THE EFFECT OF CHOSEN FACTORS DIFFERENTIATING READINESS TO PROVIDE PERSONAL DATA IN M-COMMERCE

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Abstract. *Studies show that m-commerce markets have different characteristics in different countries. An e-questionnaire survey was used to gather opinions in three groups, totalizing more than 450 Poles, Ukrainians, and Romanians. An analysis was made of the impact of various measures of internet experience on decisions of potential consumers to disclose personal data when downloading paid or free mobile applications. Persons with higher internet experience (measured through length of internet use, length of use of a smartphone and living in a country with a higher e-readiness index) were found to be more likely not to download an attractive app to their smartphone, if a condition of downloading it for free was providing some of their (personal) identification data, in comparison with persons with low internet experience.*

Keywords: *m-commerce; m-application download; privacy; m-commerce in Eastern Europe.*

Introduction

M-commerce, defined as an independent channel for researching and making purchases online with the use of mobile technologies (usually smartphones), is still a new form of buying over the internet, and the value of purchases made this way is far lower than with the use of traditional internet connections. However, due to its dynamic development, m-commerce arouses the interest of both practitioners and researchers. Studies on trust-related barriers in m-commerce are widely conducted (Hew 2017), as not only is the situation in which m-buyers find themselves new, but internet users differ with respect to attitude towards privacy. Qualitative research in the US has recently shown (Hillman & Neustaedter, 2017) that hard (e.g. encryption) and soft (e.g. opinions of other consumers or brand) trust building factors are treated differently by users in the course of mobile purchases (Head & Hassanein, 2002); users are less concerned about the privacy of their data when purchasing in stores with well-known brands.

As buying patterns differ between markets (Zhang, Zhung, & Liu, 2012, p.1902; Akman & Rehan, 2016, p.771), this unexpected result needs to be verified on samples from other countries. A broader range of contextual factors that determine buying-decisions needs also to be analyzed, because readiness to provide information about oneself differs between contexts—as has been shown for e-commerce (Bansal, Zahedi & Gefen, 2016). Our text is a step in this direction. An e-questionnaire was conducted on three different

age groups from three countries—ca. 160 from Poland, 170 from the Ukraine and 130 from Romania. Chosen factors affecting the decision to provide personal data over the internet using mobile devices were analyzed for two situations specific for this kind of commerce: downloading a mobile application, either free of charge or for a payment.

The significance of m-commerce

There are many definitions of e-commerce and the differences between them focus not so much on the scope of using ICT in commercial transactions, as on kind of commercial activity. For instance, in its statistical analyses, Eurostat considers electronic trade to be the sale or purchase of goods or services by different entities—this includes ordering goods or services using computer networks, with on- or off-line payment and delivery, but does not encompass researching information, marketing or image building. One of the UN agencies defines e-commerce more broadly, to also include contact initiation between the potential buyer and seller; exchange of trade information; full cycle of IT care over the client (in this: search, presentation, choice, advice); sale of goods and services, both material and immaterial; financial settlements (every form—including electronic); managing the delivery process to the buyer or the address indicated by the buyer; and post-purchase care. Definitions of m-commerce are analogously differentiated; this, however, is not the only definition-related controversy in the area.

The scientific literature gives us three separate approaches to defining m-commerce (Groß, 2016; Woźniak, 2017; Woźniak & Zbuchea, 2018). Traditionally, m-commerce was defined narrowly as conducting commercial transactions with the use of a mobile device - thus as a part of e-commerce determined by the specifics of the appliance used. As in the case of e-commerce, then, it is possible to distinguish various stages of the commercial transaction and to define m-commerce as the use of a mobile device in any phase of the buying process (Chong, 2013). However, it makes sense not to limit the concept of m-commerce to making purchases using a mobile device, as it has been shown that a characteristic of m-commerce is the high frequency of client activity in preparing for transactions and then following them up (while closure is often done on a different device) (Gross, 2016).

The second type of definition highlights the specific situation created by the use of location-changing mobile devices, which broadens the scope of business models that can be implemented in e-commerce with the use of these devices. Two of the most characteristic new models relate to the possibility of developing services based on users' locations. A common type is commercial offers which sellers assume will be attractive to the user due to their geographical location, e.g. rebate offers directed to people who are near a service point. The second type of business model is based on informing and selling emergency services - such as information about the nearest bus leaving in the direction chosen by the user, or delivery of transport through an Uber-type service. In this case, the user initiates the search for a given service, and his/her physical location determines which potential suppliers that can implement it.

The third group of definitions emphasizes that smartphones have become a personalized media and communications center, permanently linked with the individual. This approach to m-commerce goes beyond the mobility of the appliance and the user's location. It lays stress on the adaptability of the smartphone to the user's individually characterized and specific needs during everyday tasks, and its permanent

presence in the user's life. The result is a highly individualized appliance that serves as a personal communication and entertainment hub (Gross, 2016), with content personalized through mobile apps that can give access to an m-store, or is simply attractive (e.g. sound signals or games). From the perspective of our interests, it is important that a significant proportion of programs that make the user's life more comfortable are downloaded without charge, and that users are aware of the fact that frequently the price they pay for such convenient apps is access to their personal data.

Retaining privacy in m-commerce

Obtaining information about the user (whether it be his location, or for instance the apps s/he has downloaded) gave the e-seller access to some aspects of the client's privacy. In m-business, the information that the user – with his/her specific transaction history – is in a given location, creates a business opportunity, which has a value and can be sold. The more information the m-supplier can obtain about this user, i.e. the more information about the person associated with this concrete appliance is disclosed, the more (a) the services offered may be tailored to the user's needs, but (b) the greater the intrusion into his or her privacy. This tension between benefits and risks for users is sometimes called the personalization-privacy paradox (Lee & Rha, 2016). It is used to show that different categories of users have different strategies for dealing with this situation, depending – among others – on how they perceive risk in given types of situations.

Several earlier studies have shown that trust is a factor which decreases a sense of risk in the m-buying situation (Lee & Rha, 2016). Indicators that inform the user of the e-store's credibility are a standard way in which m-commerce increases the trust of potential users. These may be divided into hard indicators which refer to transaction security (e.g. encryption), and soft indicators (e.g. other users' opinions), including those which give guarantees of privacy (Head & Hassanein, 2002; Hillman & Neustaedter, 2017). M-transaction security is understood as safeguarding the transfer of information against it being intercepted by third parties during interactions. As the m-buyer's physical space cannot be controlled, observation by third parties can go undetected and devices may be unreliable (e.g. batteries fail), such transactions carry a higher level of security risk (Groß, 2016). Privacy concerns relate to the control the user has over how this information is used—while it is being collected, and when it is stored and shared with others. It is understandable that both factors (concerns about security and privacy) are important barriers standing in the way of e- and m-buyers implementing transactions.

The m-trade market in Poland, Romania, and Ukraine

The patterns that m-trade follows have been verified to differ between countries, both as concerns scale, as m-consumer preferences. Specifically, m-trade grows rapidly on markets where – due to low access to traditional line internet access and other infrastructural determinants – e-trade is underdeveloped. For instance, m-trade in India takes second place in the world if one considers the share of m-trade activity in e-trade (over 70% in 2016) (Natarajan, Balasubramanian & Kasilingam, 2017), although most transactions are of a Cash-on-delivery type (Gupta & Arora, 2017, p.2).

Poland, Ukraine, and Romania, which all reformed themselves after the fall of the Soviet Union, are culturally similar to each other. The infrastructure for e-trade is, however, slightly better in Poland than in the other two countries, evidence of which are aggregated indices such as e-readiness, which in 2015 in Poland was higher by over 10%—this gave Poland 42nd place in world rankings. Ukraine took 64th place (upgraded from 75th place in 2012), and Romania 66th. The internet penetration in 2016 were 52% for Ukraine, 60% for Romania and 73% for Poland (https://data.worldbank.org/indicator/IT.NET.USER.ZS). The total value of e-trade turnover in 2016 was 8,1 billion Euros in Poland (with forecast 9,4 for 2017), and 1,17 billion Euros in Ukraine (with forecast 1,52 for 2017) and 2,05 billion Euro for Romania (with forecast 2,5 billion for 2017) (EuroCommerce, 2017). Individual purchases valued in euro are also higher in Poland (775 Euro) or Romania (784 Euro in 2015 per online buyer) in comparison with Ukraine (286 Euro). It should be remembered, however, that GDP per capita is far lower in Ukraine (c. 1,800 Euros per capita in 2016) than in Poland (c.11,400 euro) or Romania (c.8,8 000 Euro) (EuroCommerce, 2017).

Differences in levels of m-commerce development seem smaller than with respect to e-commerce as a whole. Data from the Central State Statistical Office for Poland, based on representative samples, shows that for ca.1/3 users, the smartphone is their tool for accessing the internet. 17% users finalized m-transactions in the last 3 months using a smartphone, while 41%—for some part of the e-shopping process. 25% buyers declare that they m-pay regularly, 49% declare they do this from time to time and 39%—regularly. Fairly common also is the use of several tools for accessing the internet (44% use a smartphone, 16% a tablet, 54% a laptop and 36% a desktop computer). 61% buyers declare that they commence e-transactions using a smartphone and finalize them using a different appliance.

For Ukraine, in November 2015, 34% internet users declared that they make e-purchases via a smartphone, and access to 3G data transfer was launched in February 2015 (Pachkovskyy & Maksymenko, 2016). In 2015 PayPal has done some research on the European mobile commerce, interviewed more than 17,500 consumers across 22 countries. It was found out that one in three online shoppers surveyed uses a smartphone to buy online. But this incidence varies significantly by country, and in Ukraine, 57% of respondents declared they have bought something by smartphone in the last 12 months, compared with 34% in Romania and 24% in Poland (https://ecommercenews.eu/current-mobile-commerce-situation-europe/).

Over the past few years, m-commerce has been on the rise in Romania (Zbuchea, Vătămănescu & Pînzaru, 2015), and data shows Romania to be among the leading countries in terms of purchasing a product/service via mobiles. In March 2016, 42% Romanians stated that they have purchased online using mobiles, compared with the global average of 38% (Nielsen, 2016, p.6). Ukraine took next place, with 41%. In 2017 the figures were even higher, considering that mobile internet penetration was 85% for Romania, and mobile device traffic increased from 50% to 70% (Popescu, 2018). Studies show that online shops still need optimization for mobile, as mobile app conversion rates are higher than in the case of desktop websites.

Methodology of research

The goal of the study is to verify whether internet experience is a modifier of the strength of barriers to trust in m-commerce. It is understandable that several contextual conditions, such as the value of the sum in question, and hence indirectly, the negative consequences that a breach of trust may bring the buyer, modifies readiness to engage in commercial transactions. Readiness to disclose personal information should, therefore, depend on the sensitivity level of this information (Roghanizad & Neufeld, 2015), consistently with the Theory of Perceived Risk (Gross, 2016). The research question concerns the extent to which broad contexts (defined as the exchange of gifts or a purchase) and situational contexts (defined as obtaining an application from a company with a well-known brand or via an encrypted connection) modify this readiness to provide personal data of various kinds.

Readiness to disclose private data has usually been explained through trust in the e-shop, which restricts perceived risk of the negative consequences of one's activity—i.e., one of the two factors that determine a decision based on rational assessment (the other being perceived benefits). Recently, however, an experimental study where data was to be provided in return for a 20$ coupon gift revealed the limits of this approach—subjects were shown to depend on their emotional evaluation of the seller, rather than to follow a rational model of decision-making (Roghanizad & Neufeld, 2015). The goal of our study is to check if receiving material benefits or the exchange of gifts are factors responsible for readiness to reveal personal data (a possible interpretation of the situation in this experiment). As Marcel Mauss (1925/1990) has stated, the situation in which gifts are exchanged creates a different set of attitudes than the context of buying and selling—it favors an attitude of reciprocating favors rather than maximizing benefits for oneself in the transaction.

The second aspect of our approach is that we focus on the exchange of apps which develop the smartphone's functions as a personal center for management, communication, and entertainment, and which are free. As has been shown, this segment of the m-market is based on creating a potential client of the user of the given application, and so income from providing the user with the app does not dominate in the sellers' business model. Users, however, are accustomed to the fact that obtaining an attractive application sometimes goes in pair with providing personal data, hence this situation is a good one for analyzing readiness to expose oneself to a threat to one's privacy in exchange for obtaining a gift with an attractive value.

The data we use in this text comes from a study conducted on 3 independent samples gathered using the snowball method. Subjects generally have a higher education (or were in college at the time) and lived in large cities (mainly Warsaw, Bucharest, and Odessa). In this way, we received a group of 158 Poles, 176 Ukrainians, and 126 Romanians, demographically differentiated.

The investigation aims to verify if internet experience, variously defined, significantly modifies readiness to provide personal data in four contexts: defining the situation as a gift or purchase, and being oriented towards security signals (ciphering) or well-known brand (i.e. security and privacy concurrently).

The questionnaire constructed for the study – besides a series of questions concerning the context of e- and m-purchases made – consisted of two groups of 3 questions each, characteristic of two situations: the first an exchange of gifts, the second a purchase with a discount and cafeteria with different types of personal data of different level of privacy treats based on (Roghanizad & Neufeld, 2015). The study used several kinds of internet experience indices, but this text refers to three operationalizations:

- Length of time the respondent owned a smartphone with internet access, as declared in responses to a direct question (in 2 groups: "4 years and over" as a long period, and "less than 4 years" as short).
- Respondents were classified as internet experienced if they responded "have used the internet for a long time" and as less internet experienced if they responded that they "have used the internet for a long time, but really frequently not for long"; "I use the internet, but not very frequently"; or "I use the internet if I need to, but I don't feel too comfortable with it".
- Representing a country with higher levels of technical and social ICT infrastructure was based on the networked readiness index http://reports.weforum.org/global-information-technology-report-2016/networked-readiness-index/. Poland takes 42ndplace in world rankings, Ukraine – 64th, Romania – 66th, so we can assume that internet experience of people is higher in Poland and similar in the Ukraine and Romania (See Woźniak, 2015, for an explanation of the construction of the index).

Research results and discussion

Analyzing the declared behavior, one observes similarities, but both differences between the 3 countries. Table 1 shows that in a "gift" context the respondents from Poland are the least trustful – in all investigated situations: general websit3, well-known brand-website, and ciphered connection. The most trustful are, according to their own evaluation, the Romanians. These results are in line with the e-readiness index presented above. And do not correlate with the degree of internet penetration in the 3 countries. Therefore, the infrastructure seems not to be a determinant factor in m-commerce.

Table 1. Distribution of all positive responses together for submitting different types of personal data in the "gift" context – distributions of positive responses (Source: data from the study)

Item/All positive together	Poland		Ukraine		Romania	
Using a smartphone to download an app which you find attractive (chose one answer for each item: definitely yes; yes; rather yes; difficult to say; rather no; no; definitely no)						
I will give my e-mail address to get the attractive app for free	72	45.6%	98	55.7%	96	76.2%
I will give my full internet data– e-mail address and telephone number– to get the app for free	62	39.2%	69	39.2%	59	46.8%
I will give my postal and e-mail address to get the app for free	51	32.3%	63	35.8%	59	46.8%
I will give my credit card number and e-mail address to get the app for free	32	20.3%	60	34.1%	33	26.2%

Item/All positive together	Poland		Ukraine		Romania	
I will give my credit card number and full address data (including ID card number) to get the app for free	33	20.9%	35	19.9%	26	20.6%
I will withdraw from downloading the attractive app if it is necessary to submit any of my personal data	66	41.8%	27	15.3%	91	72.2%
Using a smartphone to download an app which you find attractive from the website of a well-known brand (choose one answer for each item: definitely yes; yes; rather yes; difficult to say; rather no; no; definitely no)						
I will give my e-mail address to get the attractive app for free	75	47.5%	79	44.9%	102	80.9%
I will give my full internet data– e-mail address and telephone number– to get the app for free	61	38.6%	97	55,1%	82	65.1%
I will give my postal and e-mail address to get app for free	53	33.5%	82	46,6%	68	56,7%
I will give my credit card number and e-mail address to get the app for free	33	20.9%	65	36,9%	37	30,3%
I will give my credit card number and full address data (including ID card number) to get the app for free	23	14,6%	36	20.5%	36	29.7%
I will withdraw from downloading the attractive app if it is necessary to submit any of my personal data	61	38.8%	25	14.2%	81	66.4%
Using a smartphone to download an app which you find attractive if you see that the connection is ciphered (chose one answer for each item definitely yes; yes; rather yes; difficult to say; rather no; no; definitely no)						
I will give my e-mail address to get the attractive app for free	69	43,9%	68	38,6%	103	84,4%
I will give my full internet data– e-mail address and telephone number– to get app for free	60	38,2%	93	52,8%	86	71,7%
I will give my postal and e-mail address to get app for free	47	29,9%	79	44,9%	77	63,6%
I will give my credit card number and e-mail address to get app for free	33	21,1%	59	33,5%	49	40,2%
I will give my credit card number and full address data (including ID card number) to get app for free	28	17,8%	27	15,3%	44	36,1%
I will withdraw from downloading the attractive app if	56	35,7%	30	17%	81	66,9%

Item/All positive together	Poland		Ukraine		Romania	
it is necessary to submit any of my personal data						

Data above documents some differences between the respondents. For the Poles, there is little difference between the declared behavior in the 3 situations (common website, well-known brand website and ciphered connection). For the Ukrainians, both knowing the brand and having a ciphered connection make a difference. For the Romanian respondents, also knowing the brand counts, but especially having a ciphered connection influences the level of trust and disclosure. Results are a bit counter-intuitive. One would expect that brand trust would facilitate disclosure. The fact that the disclosure is not higher in well-known brands for most respondents suggests that brand trust does not necessary correlates with online commerce trust. The Global Survey on Internet Security and Trust (CIGI, 2018) shows that the security of personal data is a very important factor influencing commerce online. 22% of consumers worldwide would not buy online because of this aspect, while 52% are more concerned about security online- primarily because of cyber-criminality. Poland is the only country among the three which is included in the survey – and the figures show that 12% of the respondents are much more concerned, while 33% are somewhat more concerned about online privacy.

As expected, when asked to give the credit card number, or other information associated with the payment, the level of disclosures drops in all cases, with the Poles being, again, the most cautious. The Romanians are the most open to giving this information, especially if the connection in ciphered. Nevertheless, the Romanians are the ones who declared in a large majority that they would stop downloading any app if personal data is required (although also in the large majority they accept providing information such as postal address or mobile number for instance). This suggests that the significance of "personal data" is not the same among the three country groups. Another aspect to be considered is that it is likely that the Romanians are the ones less aware of security risks. Because of this, they react more when the risks are evident when asked explicitly about giving personal information. This aspect, as well the larger degree of disclosure, might be related to low digital literacy.

Digital literacy is related to the ability to use digital technologies, as well as with the knowledge about it, about the security aspects related to them. Therefore, we should see these results against a digital literacy index and other indicators related to it, such as the e-readiness index presented above in the paper. Mobile connectivity index 2017 (GSMA, 2017) shows that Poland has the highest ranking – 72.71 (consumers' readiness – 86.25). The digital economy and society index, which considers only EU countries, also places Poland ahead of Romania, with a score of 0,43 – ranked 23, while Romania is ranked 28 (last in the EU) (EDPR, 2017). Also, the New Media Literacy index places Poland ahead of Romania, with 55 points versus 38 (OSI, 2018).

When investigating the same aspects in a buying context, we observe similar answers. The interest to buy does not significantly change the behavior, for most respondents. There is more openness to give credit card information but to a small degree. This is, no doubt, related to the understanding that buying online could not be done without disclosing some information.

Table 2. Distribution of all positive responses together for submitting different types of personal data in the "buying" context – distributions of positive responses (Source: data from the study)

Item/All positive together	Poland		Ukraine		Romania	
Using a smartphone to download an app which you find attractive and not expensive – I will submit some of my data						
I will give my e-mail address if it is the condition to buy the app	73	46,5%	62	35,2%	99	80,5%
I will give my full internet data– e-mail address and telephone number– if it is the condition to buy the app	62	39,5%	88	50%	79	64,2%
I will give my postal and e-mail address if it is the condition to buy the app	51	32,5%	80	45,5%	69	56,1%
I will give my credit card number and internet data - if it is the condition to buy the app	28	17,8%	39	22,2%	41	33,3%
I will give my credit card number and full address data (including ID card number) if it is the condition to buy the app	39	24,8%	29	16,5%	31	25,2%
I will withdraw from downloading the attractive app if it is necessary to submit any of my personal data	54	34,4%	65	36,9%	83	67,5%
Using a smartphone to download an app which you find attractive and not expensive from the website of a well-known brand– I will submit some of my data						
I will give my e-mail address if it is the condition to buy the app	75	47,8%	90	51,1%	93	75,6%
I will give my full internet data– e-mail address and telephone number– if it is the condition to buy the app	64	40,8%	79	44,9%	75	61%
I will give my postal and e-mail address if it is the condition to buy the app	51	32,5%	64	36,4%	73	59,3%
I will give my credit card number and e-mail address if it is the condition to buy the app	29	18,5%	38	21,6%	45	36,6%
I will give my credit card number and full address data (including ID card number) if it is the condition to buy the app	31	19,7%	27	15,3%	36	29,3%
I will withdraw from downloading the attractive app if it is necessary to submit any of my personal data	60	38,2%	55	31,2%	77	62,6%
Using a smartphone to download an app which you find attractive if you see that the connection is ciphered						

Item/All positive together	Poland		Ukraine		Romania	
I will give my e-mail address if it is the condition to buy the app	75	47,8%	94	53,4%	101	82,1%
I will give my full internet data– e-mail address and telephone number– if it is the condition to buy the app	66	42%	87	49,4%	88	71,5%
I will give my postal and e-mail address if it is the condition to buy the app	54	34,4%	69	39,2%	79	64,2%
I will give my credit card number and e-mail address if it is the condition to buy the app	30	19,1%	27	15,3%	53	43,1%
I will give my credit card number and full address data (including ID card number) if it is the condition to buy the app	33	21%	20	11,4%	43	34,9%
I will withdraw from downloading the attractive app if it is necessary to submit any of my personal data	59	37,6%	70	39,8%	85	69,1%

The respondents from Poland basically report the same behavior no matter if they want an app for free or if they buy an appealing one. The Romanians are the ones who modify the most their disclosure behavior, according to the buying intention.

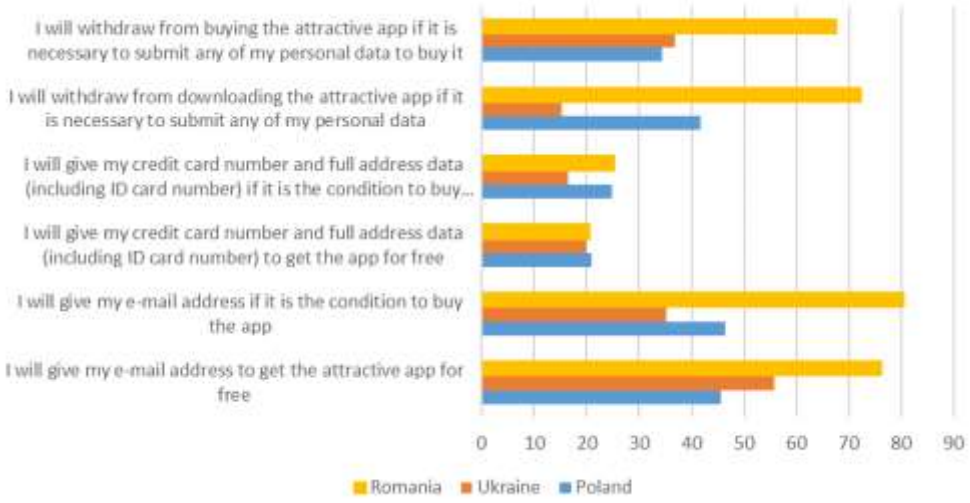

Figure 1. Disclosure readiness (data from the study)

Table 3. Distribution of 'resign from transaction' responses ("I will withdraw from getting the attractive app, if it is necessary to submit any of my personal data") together for delivering different types of personal data in "gift" and "buying" contexts – distributions of positive responses in groups of big and small internet and smartphone experience (in percentages) (Source: data from the study)

	Internet experience		**Smartphone experience**		**Generation**			
	Long	Shorter	Long	Shorter	Z	Y	X	64+
Using a smartphone to download an app which you find attractive								
Positive	42.9	28.6	53.3	32.5	50.8	35.4	38.5	28.6
Difficult to say	19.8	29.8	14.4	26.0	13.3	26.9	22.9	25.0
Negative	37.3	41.7	32.3	41.5	35.8	37.7	38.5	46.4
Total no. of respondents	373	84	167	289	120	130	179	28

Table 3 highlights that the respondents with the longest internet experience (using the internet frequently for a long time) and the longest smartphone experience (more than 4 years) are also the ones more cautious in giving personal data. Interestingly to observe that the youngest the respondents, the more cautious they are too. These results could be connected with the understanding of risks associated with personal date disclosure. More experience in using the internet and the smartphones leads to increased digital literacy and understanding of risks, both in the case of gift and buying contexts. This is consistent with the Technology Acceptance Model and the Theory of risk perception additions (Gross, 2016).

Conclusions

The study highlights that even in countries with relatively similar backgrounds, there are differences in terms of disclosure of personal data. Besides socio-economic factors, digital literacy seems to be an important influencer of online behavior, both in gift and buying contexts. Young people, as well as persons with higher internet/smartphone experience, living in a country with a higher e-readiness index are more likely not to download an attractive app to their smartphone, if a condition of downloading it was providing some of their personal data, in comparison with persons with low internet/smartphone experience.

More specifically, from the three Eastern European countries investigated, the Romanians declare to be more willing to share information such as email and postal address, telephone number, and even credit card information. Nevertheless, they are the ones who declare in the largest percentage that they would withdraw from any app download if any personal data is asked. The Poles, who are registering the highest e-readiness and digital literacy, are the most cautious with providing sensitive data.

The investigation also shows that the behavior does not vary significantly when considering a "gift" or a "buying" situation. This suggests that the trust framework is more relevant than the motivation to download an app. Downloading from the website of a well-known brand or having a cyphered connection improves a bit the trust aspect for most respondents, especially for Romanians.

The investigation includes some limits. The sample is a convenience one, not being representative. The questionnaire was applied online, which also makes that the profile of the respondents to be one more open and familiar to using the internet and the smartphones. Another aspect to be considered is that the scales proposed do not measure the actual behavior of the respondents, but the declared one. In reality, the decision is taken considering the actual context of download/buying, factors related to the desire/need to download/buy a specific app etc.

Our study highlights the need for qualitative research in order to better understand the consumer and the factor that influence the situations related to m-commerce. Experiments might also be relevant in order to help business better design their strategies and to attract consumers for m-commerce.

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