, 2013; Lepkowska-White, 2013).

The search for information and purchase on the Internet were the subject of analyses by Moon (2004). He proposed a model indicating the factors influencing the decision-making process steps which may affect the preference of the online channel instead of traditional shopping (Moon, 2004). He categorized them within three groups: person (characteristics of the consumer), problem (type of products sought after) and context (characteristics of websites). Gupta, Su, and Walter (2004), in contrast, showed that the change of the traditional channel of purchase on the Internet depends on the ability to search for information as a basis for evaluating products using product categorization by Nelson (search goods and experience goods). Their findings suggest that propensity to change traditional channels to online shops can be influenced by differences in the perception of risk of channels, the intent to search for price, effort put in searching and evaluation of the offer and the time needed for its delivery (Gupta, Su, & Walter, 2004).

The analysis of factors affecting online consumer behaviour refers to five major areas: individual and environmental characteristics, the Internet as a medium, product and online sales location (Cheung, Chan, & Limayem, 2005).

Studies on individual factors influencing the intention to purchase on the Internet (e-commerce and m-commerce) aim to develop models containing, *inter alia*, individual characteristics, such as, socio-demographic characteristics, attitudes and

motivations treated as predictors of consumer behaviour. At the same time, analysing individual factors affecting consumer behaviour on the Internet often limits the number of explaining variables, usually from three to six (Moshrefjavadi et al., 2012). The variety of factors taken into consideration is large. For example, one study sought to determine whether personality traits may be useful to predict consumer behaviour online (Gil, Cesani, & Medina-Borja, 2009).

Cheung with the team stressed that the results vary significantly depending on the accepted theoretical aspect explaining the behaviour and research conducted in most cases is based on the research framework explaining the behaviour beyond the Internet. Vazquez and Xu (2009), for example, studied the relationship between attitudes, motivation and the intention of buying online. They assumed that the relationships are similar to those found for models describing the behaviour of consumers outside the Internet. The results showed that the attitude to online shopping affects consumer behaviour on the Internet in a different way (Vazquez & Xu, 2009). It is a preceding variable (not intervening as it results from the model of Howard and Sheth) that impacts the motivation and search for information which leads to the purchase intent. It can be confirmed by the study conducted on Iranian consumers. It showed that the intention to make purchases on the Internet is positively influenced by attitudes towards shopping online (Moshrefjavadi et al., 2012). In contrast, financial risk and failure to deliver products associated with it negatively impact the attitude towards online shopping, which points to the need to implement research on markets with diverse technological development.

From the review of the studies, it appears that there is a similarity in the adoption of the theory explaining consumer behaviour. Researchers, regardless of whether they analysed issues concerning consumer behaviour in the context of e-commerce or m-commerce, base largely on the Theory of Reasoned Action (TRA) and its derivatives, such as, the Theory of Planned Behaviour and Technology Acceptance Model (Varnali & Toker, 2010; Cheung et al., 2005). These concepts indicate factors allowing for determining the behaviour intent which consequently leads to a specific action.

The Technology Acceptance Model (TAM) (Davis, 1993) derives from the TRA developed by Ajzen and Fishbein as a concept assuming that beliefs affect attitudes that lead to the intention and finally to behaviour. Thus, volitional behaviour can be predicted based on the attitude towards behaviour and belief of the individual when it comes to the perception of the beliefs of others regarding the behaviour. According to the TPB concept, consumer behaviour depends not only on the intention of buying, but also the perceived control of behaviour, which is an additional factor explaining the impact on attitudes and subjective norms.

Davis proposed to develop the TRA model assuming that the intention of the behaviour is determined by the perception of usefulness and ease of use. In the TAM model, subjective norms were omitted due to the minor importance of the variable (Sin, Nor, & Al-Agaga, 2012).

Table 1 *Models used in the study of consumer behaviour online*

Model	Predictors	Dependent variable	Author
Theory of Reasoned Action	Attitude Toward Behavior Subjective Norm	Behavioral Intention	Ajzen & Fishbein, 1975
Theory of Planned Behavior	Attitude Toward Behavior Subjective Norm Perceived Behavioral Control	Behavioral Intention	Ajzen, 1985
Technology Acceptance Model	Perceived usefulness Perceived ease-of-use	Intention to use	Davis, 1989

Source: own on the basis of Ajzen & Fishbein, 1977; Davis, 1993.

TAM and TRA were used to determine the answer to the question about the factors affecting the intention to purchase in social media by young Malaysian consumers (Sin et al., 2012). The perceived ease of use, usability and subjective standards as factors affecting were analysed. The results showed that the perceived usefulness was the dominant factor that affects online purchase intention among young consumers through social media (Sin et al., 2012).

Similarly, the importance of usability in influencing the Chinese consumers' purchase intention was proved by Gong, Stump and Maddox (2013). The results showed that the perceived usefulness and selected demographic characteristics (age, income, education and marital status) are important predictors of intention to shop online. In contrast, the perception of risk and ease of use do not affect the intention to purchase. Similarly, gender does not differentiate the intention to purchase over the Internet (Gong et al., 2013).

However, the research results on the importance of gender in consumer behaviour on the Internet are not conclusive. Martin and Jimenez (2011) analysed whether there are gender differences in the factors affecting the perception of online shopping. The researchers focused not on the intention to purchase, but on specific variables related to quality (warranty, quality of service, privacy policy), and their impact on e-satisfaction and confidence in online shopping, showing a different perception of representatives of both sexes (Martín & Jiménez, 2011). In contrast, other studies have shown that women perceive a higher risk in shopping online, which results in greater fluctuations while shopping on the web (Bae & Lee, 2010).

### 3. Research Methodology

In light of the foregoing considerations within the framework of own research, the selected individual factors that can differentiate the intention to make purchases online as part of the e-commerce and m-commerce were analyzed. An independent variable was defined as the intention to do shopping online via a computer (e-commerce) or mobile device (m-commerce) which, according to TAM, is influenced by its perceived usefulness, ease of use and attitude towards shopping done through these two channels.

In addition, although there are no clear results indicating the diversity of intention to purchase over the Internet for people of both sexes, it occurs in terms of acceptance and use of technology. UTAT2 (Unified Theory of Acceptance and Use of Technology) assumes that gender, age and experience are the variables moderating the intention to use, which affects the use of technology (Venkatesh, Thong, & Xu, 2012), and, therefore, it was decided to carry out the analysis for both sexes.

The population examined composed of young consumers, i.e. people who spend a lot of time on the Internet, thanks to which they have the necessary competence to make purchases through this medium (Gil et al., 2009). In addition, according to the research carried out by GfK Polonia, they belong to two of the three segments whose representatives usually make purchases online. The specificity of this group of buyers is also confirmed by the results obtained by Hadjikhani, Safari and Thilenius (2011). Researchers noticed, as a result of the completed qualitative research, different perception of safety and risk of transactions by this group compared to mature consumers (Hadjikhani, Safari, & Thilenius, 2011). Therefore, due to the nature of the study group, age and experience in the use of the Internet as explanatory variables ceased to be used in the analysis.

Table 2 *Key variables included in the study*

Independent variables	Dependent variables
Attitude toward e-commerce/m-commerce The perceived ease of use of Internet/mobile devices The perceived usefulness of the Internet/mobile devices Gender	The intention to purchase within e-commerce/m-commerce

Source: own.

Operationalization of variables was the result of the literature review and adaptation of the scales used by Hsu with his team (Hsu, Lin, & Chiang, 2013) in the case of the purchase intent and the attitudes towards e-commerce/m-commerce.

The perceived usefulness was understood as the degree to which the respondent believes that the use of technology improves performance. The perceived ease of use refers to the respondent's feelings indicating their effort put in to use the technological solution. All the variables are measured based on a five-point Likert scale.

Before carrying out appropriate analyses, the reliability of the scales used was verified. In all four cases, the ratio was between 0.9 and 0.7, which means a high reliability of the scale (Su & Huang, 2010).

Table 3 *Reliability of the scales used in the study*

Variable	Scale	Cronbach's alpha	Correlation
The intention to purchase within e-commerce	In the future I will be more likely to buy on the Internet I encourage others to buy via the Internet	0.807762	0.677838
The attitude towards e-commerce purchases	I like to buy on the Internet I have a positive attitude towards online shopping	0.858517	0.756275
The intention to purchase within m-commerce	The intention to purchase via mobile devices I encourage others to buy via mobile devices	0.831518	0.711663
The attitude towards e-commerce purchases	I like doing shopping with the use of mobile devices I have a positive attitude towards shopping with the use of mobile devices	0.890491	0.804243

Source: own.

The study involved 390 people aged between 15–24 who are the students of secondary schools and universities in Kraków. Due to the lack of data, 383 cases were qualified for analysis. The gender structure in the sample spread evenly (192 women, 50%). The respondents were dominated by people of nineteen years of age (126 respondents). Everyone declared their experience in the use of the Internet and online shopping.

In order to determine the relationship, a statistical analysis of the data based on the correlation and variance analysis (univariate ANOVA) was conducted.



## 4. Results

The analysis of individual factors affecting the intention to purchase online started with determining average values of specific dependent and independent variables (Table 4).

It confirmed the assumption about the experience in the use of new technologies among young consumers. The assessment of usefulness and ease of use of the Internet and mobile devices indicates that respondents perceive the utilitarian aspects of using devices and have competences which do not constitute restrictions on the use of the analysed sales channels. In addition, the conducted analysis of correlation showed that the perceived usefulness of the Internet is correlated with the perceived usefulness of mobile devices ( $r = 0.5763$ ,  $p = 0.0000$ ). Thus, the more respondents see the utility of the Internet, the more they attribute such qualities to mobile devices. A similar relationship exists for the ease of use ( $r = 0.5456$ ,  $p = 0.0000$ ). The smaller problem they see in the use of Internet, the easier it is for them to use mobile devices.

Table 4 *Primary variables*

Shopping online	Variable	Average	Modal value	Modal value cardinality	Standard deviation
E-commerce	Perceived usefulness	4.8042	5	322	0.5124
	Perceived ease of use	4.5039	5	234	0.7122
	Attitude towards shopping	3.2807	3	76	1.0903
	<b>Intention to do shopping</b>	3.111	3	81	1.0665
M-commerce	Perceived usefulness	4.7781	5	322	0.5881
	Perceived ease of use	4.4465	5	224	0.7737
	Attitude towards shopping	2.6175	3	74	1.1328
	<b>Intention to do shopping</b>	2.4295	2	84	1.0806

N = 382; scale: 1–5, 1 – the lowest value.

Source: own.

Respondents have a greater propensity to purchase within e-commerce than m-commerce, in which case the average value indicates a declared aversion to this sales channel. The gender of the respondent (Figure 1) does not have an impact on the bias towards doing shopping with the use of mobile devices.

The attitude towards purchases within m-commerce is also similar for both sexes (Figure 2).

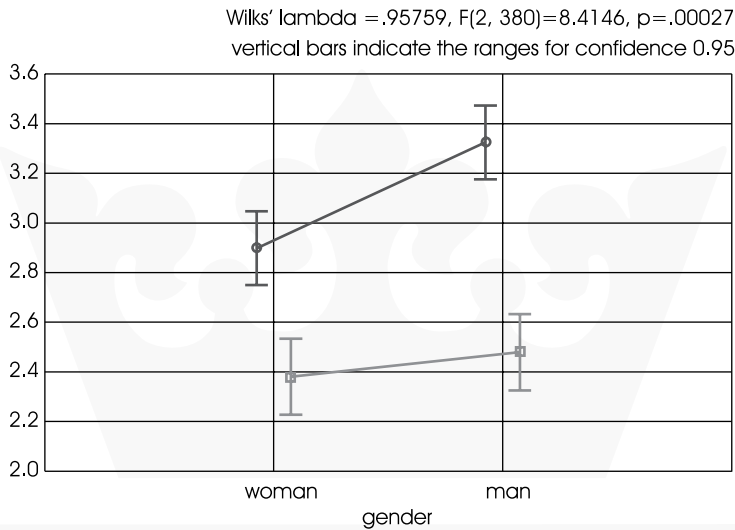


Figure 1. *Intention to make a purchase within the framework of e-commerce and m-commerce in both sexes.*

Source: own.

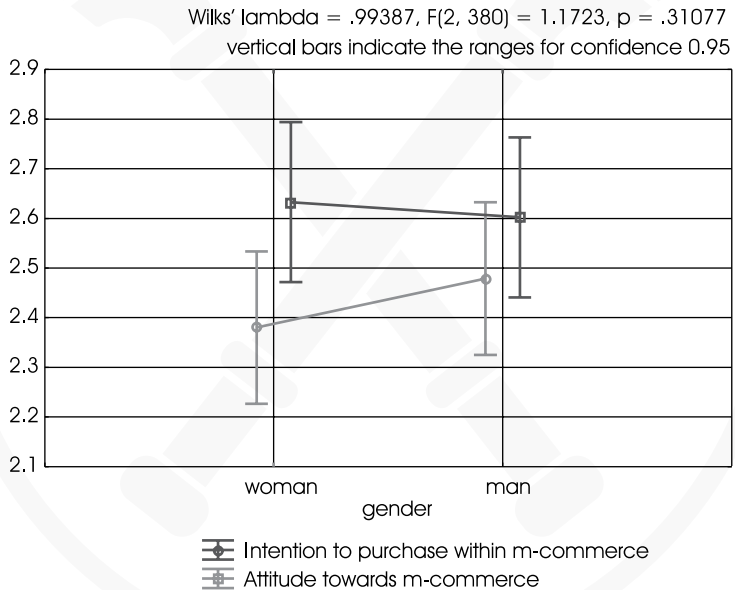


Figure 2. *Attitude and intention to purchase as part of m-commerce in respondents of both sexes.*

Source: own.

In addition, it should be stressed that gender does not differentiate other variables regarding m-commerce. Thus, men and women similarly perceive the ease of use and usability of mobile devices.

However, the analysis showed differences in the intention of doing shopping in men and women ( $p = 0.00027$ ) in the case of e-commerce. The intention to make a purchase within e-commerce is higher for men. Men are not only more likely to make purchases through this channel, but they also have a more favourable attitude towards this way of purchasing ( $p = 0.0003$ ).

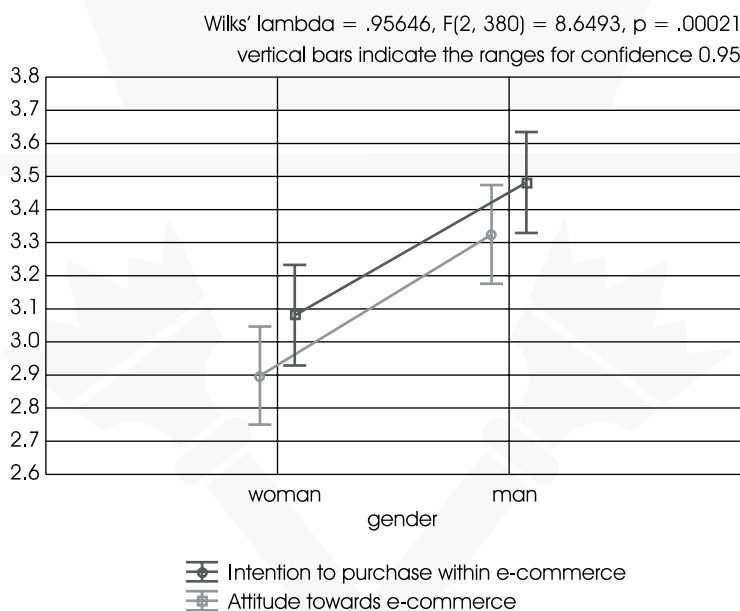


Figure 3. *Attitude and intention to purchase as part of e-commerce in respondents of both sexes.*

Source: own.

The analysis of correlation showed that both in the case of purchases within e-commerce and m-commerce, the intention to purchase is correlated with the attitude towards shopping in this channel. The more favourable the attitude towards online shopping, the greater the propensity to purchase ( $r = 0.6975$  in the case of m-commerce;  $r = 0.7121$  for e-commerce).

In contrast, the perceived usefulness and ease of use are not correlated with the attitude towards the sales channel and purchase intent within e-commerce ( $r < 0.15$ ). Poor correlation appeared between the perceived ease of use of mobile

devices and intent to purchase with the use of mobile devices ( $r = 0.2444$ ,  $p = 0.000$ ) and attitude towards this sales channel ( $r = 0.2715$ ,  $p = 0.000$ ). This shows that when respondents perceive the use of mobile devices as easier, the more favourable their attitude to purchases within m-commerce is.

In addition, analyses were performed taking into account the perceived risk in online shopping. As expected, if respondents perceive risk, they are more sceptical of e-commerce shopping ( $r = -0.3851$ ,  $p = 0.000$ ) and have a lower tendency to it ( $r = -0.3321$ ;  $p = 0.000$ ). However, it should be emphasized that these correlations are weak. In the case of m-commerce, what was confirmed, was a trend indicating that the perceived risk increases skepticism, but these relationships are very weak ( $r > -2$ ), so one cannot talk about any relationship between variables. Interestingly, if men view risk of making a purchase similarly in both channels, then, in the case of women, it is higher when judging purchases within e-commerce (although the relationship is not statistically significant). Therefore, it was decided to check the relationship between attitude and intention to purchase within e-commerce, and risk and gender of the respondent (Figure 4).

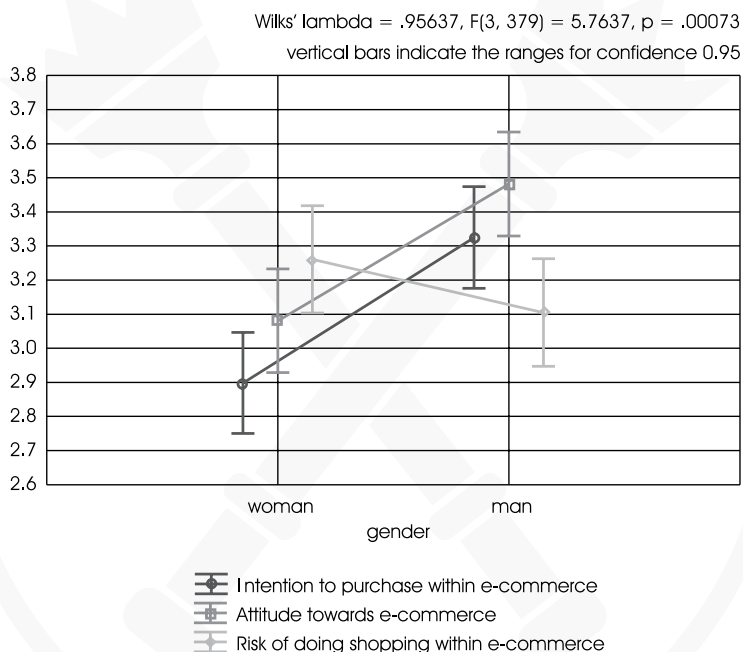


Figure 4. Attitude, purchase intention and perceived risk in the context of e-commerce in respondents of both sexes.

Source: own.

The analysis showed that in the case of the study of young women they perceive a higher risk in making purchases as part of e-commerce while having a more sceptical attitude to the sales channel. For men, the ratio is reversed.

## Conclusions

The results show that the young consumers examined have different attitudes towards online purchases depending on the sales channel, which is evident also in the diversity of propensity to make purchases through these channels. The responders have a much greater propensity for purchases within e-commerce. It affects mainly men with more favourable attitude towards this sales channel and higher purchase intent. These results indicate that, as in the research by Bae and Lee (2010), women perceive a higher risk in purchases over the Internet, which could also explain their lower propensity to make purchases through this sales channel.

The clarification of the conditions concerning purchases within m-commerce requires further exploration. While respondents declared their experience in making online purchases, the channel they had already been using was not analysed. Therefore, the specification of the experience in this field may allow the explanation of sceptical attitude towards this sales channel while assessing risk when shopping the same way as within e-commerce and high usability and ease of use of mobile devices.

The relationship between the attitude and purchase intention, which appeared in both sales channels, is not surprising. Similar results were obtained by the previously cited researchers pursuing research on culturally different markets (Vazquez & Xu, 2009; Moshrefjavadi et al., 2012). In contrast, the lack of the relationship between the perceived usefulness and ease of use, and attitude towards the purchase is unexpected. The respondents highly evaluate the usefulness of the Internet and mobile devices at the same time considering them to be easy to use, which demonstrates the specificity of the age group studied. The similarity in assessing variables by young consumers may explain the lack of association between variables, while pointing to the need to search for other explanatory variables concerning the intention to purchase, apart from factors related to the adaptation of technology. Moreover, it should be noted that the subjects were people living in a big city, which can provide additional explanation and recommendation relating to the analysis of dependencies among people living in less urbanized areas.

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