

ORIGINAL ARTICLE


Citation: Stefko, R., Bacik, R., Fedorko, R., & Olearova, M. (2022). Gender-generation characteristic in relation to the customer behavior and purchasing process in terms of mobile marketing. *Oeconomia Copernicana*, 13(1), 181–223. doi: 10.24136/oc.2022.006

Contact to corresponding author: Richard Fedorko, richard.fedorko@unipo.sk

Article history: Received: 6.01.2022; Accepted: 10.03.2022; Published online: 30.03.2022


Robert Stefko

University of Prešov in Prešov, Slovakia

 orcid.org/0000-0002-0650-7780


Radovan Bacik

University of Prešov in Prešov, Slovakia

 orcid.org/0000-0002-5780-3838


Richard Fedorko

University of Prešov in Prešov, Slovakia

 orcid.org/0000-0003-3520-1921

Maria Olearova

University of Prešov in Prešov, Slovakia

 orcid.org/0000-0001-9086-7975

Gender-generation characteristic in relation to the customer behavior and purchasing process in terms of mobile marketing

JEL Classification: M31

Keywords: *online shopping; e-commerce; customer insight; online consumer behavior*

Abstract

Research background: Today, it is an m-commerce platform that provides brands with the opportunity to foster their sustainable image and communicate with environmentally and socially conscious consumers. Proper communication that respects the customer's interests, conducted through mobile marketing tools, can be a key to creating a competitive advantage. Therefore, it is essential, at the level of scientific research, to broaden the knowledge base in the field of consumer behavior.

Copyright © Instytut Badań Gospodarczych / Institute of Economic Research (Poland)

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Purpose of the article: The research was aimed at assessing ten purchasing behavior constructs in terms of gender and generation characteristics, as well as inferring impact on and assessing the difference between generations (Generation X and Y) and gender in terms of purchasing behavior.

Methods: The sample consisted of 765 Slovak respondents. The Wilcoxon Test was used for differences testing. Partial Least Squares — Path Modeling (PLS-PM) was used to determine the general impact and the permutations-based method was used to assess the difference in impact between gender and generation characteristics.

Findings & value added: The difference in purchasing behavior patterns between the categories of gender and generation was significant in most cases, with the most significant difference being seen in the Visual Appeal of an e-shop. The most striking general influences were recorded between Hedonic Browsing and Urge to Buy, also the impact of Portability on Hedonic Browsing and Utilitarian Browsing. These findings indicate the potential of retailers to communicate effectively with their customers not only about products, but also about sustainable practices and values while engaging consumers in purchasing processes. Proper optimization of marketing processes, in terms of impulsive and thought-through purchases too, positively influences the user experience and the satisfaction with the purchase process. These facts may positively influence the sale and, in a broader perspective, increase the competitiveness and overall value of the e-commerce entity. It is also worth emphasizing the long-term value for the customer, as the application of the model leads to better satisfaction of customer needs, thus to a stable growth not only of the organizations, but ultimately of the economy as a whole.

Introduction

Today, the mobile phone is the focal point of most consumers' lives. It is a device that many people cannot do without. With the emergence of high-speed wireless networking technologies and the increasing market penetration of mobile phones, there is naturally a growing interest in the global advertising industry to use this medium as a means of marketing communication. The emergence of these advanced mobile technologies has led to an increase in business opportunities that help connect merchants and customers regardless of time and place (Eze *et al.*, 2020). This is what has changed how potential and actual customers use their phones to communicate (Hosseini *et al.*, 2016, pp. 497–509; Arghya *et al.*, 2020). In other words, smartphones have modified human behavior in the marketing sector by offering endless business opportunities through mobile marketing (Fritz *et al.*, 2017, pp. 113–118).

The authors Jain *et al.* (2012, pp. 17–27) found that the main attributes of mobile marketing — personalization, ubiquitousness, interactivity and localization — distinguish it from other media channels, which means that it has considerable potential for business communication. Mobile marketing is now considered one of the newest and most important digital marketing channels. It is also referred to as the most extensive, fastest and cheapest marketing channel through which users can get information about the features of attractive goods easily with the ability to complete the purchase

process without the need for the buyer to go to the store (Alam *et al.*, 2015, pp. 218–226).

As consumers increasingly access the internet on their mobile phones, research Ghose *et al.* (2013, pp. 613–631) indicates that consumer behavior is different on the mobile platform and therefore, the same mobile message will not be equally engaging for all users. However, there is no doubt that mobile marketing will dominate new marketing strategies, as expert systems can send personalized messages to thousands of customers while accounting for their differences in a very short period of time (Florido-Benítez, 2021).

With around 5.5 billion smartphones being used worldwide (*We Are Social*, 2020), it is essential to underline the importance of mobile marketing strategies, which, when properly set, are a predictor of market position growth and effective achievement of set goals. However, understanding market needs based on proper segmentation and consumer acceptance is crucial in influencing the success of a new mobile service.

The growing number of companies interested in mobile marketing and the increasing investment in mobile marketing campaigns have also led academic researchers to pay more attention to this issue. Recent and earlier studies have examined the factors that influence consumer behavior in mobile marketing, but many of these are based on acceptance of technology such as the Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA), Unified Theory of Acceptance and Use of Technology (UTAUT), or Innovation Diffusion Theory (IDT) (Kurtz *et al.*, 2021, pp. 69–85; Malik *et al.*, 2017, pp. 106–113; Eneizan *et al.*, 2019, pp. 1–10; Chee *et al.*, 2018, pp. 338–363; Chinomona & Sandala, 2013, pp. 1897–1908). Researchers modify, adapt, or extend these models with other factors to better explain consumer behavior.

However, due to the continuous development of mobile technologies, new possibilities of their use and related changing patterns of co-consumer behavior, there are still gaps in academic research. At the same time, we believe that most studies in the field of mobile marketing are based on technology adoption models, but studies that also synthesize psychological factors are absent. We also believe that previous studies do not sufficiently explain the influence of mobile marketing factors on consumer behavior in terms of demographic characteristics, and it is the understanding of these differences that may be important in developing mobile communication strategies. Communication through mobile marketing tools should not be based on a broad algorithm, but appropriately tailored to customers, respecting their demographic and behavioral differences.

To our knowledge, no study in the context of mobile marketing has examined situational and response factors according to the stimulus-organism-response (S-O-R) paradigm, along with motivation theory factors, as in the research Zheng *et al.* (2019, pp. 151–160) focusing on mobile impulse buying. By synthesizing these factors and marketing acceptance factors (Persuad & Azhar, 2012, pp. 418–443), we best developed a conceptual model to explain consumer behavior against mobile marketing background.

The aim of the present study is, therefore, to contribute to the research gap by examining the factors that encourage consumers to use mobile phones as a means of marketing communication, considering the differences between generations (Generation X and Y) and between genders, on a sample of Slovak consumers.

While consumers are adopting mobile phones to enhance their private and social lives, marketers see mobile phones as a marketing channel. These two very different perspectives suggest that marketers need to ensure that their mobile marketing strategies are not disruptive. The fact that mobile marketing is a relatively easy and inexpensive way to reach consumers doesn't mean that consumers want to receive marketing messages and offers on their devices.

The present study results can, therefore, provide a thorough understanding of how different consumer segments want to participate in mobile marketing and can also help business entities understand which factors have the strongest impact on customers so that they can effectively optimize their marketing and business strategies.

Proper optimization of marketing processes, in terms of impulsive and thought-through purchases too, positively influences the user experience and the satisfaction with the purchase process. These facts may positively influence the sale and, in a broader perspective, increase the competitiveness and overall value of the e-commerce entity

The present article is divided into several parts. The first part, Literature review, explains the theoretical background of the factors that are the subject of this research and then discusses the description of previous empirical studies in the context of mobile marketing. The next section of the paper defines the research hypotheses and research methods, including a description of the mathematical and statistical analyses applied to verify the hypotheses. The following section provides an overview of the results, which are discussed in the next part of the paper. Finally, in the last section, we provide implications for the practice limitations of the research and offer suggestions for future research directions.

Literature review

Theoretical background

The following part of the paper focuses on the theoretical specification of selected factors forming the basis of our research. These factors will be tested in the following sections.

Perceived Value of Mobile Marketing (PV)

The perceived value is the overall consumer assessment of the product's benefits based on the perception of what the consumer receives and what he gives up (Zeithaml, 1988, pp. 2–22). The value concept is key to understanding purchasing and marketing decisions in business markets (In the online store, consumers can easily compare products and prices online using different search engines or shopping tools (Eggert *et al.*, 2019, pp. 13–20). Consumer perceived value not only forms the basis for understanding consumer behavior in the context of different e-services (Li & Mao, 2015, pp. 229–243), but is considered essential for the success of a company as it has a significant impact on customer loyalty (García-Fernández *et al.*, 2018, pp. 250–262).

Several previous studies have confirmed that perceived value is a key factor in analyzing the intention to use mobile commerce (Madan & Yadav, 2018, pp. 139–162; Hew *et al.*, 2015, pp. 1269–1291). It has also been shown that consumers who see the value of mobile applications believe they will benefit from savings in terms of time and effort compared to other shopping channels (Murillo-Zegarra *et al.*, 2020). Based on the mentioned above, it seems that perceived value can also be a deciding factor in the context of mobile marketing adoption. Sanz-Blas *et al.* (2015, pp. 339–357) explain this by arguing that consumers' mobile advertising behavior depends on value judgments, meaning that if the recipient of a message finds the content of a mobile ad alert valuable, they will decide to open and read it. According to Persuad and Azhar (2012, pp. 418–443), if customers who shop using their mobile phones realize that the value they get from mobile marketing is high, they tend to be more favorable towards mobile marketing. Conversely, if they find that the value is too low and the process is annoying or uncomfortable, they may choose to avoid mobile marketing.

Shopping Style (SS)

Sarkar *et al.* (2020, pp. 1–20) argue that consumer decision-making styles are actually cognitive and affective mental consumer orientations. Consumers can search for brand information or product ratings online or visit a store in person to check the product. In addition, consumers can purchase a product in a brick-and-mortar store or an online store, whichever is more convenient (Persuad & Azhar, 2012). However, the results consumer survey showed that the factors that positively influence the decision to buy goods online are smaller time consumption or the ability to make an order at any time of the day (Davidavičienė *et al.*, 2019, pp. 399–411).

Concerning the present construct, consumer buying styles have not only proven to influence consumer buying behavior (Khare *et al.*, 2016, pp. 28–41), but previous studies have shown that buying decision styles have a significant impact on the entire decision-making process, including post-purchase behavior (Lysonski & Durvasula, 2013, pp. 75–87; Maggioni, 2016, pp. 120–126).

The research by Sarkar *et al.* (2020, pp. 1–10) also demonstrated the influence of purchase decision-making styles on the adoption of mobile shopping applications. Earlier studies have confirmed that the adoption of mobile marketing also depends on the shopping style. Hsu *et al.* (2007, pp. 715–726), Grant and O’Donohoe (2007, pp. 223–246) found that the adoption of mobile marketing varies depending on consumer segments and their shopping style.

When mobile marketing becomes more affordable and the benefits become more noticeable, consumers will most likely accept it (Zhang & Mao, 2008, pp. 787–805).

Brand Trust (TB)

Although the rapid development of mobile commerce technologies has raised great hope for mobile marketing, consumers' lack of trust in brands is a major factor affecting its adoption (Joubert & Van Belle, 2013, pp. 27–38).

The authors Morgan and Hunt (1994, pp. 20–38) define brand trust as one party's (consumer's) trust in the reliability and integrity of the business partner (trader). Hsiao *et al.* (2014, pp. 730–742) define confidence in mobile advertising as the consumer's belief that advertisers are honest, responsible and professional and understand and care for consumers. The authors Shankar and Malhotra (2010, pp. 2–4) state that confidence speaks about the responsiveness of respondents, as well as of certain intentions, such as

receiving products or information related to marketing, as well as promotional offers sent to mobile devices.

Several previous studies (e.g., Lwoga & Lwoga, 2017, pp. 1–24; Park *et al.*, 2019, pp. 31–43) confirmed that perceived trust positively influenced the adoption of mobile payments as part of mobile marketing. Other research suggests that consumer trust is an essential factor in mobile marketing, especially when consumers have little information about a company or its services (Gana & Koce, 2016). In the context of mobile augmented reality adoption, Saprikis *et al.* (2021, pp. 419–512) argue that the higher an individual's perceived trust in a given technology, the greater the user's willingness to adopt it.

Brand trust is indeed considered to be an essential factor determining the adoption of mobile marketing (Muk & Chung, 2015, pp. 1–6). At the same time, high consumer trust and commitment lead to more purchases, resulting in higher company profitability (Chen *et al.*, 2015, pp. 271–283).

Intention to Participate in Mobile Marketing (IPMM)

Fishbein and Ajzen (1975) were the first to define the concept of behavioral intention within the TRA model and described it as a person's subjective probability of performing a certain behavior. Saprikis *et al.* (2021, pp. 419–512), in the context of the adoption of augmented reality (AR) technology as a mobile marketing tool, defined the intention as the subjective likelihood of a person using an AR mobile application in the purchase process.

In the research by Murillo-Zegarra *et al.* (2020), intention to participate in mobile marketing was considered the consumer's willingness to accept mobile advertising notifications to which the consumer subscribes before receiving a mobile message.

Other researchers have described the adoption of mobile marketing as an intent to behave a certain way (Persuad & Azhar, 2012). Shankar and Malthouse (2010, pp. 2–4) state that this construct speaks about the responsiveness of respondents, as well as of specific intentions, such as receiving products or information related to marketing, as well as promotional offers sent to mobile devices.

Interpersonal Influence (II)

Interpersonal influence in the context of our research can be compared to the construct of Subjective norms, which forms the basis of the TRA model presented by Fishbein and Ajzen (1975), or Social influence from

the UTAUT model, which is defined as the extent to which an individual perceives that significant other people, such as family and friends, should use a particular technology (Venkatesh *et al.*, 2003, pp. 425–478).

This construct has been examined in previous studies in the context of mobile social commerce adoption (Liu *et al.*, 2019, pp. 839–860; Zhang & Wang, 2019, pp. 191–212), or in the context of consumer intention in relation to mobile marketing (Chee *et al.*, 2018, pp. 338–363). The influence of friends, relatives, bosses, peers, even media such as television and interactive media can be critical in the adoption of mobile marketing (Lopez-Nicolas *et al.*, 2008, pp. 359–364).

Previous studies have indicated that utilitarian consumers tended to seek information on products provided by other consumers (Ismagilova *et al.*, 2020, pp. 1–40). Consumers who have a strong normative social tendency tend to accept more social standards and monitor crowd behavior, which encourages impulsive consumption (Yan, 2016, pp. 453–477). Moreover, the results Johnston *et al.* (2018, pp. 674–702) reveal that a positive attitude toward social media advertising increases social media-specific behaviors (i.e., message and social interaction behaviors).

Visual Appeal (VA)

At present, according to Arshad and Naseer (2019), the key elements of visual communication used in product advertising are line, colour, shapes, images, typography, space, size, and scale, but the latest trends in visual communication are composed of a combination of images and text.

In a study by Zhang *et al.* (2020), visual appeal in the mobile shopping process is an important mobile marketing element. With the improved quality of visual content and short texts, advertisers gain greater exposure, appeal and acceptance from a wider audience towards product advertising (Arshad & Naseer, 2019).

In terms of visual appeal, Xiang *et al.* (2016, pp. 333–347) demonstrated in their research that the amount of graphical displays in online stores enhances consumers' virtual haptic experience, and according to Huang (2016, pp. 2277–2283), the more vivid images are displayed on online products, the more emotions consumers get.

The authors Chang *et al.* (2014, pp. 168–178) support the assertion that aesthetic appeal reflects the level of pleasure, satisfaction and enjoyment consumers have received when visiting a website, and Fang *et al.* (2017, pp. 269–283) reported that visual appeal would be a significant element that influences individuals' purchase intention.

In addition, increased bandwidth meant that businesses are now able to display high-resolution photos and videos on their business websites (Floh & Madlberger, 2013, pp. 425–439). In this context, a new study (Mulier *et al.*, 2021, pp. 1–15) has demonstrated that mobile vertical video ads increase consumer interest and interaction compared to horizontal mobile video ads.

Portability (PB)

Key features appreciated by users in the field of m-commerce were interface design and portability of handheld devices (Okazaki & Mendez, 2013, pp. 1234–1242). According to Baydas *et al.* (2020, pp. 370–404), this is because mobile marketing has introduced significant changes to the business world that make it easier to access personalized messages anytime, anywhere.

Others (Ghose & Han, 2011, 1671–1691) have described portability as follows: users have access to the Internet via mobile devices anytime, anywhere (subject to signal reception). This description indicated that portability allowed for reach and without place and time constraints.

Because mobile marketing differs from other marketing strategies, primarily through personalized targeting, based on the exact customer context of location, time, or environment, it is possible to design and deliver highly relevant and personalized content targeted to specific mobile devices (Tong *et al.*, 2020, pp. 64–78).

Some other researchers argue that mobile advertising content should be precisely tailored to the preferences and profiles of mobile users at the right time and place (Lin & Bautista, 2020, pp. 184–193; Rosenkrans & Myers, 2018, pp. 43–54). This is related to the fact that a mobile device is always available and close at hand, allowing customers to be a direct part of any marketing campaign anytime, anywhere (Khalufi *et al.*, 2019, pp. 100–111).

Utilitarian Browsing (UB)

Utilitarian browsing is defined as obtaining product information using heuristics, goal-oriented behavior, risk reduction strategies (Park *et al.*, 2012, pp. 1583–1589). Consumers with utilitarian values tended to realize their initial goals (Faquih & Jaradat, 2015, pp. 37–52) in order to meet their purchasing goal; they also need to find quality information to make a purchasing decision (Park *et al.*, 2012, pp. 1583–1589). In other words, utilitarian behavior is more relational and task-related, meaning that utilitarian

consumers use mobile apps only to accomplish a specific task and not for its value (Hazarika *et al.*, 2019).

According to some authors (Yildirim & Kaplan, 2018, pp. 62–85), consumers who show purchasing behavior with utilitarian motives prefer products or services that they can use in their daily life or in the long term and through which they can obtain sufficient benefit for their needs.

In addition, a previous study revealed that product information was considered to be one of the main benefits of utilitarian values in online shopping (Chiu *et al.*, 2014, pp. 85–114).

Hedonic Browsing (HB)

Hedonic browsing focuses on enjoying entertainment through web browsing, the pleasant aspects of buying behavior, and positively influencing consumer buying behavior (Park *et al.*, 2012, pp. 1583–1589). Hedonic motivation is described as an escape value that has the potential to fulfill consumer needs through entertainment or emotional engagement (Eneizan *et al.*, 2019, pp. 1–10).

Other researchers say hedonic motivation refers to experiential buyers who are more likely to engage in an activity or adopt a technology when they experience immediate pleasure or gratification from it (Zheng *et al.*, 2019, 151–160).

Drumwright and Kim (2016, pp. 970–979) defined perceived enjoyment as an intrinsic motivation that reflects the pleasure and enjoyment associated with using a system. In a previous study, this factor was identified as an influencing factor in the adoption of mobile information systems and services (Hew *et al.*, 2018, pp. 121–139). Other authors have suggested that when consumers experience high levels of hedonic value, they tend to express positive behavioral intentions (Chiu *et al.*, 2014, pp. 85–114).

According to Sun *et al.* (2016, pp. 233–246), pleasant and likable mobile marketing can have a positive impact on consumers' attitudes towards a brand. The more remarkable the entertainment component is, the more likely buyers are to express an approving attitude towards mobile marketing as well (Venkatesh *et al.*, 2012, pp. 151–178).

Urge to Buy (UBI)

Impulse purchasing is an emotional state that allows consumers to buy impulsively (Parboteeah *et al.*, 2009, pp. 60–78). Impulse purchasing means the situation when the consumer experiences a sudden, often strong

and persistent urge to buy something immediately (Liu *et al.*, 2013, 829–837).

Such a tendency for consumers to shop out of control may come from sales promotion incentives such as price reductions or discount offers, while, according to Aragoncillo and Orús (2017, pp. 42–62), the offline channel is slightly more likely to encourage impulse buying than the online channel. Therefore, it is apparent that, given the nature of the ubiquity of mobile devices, multichannel can be an effective business strategy even in the context of mobile marketing.

When examining the correlation between text message advertisements sent to consumers' mobile phones and impulse buying, increased purchase behavior was found due to these mobile services (Burgess *et al.*, 2014, pp. 1–15).

Mobile marketing features that make it easier for consumers to find the goods they want can therefore increase consumers' desire to buy, including making impulse purchases (Ittaqullah *et al.*, 2020, 1569–1577).

Consumers can act impulsively as a result of external stimuli and are, therefore, more likely to be exposed to impulsive purchases (Floh & Madlberger, 2013, pp. 425–439).

Empirical state of the art

Increasing the availability of mobile technologies has brought organizations new revenue opportunities through mobile commerce. This is one of the reasons why mobile marketing is a topic of growing interest and importance in an academic and commercial sense. However, the truth is that mobile marketing methods are constantly changing and evolving in the form of the development of new technologies implemented in mobile devices. Attempts to understand consumer behavior in the context of mobile marketing have, therefore, yielded many empirical studies in a wide range of areas. However, previous empirical studies have often relied on technology adoption models and theories to explain the factors that influence consumer behavior in the context of mobile marketing.

For example, a study by Kurtz *et al.* (2021, pp. 69–85) sought to empirically examine how user-based mobile advertising can influence a shopping intent based on the Theory of Reasoned Action (TRA) and Privacy Calculation Theory (PCT). Using modeling of structural equations, with data from 294 users, it was found that purchasing intentions are mainly influenced by the user's attitude and the way personal data is disclosed.

Another study (Eneizan *et al.*, 2019, pp. 1–10) used the Unified Theory of Acceptance and Use of Technology model (UTAUT2) in its research to

explain predictors of Jordanian customer behavior with respect to mobile marketing acceptance. Using a model of structural equations, a sample of 321 respondents showed that performance expectancy, hedonic motivation, social influence, price value, facilitating conditions, habit and risk significantly influence customer behavior intentions. However, the interesting thing about this research is that the confidence factor turned out to be insignificant.

Chee *et al.* (2018, pp. 338–363) sought to analyze and evaluate any significant relationship between consumer perceptions and intentions in relation to mobile marketing. The results of this research applying the Technology Acceptance Model (TAM) point out that perceived usefulness, perceived ease of use, perceived innovation and social impact have a direct positive relationship with the intention to use mobile marketing. TAM was also the subject of a study (Saeed & Bekhet, 2018, pp. 63–72), which showed that usefulness, perceived ease of use, perceived entertainment and personal relationship significantly influenced young Malaysian customers' attitudes towards mobile marketing.

In the context of promotion versus prevention, Hongyan and Zhankui (2017) used Higgins' regulatory focus theory, combined with Theory of Planned Behavior (TPB) and Herzog's U&G, to analyze the mechanism by which consumers formulate their intention to shop in the context of mobile advertising. An empirical study showed that factors such as infotainment, irritability, and subjective norms were significantly associated with attitudes, and attitudes, in turn, mediated the influence of these three factors on the purchase intent.

Chille *et al.* (2021) combined the Technology Acceptance Model (TAM) with Diffusion of Innovation Theory (DOI) to identify factors influencing customers to embrace mobile marketing. Huang *et al.* (2019, pp. 70–86) identified a framework for consumer perceived value (CPV) and evaluated the dynamics of the relative importance of the various dimensions of CPV in the context of mobile marketing.

In the context of mobile marketing, previous studies have focused on different types of mobile marketing tools to understand how consumers behave in the process of mobile commerce due to digitization and mobile technologies and subsequently suggest ways to optimally communicate brands with customers.

Some studies have focused on mobile applications focused on instant messaging (Goulart *et al.*, 2019, pp. 41–54). Researchers have also focused on the various determinants of mobile coupons and their impact on shopping in the context of fast-food restaurants. The study's findings suggest that the hedonic and utilitarian approach has an impact on customers' ten-

dency to use mobile coupons to purchase (Gupta & Wali, 2020, pp. 5–25). Some researchers have sought to examine how contextual targeting relates to commuting to mobile coupon responses (Ghose *et al.*, 2019, pp. 154–174). Mobile marketing communication via social networks was also examined. Empirical evidence has confirmed that companies that communicate with customers through these platforms can easily attract customers and increase sales and profits by making it easier for customers to purchase by helping them make decisions about purchasing products and services (Khalufi *et al.*, 2019, pp. 100–111).

In the context of mobile marketing, video ads are very popular. A recent study by Mulier *et al.* (2021, pp. 1–15), therefore, tried to uncover the basic mechanisms of viewing mobile video ads. Mobile users have been found to experience less effort when viewing video ads on a smartphone in full-screen mode vertically (compared to horizontally). At the same time, younger mobile users (Generation Z) have been found to process mobile vertical video ads more smoothly than older Generations X and Y.

Mobile shopping applications, such as mobile marketing tools, have been the subject of research by Rattanaburi and Vongurai (2021, pp. 901–913). In a sample of 502 Generation Y users, the authors sought to identify the factors that influence the actual use of mobile shopping applications. The primary outcome showed that perceived usefulness has the strongest positive significant impact on behavioral intent, followed by personal innovation and compatibility.

A new stream of mobile marketing research also focuses on how customers interact with mobile artificial intelligence applications (chat-bot) and seeks to identify how to implement algorithms for this technology for a better customer experience (Huang & Rust, 2018, pp. 155–172; Leung *et al.*, 2018, pp. 818–831). In the context of artificial intelligence, Rauschnabel *et al.* (2019, pp. 43–53) empirically tested how consumers perceive and evaluate the benefits and quality of mobile augmented reality and how this evaluation is driven by subsequent changes in brand attitudes.

QR codes as mobile marketing tools have been the subject of earlier research (Ryu & Murdock, 2013, pp. 111–124), which incorporated two theories — the Technology Acceptance Model and the Utilization and Satisfaction Theory and two consumer traits — consumer innovation and market mavens. The results indicated that perceived usefulness, ease of use, market talent and enjoyment positively influenced consumers' intention to adopt the QR code, while innovation had a negative impact on acceptance.

In the context of research, some studies have focused on cultural differences in the adoption of mobile marketing. Culture has been shown to play an important role in this context, with trust, observability, subjective norm

and relative advantage being the most prominent influential factors (Al-Haddad & Galib, 2020, pp. 62–89).

In terms of demographic characteristics, some studies have also focused on generational differences. Generation Y users have been shown to use mobile applications much more than Generation X users, and Generation Y users proactively prefer those applications that show signs of innovation and uniqueness in better features (Arora *et al.*, 2020, pp. 176–196).

Since empirical literature lacks knowledge in the area of demographic differences of consumers in the context of mobile marketing adoption, this study focuses on a new synthesis of the factors of the S-O-R model, the factors of motivation theory, and mobile marketing acceptance factors. The research results are presented in the following sections of the present paper.

Research method

This part focuses on the methodological basis of the present research. The primary objective of the research activities was to assess the specifics of consumer behavior in the optics of e-commerce processes and user preferences in terms of mobile communication platforms of customers of Generation X and Y. The presented objective can be decomposed into several secondary objectives: the first objective was to assess the differences in selected purchasing behavior constructions between categories of generation and gender characteristics. Subsequently, general consumer behavior sessions for e-commerce processes and user preferences were drawn. The secondary objective can be characterized as an assessment of the differences in consumer behavior in terms of e-commerce, focusing on generation and gender characteristics.

From the point of view of correct methodological sequence, the research questions and main hypotheses were formulated with respect to the partial as well as the primary objective of the research in question.

RQ I: Is there a significant difference between the categories of selected characteristics of the assessed purchasing behavior?

RQ II: Is there a significant causal relationship in selected purchasing behavior constructs?

H1: We assume a significant impact of Interpersonal Influence (II) on Hedonic Browsing (HB).

H2: *We assume a significant impact of Interpersonal Influence (II) on Utilitarian Browsing (UB).*

H3: *We assume a significant impact of Visual Appeal (VA) on Hedonic Browsing (HB).*

H4: *We assume a significant impact of Visual Appeal (VA) on Utilitarian Browsing (UB).*

H5: *We assume a significant impact of Portability (PB) on Hedonic Browsing (HB).*

H6: *We assume a significant impact of Portability (PB) on Utilitarian Browsing (U).*

H7: *We assume a significant impact of Utilitarian Browsing (UB) on Hedonic Browsing (HB).*

H8: *We assume a significant impact of Hedonic Browsing (HB) on Urge to Buy Impulsively (UBI (UBI)).*

H9: *We assume a significant impact of Utilitarian Browsing (UB) on Urge to Buy Impulsively (UBI).*

H10: *We expect a significant impact of the Perceived Value of mobile marketing (PV) on the Intention to Participate in Mobile Marketing (IPMM).*

H11: *We assume a significant impact of Shopping Style (SS) on the Intention to Participate in Mobile Marketing (IPMM).*

H12: *We expect a significant impact of brand confidence (TB) on the Intention to Participate in Mobile Marketing (IPMM).*

H13: *We assume a significant impact of the Intention to Participate in Mobile Marketing (IPMM) on Utilitarian Browsing (UB).*

H14: *We assume a significant impact of the Intention to Participate in Mobile Marketing (IPMM) on Hedonic Browsing (HB).*

H15: *We assume the significant impact of the Intention to Participate in Mobile Marketing (IPMM) on the Urge to Buy Impulsively (UBI).*

RQ III: *Is there a significant difference between the selected characteristics in the selected consumer behavior in terms of e-commerce processes with regard to mobile communication platforms?*

H16: *We assume a significant difference between Generation X and Y in selected consumer behavior in terms of e-commerce processes with regard to mobile communication platforms.*

H17: *We assume a significant difference between men and women in selected consumer behavior in terms of e-commerce processes with regard to mobile communication platforms.*

The following Figure 1 shows the sessions determined by the above hypotheses of the second research question.

The research presented can be characterized as primary in terms of data acquisition. The sample consisted of 765 observations (statistical units). The tool (questionnaire) used in the research to collect data consists of two main parts. The most important part identifying selected aspects of purchasing behavior was created on the basis of the results of the current research, which are discussed in the previous section. The second part consisted of the identification of respondents. Generation X accounts for 32.2% (n = 246) and Generation Y 67.8% (n = 519). Generations were defined on the basis of David Hole's notions (Hole *et al.*, 2020). The present deviations occurred mainly after removing the respondents' answers which could not be considered valid. Although a proportional distribution was expected, the deviations in question did not significantly disrupt the course of the research. The primary variable that was monitored in the quota selection of respondents is gender. The gender distribution of respondents is almost proportional (49.2% of men and 50.8% of women), so the representativeness of the given variable is evaluated as fully acceptable. The research was carried out in Slovakia. Data was collected in both physical and electronic form in the second half of 2019. The sample selection can be described in two phases. The first phase of data collection was based on the availability and willingness of respondents. At this stage, the questionnaire was distributed to respondents primarily through social networks and e-mail. At the end of this phase, the collected data was subjected to fundamental frequency analysis of identification variables. The subsequent phase can be characterized by quota selection, where the primary focus was placed on the variable determining gender characteristics. With regard to this variable, there were efforts to proportionally classify categories — men and women. After the data collection was completed, the data was prepared for analytical

processing. The preparation of the data consisted primarily of the removal of the less relevant responses. Relevance was evaluated on the basis of the verification question item (one million has six zeros). Further adjustments concerned the removal of respondents who did not correspond to the age defined - Generations X and Y. 765 respondents' responses were submitted for statistical processing. As respondents were selected on a generational basis, the outputs can also be used for other countries, as the behavioral characteristics of identical generations between different countries are very similar.

The inference and verification of the sessions defined in the above hypotheses consists of several analytical procedures. In the first step, Confirmation Factor Analysis (CFA) was performed using Maximum likelihood estimation (MLE) (Schmidt *et al.*, 2011). For CFA, Average Variance Extracted (AVE > 0.5 (0.7)) and Composite Reliability (CR > 0.5 (0.7)) were calculated (Fornell & Larcker, 1981, pp. 39–50; Hair *et al.*, 2014), as these values primarily serve to assess construction of latent variables. Factor loadings (> 0.5 (0.7)) were calculated to assess manifest variables in CFA. Subsequently, the analysis of differences in selected purchasing behavior constructs between gender and generation characteristics was applied. Nonparametric difference tests were used for analysis — Wilcoxon test of two independent samples. Subsequently, an analysis was carried out to determine the impact through Partial Least Squares — Path Modeling (PLS PM) (Henseler *et al.*, 2017). The part determining the impact will be divided into two parts, where the first one will point out the fulfillment of the assumptions and thus the possibility of applying PLS PM. Thus, we will address sufficient reliability (> 0.7), Eigenvalue (1.st > 1; 2.nd < 1) and factor loadings (> 0.7) (Sanchez, 2013). In the rest of the processes, sessions of selected purchasing behavior variables were compared between Generation X and Y, as well as between men and women. A non-parametric analysis of the difference in influence based on permutations was used. The programming language R 3.6.1 (Action of the Toes) and ggplot2, lavaan and plspm libraries were used for analytical processing.

Results

The following section shows the processes leading to the main objective as well as the evaluation of the hypotheses mentioned above. In the first part, CFA is applied, the aim of which is to verify the suitability of the internal factor structure and thus to support the suitability of the application of other analytical procedures. The selected data (CFA output) is followed by the

determination of differences in individual purchasing behavior constructions between gender and generation characteristics. Subsequent statistical procedures are devoted to deducing the influence between selected purchasing behavior constructs in general, as well as gender and generation characteristics.

CFA

The purpose of this section is to assess the appropriateness of the internal factor structure of latent and manifest variables based on the model determined by the hypotheses above. Reported outputs point to the degree of suitability of the application of the planned methods of inference — PLS PM. Table 1 shows CR rates and AVE.

The acceptable value of the stated characteristics should be higher than 0.5 (or 0.7 according to some authors). As can be seen, the level of 0.7 is not exceeded for AVE in latent variables such as PV, TB, IPMM, II, UB, HB. In order to assess the problematic elements, the FL (Factor loadings) characteristic was calculated, which at the latent PV variable reaches the lowest value of 0.7515. Thus, we do not evaluate it as a problematic measure. For the latent TB variable, the lowest FL is acquired by the manifest variable TB_3, whose rate is 0.0794 — this variable will be removed. For the IPMM latent variable, the lowest FL measure was measured at IPMM_4 (0.2413) — this variable will be removed. The manifest variables IPMM_5 and IPMM_6 show rates greater than 0.5 but below 0.7 — the manifest variables will be removed. Latent variable II exhibits a manifest variable II_4 of approximately 0.6671041, which is less than 0.7, and thus this variable will be removed. The latent variable UB at the lowest manifest variable UB_3 is 0.6916 — this value will be removed. HB does not contain a manifest variable with FL below 0.7.

The previous Table 2 shows the outcomes of the suitability of the internal factor structure after deletion of selected manifest variables (TB_3, IPMM_4, IPMM_5, IPMM_6, II_4, UB_3). As can be seen, all values are acceptable. Such a structured model will serve as the basis for the differential analysis and impact determination models.

Difference test

The following section focuses on the assessment of the significance of differences in individual shopping behavior constructs in terms of gender and generation characteristics. The non-parametric Wilcoxon test of two independent selections was used to assess the differences.

Table 3 shows the value of the Wilcoxon test in the line Wilcoxon W and the asymptotic significance in the line p value. As can be seen, there was a significant difference in 7 constructions: PV — perceived value of mobile marketing, TB — trust in brand, II — interpersonal influence, VA — visual attraction (most significant difference), UB — utilitarian browsing, HB — hedonic browsing, UBI — urge to buy impulsively. Thus, the difference between men and women in these constructs was significant. The difference did not manifest itself only in three constructions. Thus, it can be said that there are some differences between men and women in terms of online shopping processes using mobile communication platforms.

Table 4 shows the outputs of the Wilcoxon Difference Test. As can be seen, significant difference manifested in 7 constructs: IPMM — intention to participate in mobile marketing, II — interpersonal influence, VA - visual appeal, PB — portability, UB — utilitarian browsing, HB — hedonic browsing, UBI — urge to buy impulsively. As in the case of gender, the shopping process is different for the generations in question, too (based on differences between Generation X and Y). It should be noted, however, that differences show a higher degree of significance than is the case of gender.

These tests evaluate only the existence or the absence of significant differences. Gender characteristics showed differences in perceived value of mobile marketing (more women), trust in brand (more men), interpersonal influence (more women), visual appeal (more women), utilitarian browsing (more men), hedonic browsing (more men) and urge to buy (more women). There were differences between generations in terms of the intention to participate in mobile marketing (more Generation X), interpersonal influence (more Generation Y), visual appeal (more Generation Y), portability (more Generation Y), utilitarian browsing (more Generation Y), hedonic browsing (more Generation Y), and in the urge to buy (more Generation Y).

Impact analysis

The following section is devoted to the PLS PM regression model. At the beginning, the assumptions for using the model are displayed, then the model is applied and evaluated. Figure 2 shows the LF for the model shown.

As can be deduced from Figure 2, none of the manifest variables is less than 0.5, and only one manifest variable (IPMM_1) is less than 0.7. This output is acceptable. Table 5 shows the selected assumptions for applying the model.

Table 5 shows the evaluation of the PLS PM model application assumptions. The first column specifies the latent variables. In the second column there is an indication of all latent variables A, which gives us information that it is a reflective direction of latent variables. The third column indicates the number of manifest variables falling under specific latent variables. The fourth and fifth columns point to the reliability, where, as can be seen, no value is less than 0.7, i.e., the degree of reliability is acceptable. Finally, the penultimate column and the last column point to Eigenvalue where none of these values in the penultimate column is less than 1 and in the last column is greater than 1, so the output is acceptable.

Table 6 shows the outcomes of the analysis of the significance of the impact of consumer behavior in terms of e-commerce processes and user preferences when using mobile communication platforms with regard to the selected customer group — Generation X and Y. It is a standardized model at 765 observations, showing goodness of fit (GOF) of approximately 0.4355. In the first step, let us focus on the value of p (last column of the table), which, if it takes a value higher than 0.05, it is not possible to speak of a significant impact. Based on the above, we reject 4 hypotheses, namely H2, H9, H12 and H13. Other hypotheses have been confirmed. The column labelled estimate determines the degree of impact, the higher the value, the more significant the impact. Figure 3 visualizes the intensity of the effects of the investigated model.

As can be seen from the previous scheme, the most significant impact is identified between hedonic browsing and the urge to buy impulsively. The reported impact rate is approximately 0.457 and, as is evident, it is positive, that is, the tendency of consumers to hedonic browsing (browsing pages on the web for pleasure) is high. The higher the hedonic browsing tendency, the more likely the consumers are to make a purchase (even products that they would not buy). Slightly lower impact was found for portability, a very narrow attribute related to the use of mobile communication platforms for hedonic (0.419) as well as utilitarian browsing (0.385). The results for portability, hedonic browsing and urge to buy impulsively highlight the importance of addressing mobile communication platforms. A relatively large influence was also measured for the intention to participate in mobile marketing and the urge to buy impulsively. Here it would be appropriate to emphasize the perceived value of mobile marketing, the intention to participate in mobile marketing and the urge to buy impulsively. We recorded a negative rate for shopping style, but this is understandable because it was a reverse scale. It is not possible to speak of a significant impact of values connected by dotted lines.

Analysis of differences in terms of generation and gender characteristics

The objective of the research activities in this section is to assess the diversity of consumer behavior in terms of e-commerce processes and user preferences when using mobile communication platforms regarding generation and gender categories.

Generation

The following section evaluates the hypothesis H16, which assumes the difference between Generation X and Y in selected consumer behavior sessions in terms of e-commerce processes when using mobile communication platforms. The following Table 7 is the output of the PLS PM model and shows the coefficients as well as the p value in the models for Generation X and generation Y.

With regard to Table 7 above, let's focus primarily on the p value, which when less than 0.05 indicates the significance of the session. Several differences are evident from the first examination of p values between generations. In the case of the dependent variable, the intention to participate in mobile marketing (IPMM), the difference manifested itself (based on an evaluation of the statistical significance of the coefficients) in the constructions: shopping style (SS) and brand trust (TB) — the outputs for the Generation Y cannot be considered significant. For utilitarian browsing (UB), the difference manifested itself in interpersonal influence (II) and visual appeal (VA), where it is not possible to talk about significant outputs in Generation X. With regard to the dependent variable hedonic browsing (HB), the difference was found in utilitarian browsing (UB), where it is not possible to speak of a significant influence in terms of Generation X. The following Table 8 shows the outputs of coefficient variation testing through a non-parametric permutation-based test.

In assessing the significance of the differences, let us first focus on the value of p and the last column that answers the question of significance, that is, if the difference is significant. This is a significant difference in most cases, so we accept the H16 hypothesis. The table also shows the coefficients, i.e., the coefficients of the overall model without generation differences, the coefficients of Generation X and Y, and the difference in the generation coefficients in absolute terms. Figure 4 visualizes the coefficients of Generation X and Y.

The most significant difference is evident in the impact of hedonic browsing (HB) on the urge to buy impulsively (UBI), a higher rate is recorded for Generation Y. In this way, it is possible to assess all sessions

where a significant difference in coefficients has been confirmed (output of Table 7).

Gender

This section highlights differences in the impact of gender characteristics, as discussed in hypothesis H17 (We assume a significant difference between men and women in selected consumer behavior in terms of e-commerce processes with regard to mobile communication platforms.). Table 9 is the output of the PLS PM model and shows the significance as well as the coefficients in the models for men and women.

On the basis of the p value outputs, it can be concluded that several differences are evident between the gender characteristics. Given the dependent variable intention to participate in mobile marketing (IPMM), the gender gap manifested itself in the shopping style (SS), where it is not possible to speak of a significant output for women as opposed to men. In the utilitarian browsing (UB), the difference again manifested itself in the insignificance of interpersonal influence (II) and visual appeal (VA) in women. In the dependent variable hedonic browsing (HB), the difference was reflected in the intention to participate in mobile marketing (IPMM) and utilitarian browsing (UB), where the coefficients for women cannot be perceived as significant. In the urge to buy impulsively (UBI), the difference manifested itself in the inconsistency of utilitarian browsing (UB) in men. Table 9 shows the coefficient testing outputs through a non-parametric permutation-based test.

As can be seen in several cases, this is a significant difference, so we accept hypothesis H17. The table also shows coefficients of the overall model without gender differences, coefficients for men and women, as well as the difference in gender coefficients in absolute terms. The following Figure 5 visualizes the coefficients of men and women.

The greatest difference is evident in the impact of utilitarian browsing on the urge to buy impulsively, while a higher rate is recorded for women. In this way, it is possible to assess all other sessions where the difference in coefficients has been confirmed.

Discussion

Progress in mobile technology has significantly changed the business environment (Vatanparast, 2010). The prevalence of this technology has led marketing managers to increasingly perceive mobile phones as a highly

effective market communication tool (Barnes & Scornavacca, 2004, pp. 128–139). To create a successful mobile marketing campaign, marketers not only have to understand market needs based on proper segmentation, but also the notion of sustainable marketing practices based on promoting environmental and socially responsible products and values.

The differences between these socio-demographic characteristics were also examined by Mani *et al.* (2016, pp. 37–42). The authors conclude that the urge to buy is influenced by the age of respondents, whereby young people are much more prone to buy impulsively. Our finding that people belonging to Generation Y buy more impulsively than those belonging to Generation X is also consistent with other studies (Aruna & Santhi, 2015, pp. 1–17; Lissitsa & Kol, 2016, pp. 304–312).

On the other hand, Generation Y favors faster decisions with less thinking of the purchase itself (Parment, 2013, pp. 189–199), and makes purchasing decisions based on emotions and fantasies, which means that it prefers rather hedonic product browsing (Aruna & Santhi, 2015, pp. 1–17). These statements are also consistent with our findings.

Men are more rational in their purchasing incentives, suggesting that they prefer more utilitarian values and product browsing. However, it should be noted that our results also reveal higher values for hedonic browsing in men. Arnold and Reynolds (2003, pp. 77–95) and Hung and Chun (2010, pp. 849–857) found that women are prone to hedonic browsing more than men and also have stronger hedonic purchasing motivations. In terms of gender, the credibility of online commerce, according to Slyke *et al.* (2010, pp. 30–40), has a greater impact on women than on men. Similarly, social environment factors such as views of a family and friends affect women more than men, as noted by Johnson and Grayson (2005, pp. 500–507). Our results regarding visual attraction, where higher values were measured in women, are consistent with those of Hung and Chun (2010, pp. 849–857).

In assessing the causal link between selected purchasing behavior constructs, the most significant impact was identified between hedonic search and the urge to buy impulsively. The reported impact rate is approximately 0.457, which means that the consumer tends to browse hedonically (browsing pages on the web for the sake of pleasure; hedonic browsing increases the chance of making a purchase (even products they might not need). This result is in line with the findings of several authors. For example, Park *et al.* (2012, pp. 1583–1589) examined the relationship between product attributes, web browsing, and impulse purchasing of clothing in the context of online shopping. The authors conclude that while utilitarian web browsing has a negative impact on impulsive buying, hedonic browsing positively

affects impulsive buying of clothes online. Similarly, Verhagen and Van Dolen (2011, pp. 320–327) confirmed that positive emotions were the main driving force behind impulsive online buying behavior.

Similar findings have been reached in the study (Zheng *et al.*, 2019, pp. 151–160) which researched the factors affecting impulsive buying using mobile phones (mobile commerce). In comparison with utilitarian browsing, the results showed that hedonic browsing had a strong and positive impact on consumers' urge to buy impulsively. Utilitarian browsing only indirectly affects consumers' urge to buy impulsively through hedonic browsing. Usefulness was constructed in studies (Parboteeah *et al.*, 2009, pp. 60–78) as a determinant of pleasure, while pleasure was seen as a direct determinant of the urge to buy impulsively. In the end, an experimental study confirmed the structure of the model and showed that the impulsive desire to buy was directly and strongly determined by joy. Therefore, this study also supports our allegations of the existence of an impact between hedonic browsing and the urge to buy impulsively.

Our results show that a significantly higher rate was in Generation Y, and that there was no significant difference in gender characteristics.

To a lesser extent, the impact of portability, an attribute in a very close connection to the use of mobile communication platforms, was identified in hedonic (0.419) as well as utilitarian browsing (0.385). Even though portability has an impact on both utilitarian and hedonic browsing, as also stated in (Okazaki & Mendez, 2013, pp. 1234–1242), a significant effect was only observed in the case of utilitarian browsing. Similarly, the results of the research (Zheng *et al.*, 2019, pp. 151–160) have not shown a significant relationship between portability and hedonic browsing, which is also contrary to our findings. If we focus on differences in this impact, the impact of portability on utilitarian browsing did not show any difference across generation and gender characteristics. It should be noted, however, that Generation Y dominates the impact of portability on hedonic browsing.

A relatively large influence was also measured in the intention to participate in mobile marketing and the urge to buy impulsively. Generation X dominates in assessing the impact differences. A significant impact has also been recorded in the impact of the perceived value of mobile marketing and shopping style on the intention to participate in mobile marketing, as these results are in line with those of the authors (Persuad & Azhar, 2012, pp. 418–443) and where the differences in a generation are in favor of Generation Y and women. The impact of brand trust on the intention to participate in mobile marketing cannot be assessed as significant. On the contrary, the results of the study (Persuad & Azhar, 2012, pp. 418–443) indicate that brand trust is a significant predictor of consumers' intention to participate in

location-based mobile marketing. Similarly, Saeed and Bekhet (2018, pp. 63–72) found that, among other factors, trust also played an important role in increasing the intention of young customers to use mobile marketing services. The difference in impact is significant in terms of generations, mainly in Generation X.

Significant impacts were still reflected in the interpersonal influence on browsing, but no significant impact was measured for utilitarian browsing. These results are analogous to the previous study, which indicated that the personal interaction of consumers with trade employees had a negative impact on their utilitarian browsing and a positive impact on their hedonic browsing (Olsen & Skallerud, 2011, pp. 532–539). Other influences were reflected in the impact of visual appeal on utilitarian browsing and hedonic browsing (where this was a negative impact) and the impact of hedonic browsing on the intention to participate in mobile marketing and in comparison with the study (Chang *et al.*, 2014, pp. 168–178; Zheng *et al.*, 2019, pp. 151–160), where a significant effect of visual appeal on both hedonic and utilitarian browsing was found. We hereby state that we have not found a direct correlation between these statements and the results of our analyses.

There was no significant impact on the sample in terms of the impact of utilitarian browsing on impulse buying, in the intention to participate in mobile marketing on utilitarian browsing, and in the interpersonal impact on utilitarian browsing.

The continuous development of technology in the environment of e-commerce is reflected in consumer behavior, where the current use of smart mobile devices plays an important role. Smart mobile devices' ease of use and popularity among consumers make them a relevant sales channel for e-commerce entities. We consider specific segmentation of consumers as the key to market success in smart mobile environments, which is important to the success of communication campaigns and other marketing activities. The segmentation in question, based on the target group's knowledge, is particularly relevant in cases where an e-commerce entity specializes in a selected generation of consumers or the specific gender of the customer.

Proper optimization of marketing processes, in terms of impulsive and thought-through purchases, also positively influences the customer's user experience and satisfaction with the purchase process. These facts ultimately may positively influence the actual sale and, in a broader perspective, increase the competitiveness and overall value of the e-commerce entity. However, it should not be forgotten that attention should also be paid to the impact of technology on all main constituents of sustainable development

(Tvaronavičienė & Černevičiūtė, 2015, pp. 87–97). The outcomes, as well as the methodological procedures used in this study, have added value not only for e-commerce entities with a defined target group (Generations and Gender), but also allow for their wider use.

Conclusions

The primary objective of the research was to assess the specifics of consumer behavior (Generation Y and X) in terms of e-commerce processes and user preferences when using mobile communication platforms. This objective was met by process of analytical procedures, which showed that there was a significant difference in the assessed behavioral patterns between the characteristics of gender and generation, that the causal link in the selected patterns of purchasing behavior could be considered significant and that the difference between gender and generation characteristics in selected consumer behavior in terms of e-commerce processes when using mobile communication platforms is also significant. Thus, the research gave us a positive answer to all three research questions.

In the first step of the analytical processing, differential analysis was applied. In most cases, there was a significant difference in characteristics of gender and generation. Diversity tests evaluated that a significant difference between gender characteristics manifested itself in the perceived value of mobile marketing (women), in trust in the brand (men), in interpersonal influence (women), in a visual appeal where the highest significance was measured — $1,66 \times 10^{-7}$ (women), in utilitarian browsing (men), in hedonic browsing (men) and in the urge to buy impulsively (women).

The differences between generations were reflected in the intention to participate in mobile marketing, dominated by Generation X, in interpersonal influence — more Generation Y, in visual appeal, where the difference was again the most significant — $< 2,20 \times 10^{-16}$ and higher in Generation Y, portability — Generation Y, in utilitarian browsing, where Generation Y dominated, in hedonic browsing with higher values in Generation Y, and in the urge to buy impulsively, where a significantly higher value was found in Generation Y.

From the results of the presented research, it is possible to abstract several implications that could be helpful in economic practice. It should be very important for any organization to build value, i.e., sell, occupy new markets, etc. A significant factor for the customer is portability (in connection with mobile devices); although modern marketing practice highlights

the need for the greatest possible customization of websites for mobile devices, we cannot talk about perfect applications.

From our analyses, the path of portability, hedonic browsing, and, finally, the urge to buy impulsively appear to be very important. If a website is neglected, potential customers leave the site without purchasing. This process is not prevented by economic influences, such as better purchasing conditions than the competition provides. We consider this shortcoming to be a relatively strong impact of reducing competitive advantage.

Another very important way was the effects of the perceived value of mobile marketing on the intention to participate in mobile marketing and subsequently on the urge to make impulsive purchases. In the first step, we recommend that the promotion organizations prepare very carefully, devote sufficient time to selecting the target group, and properly addressing potential customers. These activities will result in the acceptance of promotions, as well as the evaluation of these promotions by customers as essential, which will be reflected in the impulsive purchase. As mentioned, this is not possible to apply in general, but it is appropriate to take into account e.g., customer generation, gender, or the very approach to shopping through a mobile device.

With the continued development of mobile technologies, there will be countless new opportunities for companies that should strive to take full advantage of these features. Businesses should closely monitor the development of these technologies, look for new opportunities and integrate them into their marketing strategy. These activities should be carried out on a regular basis so that businesses are able to reflect the interests of consumers as much as possible, thus creating a picture of a modern, innovative and prosperous society.

In order to take full advantage of the features of mobile marketing and its effective implementation, businesses should focus on the strength of the personal nature of mobile devices, which distinguishes mobile marketing from other, more traditional forms of marketing. Mobile devices should no longer be used only as an ad channel. It is necessary to give them much more weight and perceive it more as an individual marketing channel, in which salespeople involve customers in personalized relationships and provide them with experience or added value.

Only information that customers deem valuable or consider important to ensure that the right customer receives the right message at the right time should be communicated through this medium. Given the borderless possibilities of using mobile technologies, it is very important that companies know their target audience and design mobile marketing campaigns respecting the privacy of the recipient of marketing messages.

In addition to several strengths (sample size, sample balance in terms of gender characteristics, depth of research), the present study has several limitations. The first is the imbalance in the generations. This shortcoming was solved by implementing an analysis that compared individual generations. In general, this deficiency is not expected to skew the study results significantly. There is also a limitation of the fact that if the results in some cases may indicate a causal relationship, it is not a causal relationship, as the data are of a cross-sectional nature.

Future research ambitions in the field of methodology will focus on applying procedures that would be capable of deriving causal relationships. Future research will also be conducted in the post-COVID-19 period, which will compare future results with the results of the current model, and thus indicate the impact of the COVID-19 pandemic on the researched areas of purchasing behavior.

The present study expands the theoretical knowledge base in the field of mobile marketing by adding relevant empirical evidence related to the understanding of consumer behavior. Given the limits of research, the results of this study can help businesses better understand which marketing communication factors have the strongest impact on customers so they can optimize their marketing and business strategies.

References

- Alam, M., Abu Faiz, M., & Aftab, M. (2015). Mobile marketing: a study of buying intention. *British Journal of Economics, Management & Trade*, 7(3), 218–226. doi: 10.9734/bjemt/2015/16336.
- Al-Haddad, H. B., & Galib, M. H. (2020). A comparative analysis of mobile marketing adoption in the light of Hofstede's cultural dimensions. *International Journal of Online Marketing*, 10(3), 62–89. doi: 10.4018/IJOM.2020070105.
- Aragoncillo, L., & Orús, C. (2017). Impulse buying behaviour: an online-offline comparative and the impact of social media. *Spanish Journal of Marketing*, 22(1), 42–62. doi: 10.1108/SJME-03-2018-007.
- Arghya, R., Pradip, K. B., & Shilpee, A. D. (2020). *Psychological analytics based technology adoption model for effective educational marketing in digital and social media marketing, emerging applications and theoretical development*. Switzerland: Springer. doi: 10.1007/978-3-030-24374-6_12.
- Arnold, M. J., & Reynolds, K. E. (2003). Hedonic shopping motivations. *Journal of Retailing*, 79(2), 77–95. doi: 10.1016/S0022-4359(03)00007-1.
- Arora, N., Malik, G., & Chawla, D. (2020). Factors affecting consumer adoption of mobile apps in NCR: a qualitative study. *Global Business Review*, 21(1), 176–196. doi: 10.1177/0972150919876748.

- Arshad, R., & Naseer, M. (2019). Digital transformation in marketing mobile phones industry: evaluating marketers strategies for cross-cultural advertisements. *Online Journal of Communication and Media Technologies*, 9(3), e201915. doi: 10.29333/ojcm/5841.
- Aruna, S., & Santhi, P. (2015). Impulse purchase behavior among generation Y. *IUP Journal of Marketing Management*, 14(1), 1–17.
- Barnes, S. J., & Scornavacca, E. (2004). Mobile marketing: the role of permission and acceptance. *Journal of Mobile Communications*, 2(2), 128–139. doi: 10.1504/IJMC.2004.004663.
- Baydas, A., Bayat, M., & Yasar, M. E. (2020). An empirical research on the determination of consumer perceptions related to mobile marketing applications. *International Journal of Contemporary Economics and Administrative Sciences*, 9(2), 370–404. doi: 10.5281/zenodo.359610.
- Burgess, B., Yaoyuneyong, G., & Gibbs, S. (2014). Gender, self-construal and impulse buying behaviour of young thai consumers. *Asian Journal of Business Research*, 4(1), 1–15. doi: 10.14707/ajbr.140001.
- Chang, S. H., Chih, W. H., Liou, D. K., & Hwang, L. R. (2014). The influence of web aesthetics on customers' PAD. *Computers in Human Behavior*, 36, 168–178. doi: 10.1016/j.chb.2014.03.050.
- Chee, S. W., Yee, W. K., & Saudi, M. H. M. (2018). Consumer perceptions and intentions towards Malaysian mobile marketing. *Asian Journal of Innovation and Policy*, 7(2), 338–363. doi: 10.7545/ajip.2018.7.2.338.
- Chen, Y., Yan, X., Fan, W., & Gordon, M. (2015). The joint moderating role of trust propensity and gender on consumers' online shopping behaviors. *Computer in Human Behaviour*, 43, 271–283. doi: 10.1016/j.chb.2014.10.020.
- Chille, F. J., Shayo, F. A., & Kara, N. S. (2021). Adoption of mobile marketing in the telecommunication industry of Tanzania: the effects of perceived usefulness, ease of use, and customer's knowledge. *European Scientific Journal*, 17(12), 160. doi: 10.19044/esj.2021.v17n12p160.
- Chinomona, R., & Sandada, M. (2013). The influence of market related mobile activities on the acceptance of mobile marketing and consumer intention to purchase products promoted by SMS in South Africa. *Journal of Applied Business Research*, 29(6), 1897–1908. doi: 10.19030/jabr.v29i6.8225.
- Chiu, C. M., Wang, E. T., Fang, Y. H., & Huang, H. Y. (2014). Understanding customers' repeat purchase intentions in B2C e-commerce: the roles of utilitarian value, hedonic value and perceived risk. *Information Systems Journal*, 24(1), 85–114. doi: 10.1111/j.1365-2575.2012.00407.x.
- Davidavičienė, V., Raudeliūnienė, J., Tvaronavičienė, M., & Kaušinis, J. (2019). The importance of security aspects in consumer preferences in electronic environment. *Journal of Security and Sustainability Issues*, 8(3), 399–411. doi: 10.9770/jssi.2019.8.3(9).
- Drumwright, M., & Kim, E. (2016). Engaging consumers and building relationships in social media: how social relatedness influences intrinsic vs. extrinsic consumer motivation. *Computer in Human Behaviour*, 63, 970–979. doi: 10.1016/J.CHB.2016.06.025.

- Eggert, A., Kleinaltenkamp, M., & Kashyap, V. (2019). Mapping value in business markets: an integrative framework. *Industrial Marketing Management*, 79, 13–20. doi: 10.1016/j.indmarman.2019.03.004.
- Enaizan, B., Mohammed, A. G., Alnoor, A., Alaboodi, A. S., & Enaizan, O. (2019). Customer acceptance of mobilemarketing in Jordan: an extended UTAUT2 model with trust and risk factors. *International Journal of Engineering Business Management*, 11(11), 1–10. doi: 10.1177/1847979019889484.
- Eze, S. C., Chinedu-Eze, V. C. A., Okike, C. K., & Bello, A. O. (2020). Critical factors influencing the adoption of digital marketing devices by service-oriented micro-businesses in Nigeria: a thematic analysis approach. *Humanities and Social Sciences Communications*, 7(1), 90. doi: 10.1057/s41599-020-00580-1.
- Fang, J., Zhao, Z., Wen, C., & Wang, R. (2017). Design and performance attributes driving mobile travel application engagement. *International Journal of Information Management*, 37(4), 269–283. doi: 10.1016/j.ijinfomgt.2017.03.003.
- Faquih, K., & Jaradat, M. (2015). Assessing the moderating effect of gender differences and individualism-collectivism at individual-level on the adoption of mobile commerce technology: TAM3 perspective. *Journal of Retailing and Consumer Services*, 22, 37–52. doi: 10.1016/j.jretconser.2014.09.006.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: an introduction to theory and research*. Reading, MA: Addison-Wesley.
- Floh, A., & Madlberger, M. (2013). The role of atmospheric cues in online impulse-buying behavior. *Electronic Commerce Research and Applications*, 12(6), 425–439. doi: 10.1016/j.elerap.2013.06.001.
- Florido-Benítez, L. (2021). International mobile marketing: a satisfactory concept for companies and users in times of pandemic. *Benchmarking: An International Journal*. Advance online publication. doi: 10.1108/BIJ-06-2021-0303.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50. doi: 10.2307/3151312.
- Fritz, W., Sohn, S., & Seegebarth, B. (2017). Broadening the perspective on mobile marketing: an introduction. *Psychology Marketing*, 34(2), 113–118. doi: 10.1002/mar.20978.
- Gana, M. A., & Koce, H. D. (2016). Mobile marketing: the influence of trust and privacy concerns on consumers' purchase intention. *International Journal of Marketing Studies*, 8(2), 121. doi: 10.5539/ijms.v8n2p121.
- García-Fernández, J., & Gálvea-Ruíz, P., Fernández-Gavira, J., Vélez-Colón, L., Pitts, B., & Bernal-García, A. (2018). The effects of service convenience and perceived quality on perceived value, satisfaction and loyalty in low-cost fitness centers. *Sport Management Review*, 21(3), 250–262. doi: 10.1016/j.smr.2017.07.003.
- Ghose, A., & Han, S. P. (2011). An empirical analysis of user content generation and usage behavior on the mobile. *International Management Science*, 57(9), 1671–1691. doi: 10.1287/mnsc.1110.1350.

- Ghose, A., Goldfarb, A., & Han, S. P. (2013). How is the mobile internet different? search costs and local activities. *Information Systems Research*, 24(3), 613–631. doi: 10.1287/isre.1120.0453.
- Ghose, A., Kwon, H. E., Lee, D., & Oh, W. (2019). Seizing the commuting moment: contextual targeting based on mobile transportation apps. *Information Systems Research*, 30(1), 154–174. doi: 10.1287/isre.2018.0792.
- Goulart, R. D., Borba, G. A. S., Silva, E. A., & Prado, R. A. D. P. (2019). The use of WhatsApp as a marketing tool in the supermarket segment. *Navus: Revista de Gestão e Tecnologia*, 9(3), 41–54. doi: 10.22279/navus.2019.v9n3.p41-54.846.
- Grant, I., & O'donohoe, S. (2007). Why young consumers are not open to mobile marketing communication. *International Journal of Advertising*, 26(2), 223–246. doi: 10.1080/10803548.2007.11073008.
- Gupta, S., & Wali, O. P. (2020). A study on sales promotions using mobile coupons for the Indian quick-service restaurants. *International Journal of Indian Culture and Business Management*, 21(1), 5–25, doi: 10.1504/IJICBM.2020.109337.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate data analysis*. Harlow: Pearson Education Limited.
- Hazarika, B. B., Mousavizadeh, M., & Tarn, M. (2019). A comparison of hedonic and utilitarian digital products based on consumer evaluation and technology frustration. *Journal of Information Systems and Technology Management*, 16, e201916008. doi: 10.4301/S1807-1775201916008.
- Henseler, J., Hubona, G., & Ray, P. A. (2017). Partial least squares path modeling: updated guidelines. In H. Latan & R. Noonan (Ed.). *Partial least squares path modeling*. Switzerland: Springer International Publishing. doi: 10.1007/978-3-319-64069-3_2.
- Hew, J. J., Lee, V. H., Ooi, K. B., & Wei, J. (2015). What catalyses mobile apps usage intention: an empirical analysis. *Industrial Management & Data Systems*, 115(7), 1269–1291. doi: 10.1108/IMDS-01-2015-0028.
- Hew, J. J., Leong, L. Y., Tan, G. W. H., Lee, W. H., & Ooi, K. B. (2018). Mobile social tourism shopping: a dual-stage analysis of a multi-mediation model. *Tourism Management*, 66, 121–139. doi: 10.1016/J.TOURMAN.2017.10.005.
- Hole, D., Zhong, L., & Schwartz, J. (2010). Talking about whose generation? Why western generational models can't account for a global workforce. Retrieved from https://www2.deloitte.com/content/dam/insights/us/articles/talking-about-whose-generation-ages-and-attitudes-among-the-global-workforce/US_deloitte_review_Talking_About_Whose_Generation_Jan10.pdf?fbclid=IwAR1vqjk8OpHetpuC1Zp4SHOjbOvoOeicHJeV8Qe4npTh0HksvN9noB_Wb3c (25.04.2020).
- Hongyan, L., & Zhankui, CH. (2017). Effects of mobile text advertising on consumer purchase intention: a moderated mediation analysis. *Frontiers in Psychology*, 8, 1022. doi: 10.3389/fpsyg.2017.01022.

- Hosseini, M. H., Delaviz, M., Derakhshide, H., & Delaviz, M. (2016). Factors affecting consumer resistance to innovation in mobile phone industry. *International Journal of Asian Social Science*, 6(9), 497–509. doi: 10.18488/journal.1/2016.6.9/1.9.497.509.
- Hsiao, W. H., & Chang, T. S. (2014). Understanding consumers' continuance intention towards mobile advertising: a theoretical framework and empirical study. *Behaviour and Information Technology*, 33(7), 730–742. doi: 10.1080/0144929X.2013.789081.
- Hsu, C. L., Hsi-Peng, L., & Hsu, H. (2007). Adoption of the mobile internet: an empirical study of multimedia message service (MMS). *Omega*, 35(6), 715–726. doi: 10.1016/j.omega.2006.03.005.
- Huang, L., & Mou, J. & See-To, E. W. K., & Kim, J. (2019). Consumer perceived value preferences for mobile marketing in China: a mixed method approach. *Journal of Retailing and Consumer Services*, 48, 70–86. doi: 10.1016/j.jretconser.2019.02.007.
- Huang, L. T. (2016). Flow and social capital theory in online impulse buying. *Journal of Business Research*, 69(6), 2277–2283. doi: 10.1016/j.jbusres.2015.12.042.
- Huang, M. H., & Rust, R. T. (2018). Artificial intelligence in service. *Journal of Service Research*, 21(2), 155–172. doi: 10.1177/1094670517752459.
- Hung, H. J., & Chun, Y. Y. (2010). Gender differences in adolescents' online shopping motivations. *African Journal of Business Management*, 4(6), 849–857.
- Ismagilova, E., Slade, E., Rana, N. P., & Dwivedi, Y. K. (2020). The effect of characteristics of source credibility on consumer behaviour: a meta-analysis. *Journal of Retailing and Consumer Services*, 53, 1–40. doi: 10.1016/j.jretconser.2019.01.005.
- Ittaqullah, N., Madjid, R., & Suleman, N. R. (2020). The effects of mobile marketing, discount, and lifestyle on consumers' impulse buying behavior in online marketplace. *International Journal of Scientific & Technology Research*, 9(03), 1569–1577.
- Jain, V., Pant, S., & Daswani, A. (2012). Mobile marketing: the emerging Indian perspective. *International Journal of Mobile Marketing*, 6(2), 17–27.
- Johnson, D., & Grayson, K. (2005). Cognitive and affective trust in service relationships. *Journal of Business Research*, 58(4), 500–507. doi: 10.1016/S0148-2963(03)00140-1.
- Johnston, W. J., Angelina N. H. L., & Cheng, J. M. (2018). A meta-analytic review of influence strategies in marketing channel relationships. *Journal of the Academy of Marketing Science*, 46(4), 674–702. doi: 10.1007/s11747-017-0564-3.
- Joubert, J., & Van Belle, J. (2013). The role of trust and risk in mobile commerce adoption within South Africa. *International Journal of Business Humanities and Technologies*, 3(2), 27–38.
- Khalufi, N., Shah, K. A. M., & Iqbal, Q. (2019). Effectiveness of mobile marketing on the customer's experience in kingdom of Saudi Arabia: a social media perspective. *Expert Journal of Marketing*, 7(2), 100–111.

- Khare, A., Khare, A., Mukherjee, S., & Goyal, T. (2016). Do consumer shopping styles influence consumer attitudes toward services offered by shopping websites? *Journal of International Consumer Marketing*, 28(1), 28–41. doi: 10.1080/08961530.2015.1072075.
- Kurtz, O. T., Wirtz, B. W., & Langer, P. F. (2021). An empirical analysis of location-based mobile advertising-determinants, success factors, and moderating effects. *Journal of Interactive Marketing*, 54, 69–85. doi: 10.1016/j.intmar.2020.08.001.
- Leung, E., Paolacci, G., & Puntoni, S. (2018). Man versus machine: resisting automation in identity-based consumer behavior. *Journal of Marketing Research*, 55(6), 818–831. doi: 10.1177/0022243718818423.
- Li, M., & Mao, J. (2015). Hedonic or utilitarian? Exploring the impact of communication style alignment on user's perception of virtual health advisory services. *International Journal of Information Management*, 35(2), 229–243. doi: 10.1016/j.ijinfomgt.2014.12.004.
- Lin, T. T., & Bautista, J. R. (2020). Content-related factors influence perceived value of location-based mobile advertising. *Journal of Computer Information*, 60(2), 184–193. doi: 10.1080/08874417.2018.1432995.
- Lissitsa, S., & Kol, O. (2016). Generation X vs generation Y - a decade of online shopping. *Journal of Retailing and Consumer Service*, 31(5), 304–312. doi: 10.1016/j.jretconser.2016.04.015.
- Liu, Y., Li, H., & Hu, F. (2013). Website attributes in urging online impulse purchase: an empirical investigation on consumer perceptions. *Decision Support Systems*, 55(3), 829–837. doi: 10.1016/j.dss.2013.04.001.
- Liu, Y., Su, X., Du, X., & Cui, F. (2019). How social support motivates trust and purchase intentions in mobile social commerce. *Review of Business Management*, 21(4), 839–860. doi: 10.7819/rbgn.v21i5.4025.
- Lopez-Nicolas, C., Molina-Castillo, F. J., & Bouwman, H. (2008). An assessment of advanced mobile services acceptance: contributions from TAM and diffusion theory models. *Information & Management*, 45(6), 359–364. doi: 10.1016/j.im.2008.05.001.
- Lwoga, E. T., & Lwoga, N. B. (2017). User acceptance of mobile payment: the effects of user-centric security, system characteristics and gender. *Electronic Journal of Information Systems in Developing Countries*, 81(1), 1–24. doi: 10.1002/j.1681-4835.2017.tb00595.x.
- Lysonski, S., & Durvasula, S. (2013). Consumer decision making styles in retailing: evolution of mindsets and psychological impacts. *Journal of Consumer Marketing*, 30(1), 75–87. doi: 10.1108/07363761311290858.
- Madan, K., & Yadav, R. (2018). Understanding and predicting antecedents of mobile shopping adoption: a developing country perspective. *Asia Pacific Journal of Marketing and Logistics*, 30(1), 139–162. doi: 10.1108/APJML-02-2017-0023.
- Maggioni, I. (2016). What drives customer loyalty in grocery retail? Exploring shoppers' perceptions through associative networks. *Journal of Retailing and Consumer Services*, 33, 120–126. doi: 10.1016/j.jretconser.2016.08.012.

- Malik, A., Suresh, S., & Sharma, S. (2017). Factors influencing consumers' attitude towards adoption and continuous use of mobile applications: a conceptual model. *Procedia Computer Science*, 122, 106–113. doi: 10.1016/j.procs.2017.11.348.
- Mani, A., Chaubey, D., & Gurung, M. (2016). A study on impulsive buying in selected categories of product. *Splint International Journal of Professionals*, 3(3), 37–42.
- Morgan, R. M., & Hunt, S. D. (1994). The commitment-trust theory of relationship marketing. *Journal of Marketing*, 58(3), 20–38. doi: 10.2307/1252308.
- Muk, A., & Chung, C. (2015). Applying the technology acceptance model in a two-country study of SMS advertising. *Journal of Business Research*, 68(1), 1–6. doi: 10.1016/j.jbusres.2014.06.001.
- Mulier, L., Slabbinck, H., & Vermeir, I. (2021). This way up: the effectiveness of mobile vertical video marketing. *Journal of Interactive Marketing*, 55(1), 1–15. doi: 10.1016/j.intmar.2020.12.002.
- Murillo-Zegarra, M., Ruiz-Mafe, C., & Sanz-Blas, S. (2020). The effects of mobile advertising alerts and perceived value on continuance intention for branded mobile apps. *Sustainability*, 12(17), 6753. doi: 10.3390/su12176753.
- Okazaki, S., & Mendez, F. (2013). Exploring convenience in mobile commerce: moderating effects of gender. *Computers in Human Behavior*, 29(3), 1234–1242. doi: 10.1016/j.chb.2012.10.019.
- Olsen, S. O., & Skallerud, K. (2011). Retail attributes' differential effects on utilitarian versus hedonic shopping value. *Journal of Consumer Marketing*, 28(7), 532–539. doi: 10.1108/07363761111181527.
- Parboteeah, D. V., Valacich, J. S., & Wells, J. D. (2009). The influence of website characteristics on a consumer's urge to buy impulsively. *Information Systems Research*, 20(1), 60–78. doi: 10.1287/isre.1070.0157.
- Park, E. J., Kim, E. Y., Funches, V. M., & Foxx, W. (2012). Apparel product attributes, web browsing, and e-impulse buying on shopping websites. *Journal of Business Research*, 65(11), 1583–1589. doi: 10.1016/j.jbusres.2011.02.043.
- Park, J., Amendah, E., Lee, Y., & Hyun, H. (2019). M-payment service: interplay of perceived risk, benefit, and trust in service adoption. *Human Factors and Ergonomics in Manufacturing & Service Industries*, 29(1), 31–43. doi: 10.1002/hfm.20750.
- Parment, A. (2013). Generation Y vs baby boomers: shopping behaviors, buying involvement and implications for retailing. *Journal of Retailing and Consumer Service*, 20(2), 189–199. doi: 10.1016/j.jretconser.2012.12.001.
- Persuad, A., & Azhar, I. (2012). Innovative mobile marketing practice-are consumers ready? *Journal of Marketing Practice: Applied Marketing Science*, 30(2), 418–443. doi: 10.1108/02634501211231883.
- Rattanaburi, K., & Vongurai, R. (2021). Factors influencing actual usage of mobile shopping applications: generation Y in Thailand. *Journal of Asian Finance, Economics and Business*, 8(1), 901–913. doi: 10.13106/jafeb.2021.vol8.no1.901.

- Rauschnabel, P. A., Felix, R., & Hinsch, C. (2019). Augmented reality marketing: how mobile AR-apps can improve brands through inspiration. *Journal of Retailing and Consumer Services*, 49, 43–53. doi: 10.1016/j.jretconser.2019.03.004.
- Rosenkrans, G., & Myers, K. (2018). Optimizing location-based mobile advertising using predictive analytics. *Journal of Interactive Advertising*, 18(1), 43–54. doi: 10.1080/15252019.2018.1441080.
- Ryu, J. S., & Murdock, K. (2013). Consumer acceptance of mobile marketing communications using the QR code. *Journal of Direct, Data and Digital Marketing Practice*, 15, 111–124. doi: 10.1057/dddmp.2013.53.
- Saeed, M. A. Y., & Bekhet, H. A. (2018). Influencing factors of mobile marketing among young Malaysian customers. *Australian Journal of Basic and Applied Sciences*, 12(9), 63–72. doi: 10.22587/ajbas.2018.12.9.11.
- Sanchez, G. (2013). *PLS path modeling with R*. Berkeley: Trowchez Editions.
- Sanz-Blas, S., Ruiz-Mafé, C., & Martí-Parreño, J. (2015). Message-driven factors influencing opening and forwarding of mobile advertising messages. *International Journal of Mobile Communications*, 13(4), 339–357. doi: 10.1504/IJMC.2015.070058.
- Saprikis, V., Avlogiaris, G., & Katarachia, A. (2021). Determinants of the intention to adopt mobile augmented reality apps in shopping malls among university students. *Journal of Theoretical and Applied Electronic Commerce Research*, 16(3), 491–512. doi: 10.3390/jtaer16030030.
- Sarkar, S., Khare, A., & Sadachar, A. (2020). Influence of consumer decision-making styles on use of mobile shopping applications. *Benchmarking: An International Journal*, 27(1), 1–20. doi: 10.1108/BIJ-07-2018-0208.
- Shankar, V., & Malthouse, E.C. (2010). Moving interactive marketing forward. *Journal of Interactive Marketing*, 20(1), 2–4. doi: 10.1002/dir.20057.
- Schmidt, G. A., Mann, M. E., & Rutherford, S.E. (2011). Discussion of: a statistical analysis of multiple temperature proxies: are reconstructions of surface temperatures over the last 1000 years reliable? *Annals of Applied Statistics*, 5(1), 65–70. doi: 10.1214/10-AOAS398D.
- Slyke, C. V., Lou, H., Belanger, F., & Sridhar, V. (2010). The influence of culture on consumer-oriented electronic commerce adoption. *Journal of Electronic Commerce Research*, 11(1), 30–40.
- Sun, Q., Paswan, A. K., & Tieslau, M. (2016). Country resources, country image, and exports: country branding and international marketing implications. *Journal of Global Marketing*, 29(4), 233–246. doi: 10.1080/08911762.2016.1211782.
- Tong, S., Luo, X., & Xu, B. (2020). Personalized mobile marketing strategies. *Journal of the Academy of Marketing Science*, 48, 64–78. doi: 10.1007/s11747-019-00693-3.
- Tvaronavičienė, M., & Černevičiūtė, J. (2015). Technology transfer phenomenon and its impact on sustainable development. *Journal of Security and Sustainability Issues*, 5(1), 87–97. doi: 10.9770/jssi.2015.5.1(7).

- Vatanparast, R. (2010). *Pierce the fog of mobile service and advertising adoption*. Finland: Helsinki University of technology.
- Venkatesh, V., Moms, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: toward a unified view. *MIS Quarterly*, 27(3), 425–478. doi: 10.2307/30036540.
- Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 36(1), 157–178. doi: 10.2307/41410412.
- Verhagen, T., & Van Dolen, W. (2011). The influence of online store beliefs on consumer online impulse buying: a model and empirical application. *Information & Management*, 48(8), 320–327. doi: 10.1016/j.im.2011.08.001.
- We Are Social (2020). Global internet use accelerates. Retrieved from <https://wearesocial.com/blog/2019/01/digital-2019-global-internet-use-accelerates> (4.04.2020).
- Xiang, L., Zheng, X., Lee, M. K. O., & Zhao, D. (2016). Exploring consumers' impulse buying behavior on social commerce platform: the role of parasocial interaction. *International Journal of Information Management*, 36(3), 333–347. doi: 10.1016/j.ijinfomgt.2015.11.002.
- Yan, Q., Wang, L., Chen, W., & Cho, J. (2016). Study on the influencing factors of unplanned consumption in a large online promotion activity. *Electronic Commerce Research*, 16(4), 453–477. doi: 10.1007/s10660-016-9215-x.
- Yildirim, S. C., & Kaplan, B. (2018). The effects of utilitarian and hedonic motives on mobile application marketing: comparison of students and graduates. *International Journal of Engineering, Science and Mathematics*, 7(9), 62–85.
- Zeithaml, V. A. (1988). Consumer perceptions of price, quality and value: a means-end model and synthesis of evidence. *Journal of Marketing*, 52(3), 2–22. doi: 10.1177/002224298805200302.
- Zhang, J., & Mao, E. (2008). Understanding the acceptance of mobile SMS advertising among young Chinese consumers. *Psychology & Marketing*, 25(8), 787–805. doi: 10.1002/mar.20239.
- Zhang, W., Leng, X., & Liu, S. (2020). Research on mobile impulse purchase intention in the perspective of system users during COVID-19. *Personal and Ubiquitous Computing*. Advance online publication. doi: 10.1007/s00779-020-01460-w.
- Zhang, Z., & Wang, H. (2019). How online social ties and product-related factors influence purchasing intention in mobile social commerce context. *International Journal of Mobile Communications*, 17(2), 191–212. doi: 10.1504/IJMC.2019.098063.
- Zheng, X. B., Men, J. Q., Yang, F., & Gong, X. Y. (2019). Understanding impulse buying in mobile commerce: an investigation into hedonic and utilitarian browsing. *International Journal of Information Management*, 48, 151–160. doi: 10.1016/j.ijinfomgt.2019.02.010.

Acknowledgments

This article is one of the partial outputs under the scientific research grant VEGA 1/0694/20 and VEGA 1/0807/19.

Annex

Table 1. CFA assumptions — round 1

	PV	SS	TB	IPMM	II	VA	PB	UB	HB	UBI
CR	0.915	0.887	0.756	0.813	0.848	0.937	0.895	0.888	0.887	0.949
AVE	0.683	0.724	0.589	0.439	0.584	0.832	0.741	0.614	0.664	0.861

Table 2. CFA assumptions — round 2

	PV	SS	TB	IPMM	II	VA	PB	UB	HB	UBI
CR	0.915	0.887	0.937	0.858	0.861	0.937	0.895	0.891	0.887	0.949
AVE	0.683	0.724	0.882	0.668	0.675	0.832	0.741	0.672	0.664	0.861

Table 3. Difference test — gender

Gender	PV	SS	TB	IPMM	II
Wilcoxon W	137389	146771	140550	148302	133316
p value	0.030	0.467	0.005	0.821	<0.001
Gender	VA	PB	UB	HB	UBI
Wilcoxon W	128871	140980	140398	136351.5	136307.5
p value	<0.001	0.319	0.005	<0.001	0.012

Table 4. Difference test — generation

Generation	PV	SS	TB	IPMM	II
Wilcoxon W	59907	63948	65319	79692	53361
p value	0.168	0.969	0.598	<0.001	<0.001
Generation	VA	PB	UB	HB	UBI
Wilcoxon W	36705	45987	44364	52350	47136.5
p value	<0.001	<0.001	<0.001	<0.001	<0.001

Table 5. Description of model characteristics

Latent variables	Mod	N manifest variables	Cronbach's α	Dillon-Goldstein ρ	Eigenvalue 1	Eigenvalue 2
PV	A	5	0.883	0.915	3.415	0.618
SS	A	3	0.808	0.887	2.172	0.534
TB	A	2	0.867	0.937	1.764	0.236
IPMM	A	3	0.751	0.858	2.003	0.557
II	A	3	0.758	0.861	2.024	0.565
VA	A	3	0.899	0.937	2.496	0.350
PB	A	3	0.824	0.895	2.222	0.485
UB	A	4	0.836	0.891	2.688	0.713
HB	A	4	0.830	0.887	2.655	0.618
UBI	A	3	0.919	0.949	2.583	0.226

Table 6. PLS model (general) output

Hypothesis	Independent variable	Estimate	Std. Error	t value	Pr(> t)
IPMM	Intercept	<0.001	0.033	<0.001	1.000
H10	PV	0.345	0.038	9.076	<0.001
H11	SS	-0.167	0.042	-3.956	<0.001
H12	TB	0.059	0.042	1.411	0.159
UB	Intercept	<0.001	0.032	<0.001	1.000
H13	IPMM	-0.035	0.034	-1.027	0.305
H2	II	0.066	0.038	1.748	0.081
H4	VA	0.110	0.035	3.172	0.002
H6	PB	0.385	0.039	9.997	<0.001
HB	Intercept	<0.001	0.030	<0.001	1.000
H14	IPMM	0.169	0.032	5.314	<0.001
H1	II	0.107	0.036	3.014	0.003
H3	VA	-0.093	0.033	-2.839	0.005
H5	PB	0.419	0.038	10.894	<0.001
H7	UB	0.109	0.034	3.206	0.001
UBI	Intercept	<0.001	0.029	<0.001	1.000
H15	IPMM	0.242	0.030	7.973	<0.001
H9	UB	0.056	0.031	1.797	0.073
H8	HB	0.457	0.032	14.320	<0.001

Table 7. PLS model (generation) output

Independent variable	Generation X		Generation Y	
	Estimate	Pr(> t)	Estimate	Pr(> t)
IPMM				
Intercept	<0.001	1.000	<0.0010	1.000
PV	0.167	0.007	0.3971	<0.001
SS	-0.391	<0.001	-0.0900	0.071
TB	0.224	<0.001	-0.0645	0.177
UB				
Intercept	<0.001	1.000	<0.001	1.000
IPMM	0.058	0.385	-0.026	0.534
II	-0.064	0.405	0.109	0.017
VA	0.059	0.345	0.087	0.040
PB	0.523	<0.001	0.332	<0.001
HB				
Intercept	<0.001	1.000	<0.001	1.000
IPMM	0.356	<0.001	0.145	<0.001
II	0.104	0.098	0.055	0.211
VA	-0.250	<0.001	-0.088	0.031
PB	0.578	<0.001	0.338	<0.001
UB	-0.025	0.636	0.170	<0.001

Table 7. Continued

Independent variable	Generation X		Generation Y	
	Estimate	Pr(> t)	Estimate	Pr(> t)
UBI				
Intercept	<0.001	1.000	<0.001	1.000
IPMM	0.477	<0.001	0.257	<0.001
UB	0.043	0.432	-0.003	0.928
HB	0.173	0.004	0.548	<0.001

Table 8. Difference test of the impact — generation

Influences	Universal model	Generation X	Generation Y	Difference (abs)	Pr(> t)	sig (0.05)
PV->IPMM	0.345	0.167	0.397	0.230	0.005	yes
SS->IPMM	-0.167	-0.391	-0.090	0.301	0.005	yes
TB->IPMM	0.059	0.224	-0.065	0.289	0.005	yes
IPMM->UB	-0.035	0.058	-0.026	0.084	0.279	no
IPMM->HB	0.169	0.356	0.145	0.211	0.020	yes
IPMM->UBI	0.242	0.477	0.257	0.220	0.005	yes
II->UB	0.066	-0.064	0.109	0.173	0.085	no
II->HB	0.107	0.104	0.055	0.049	0.498	no
VA->UB	0.110	0.059	0.087	0.028	0.726	no
VA->HB	-0.093	-0.250	-0.088	0.162	0.025	yes
PB->UB	0.385	0.523	0.332	0.191	0.110	no
PB->HB	0.419	0.578	0.338	0.241	0.005	yes
UB->HB	0.109	-0.025	0.170	0.195	0.015	yes
UB->UBI	0.056	0.043	-0.003	0.046	0.463	no
HB->UBI	0.457	0.173	0.548	0.375	0.005	yes

Table 9. PLS model (gender) output

Independent variable	Men		Women	
	Estimate	Pr(> t)	Estimate	Pr(> t)
IPMM				
Intercept	<0.001	1.000	<0.001	1.000
PV	0.295	<0.001	0.488	<0.001
SS	-0.218	<0.001	-0.040	0.527
TB	0.056	0.359	0.010	0.863
UB				
Intercept	<0.001	1.000	<0.001	1.000
IPMM	-0.052	0.250	-0.072	0.137
II	0.153	0.002	0.066	0.230
VA	0.208	<0.001	0.094	0.065
PB	0.379	<0.001	0.391	<0.001

Table 9. Coninued

Independent variable	Men		Women	
	Estimate	Pr(> t)	Estimate	Pr(> t)
HB				
Intercept	<0.001	1.000	<0.001	1.000
IPMM	0.211	<0.001	0.079	0.079
II	0.148	0.002	0.122	0.017
VA	-0.077	0.088	-0.024	0.616
PB	0.408	<0.001	0.455	<0.001
UB	0.163	0.001	0.058	0.223
UBI				
Intercept	<0.001	1.000	<0.001	1.000
IPMM	0.259	<0.001	0.216	<0.001
UB	-0.071	0.128	0.163	<0.001
HB	0.467	<0.001	0.509	<0.001

Table 10. Difference test of the impact — gender

Influence	Universal model	Men	Women	Difference (abs)	Pr(> t)	sig (0.05)
PV->IPMM	0.345	0.295	0.488	0.194	0.015	yes
SS->IPMM	-0.167	-0.218	-0.040	0.179	0.035	yes
TB->IPMM	0.059	0.056	0.010	0.047	0.652	no
IPMM->UB	-0.035	-0.052	-0.072	0.021	0.751	no
IPMM->HB	0.169	0.211	0.079	0.132	0.055	no
IPMM->UBI	0.242	0.259	0.216	0.043	0.493	no
II->UB	0.066	0.153	0.066	0.087	0.313	no
II->HB	0.107	0.148	0.122	0.026	0.741	no
VA->UB	0.110	0.208	0.094	0.113	0.134	no
VA->HB	-0.093	-0.077	-0.024	0.054	0.378	no
PB->UB	0.385	0.379	0.391	0.012	0.935	no
PB->HB	0.419	0.408	0.455	0.047	0.567	no
UB->HB	0.109	0.163	0.058	0.105	0.090	no
UB->UBI	0.056	-0.071	0.163	0.235	0.005	yes
HB->UBI	0.457	0.467	0.509	0.042	0.577	no

Figure 1. Theoretical model of influence of selected constructs

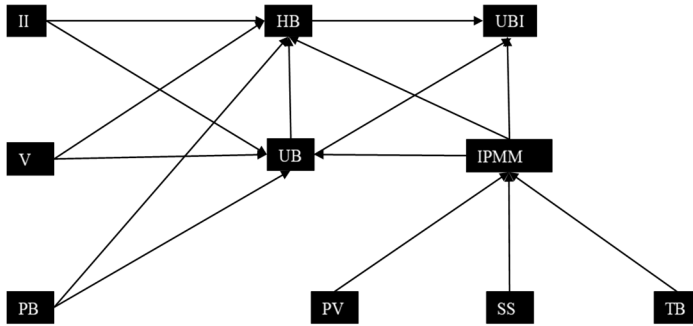


Figure 2. Factor loadings in the PLS model

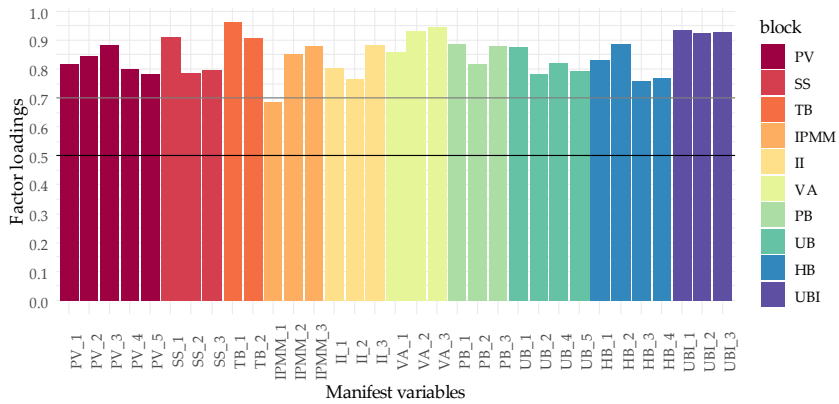


Figure 3. Path Coefficients

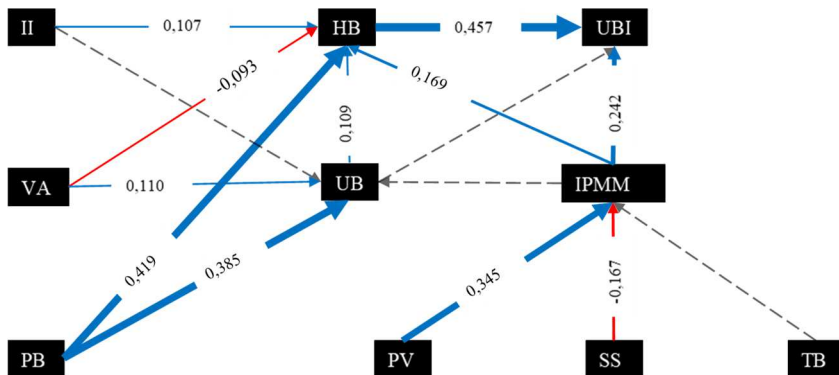


Figure 4. Differences of the Path Coefficients — generation

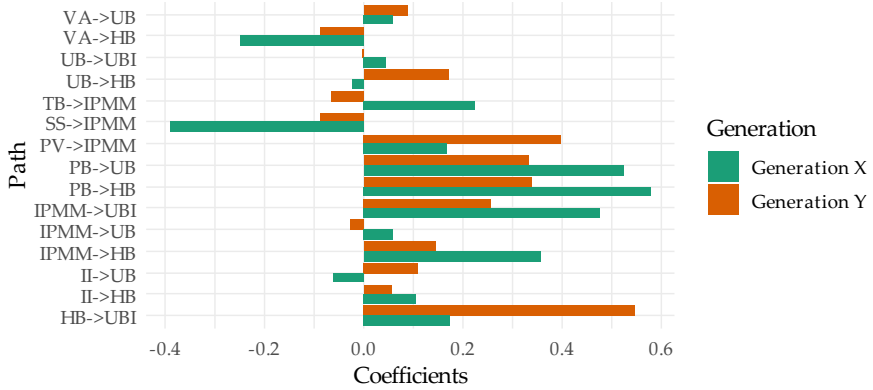


Figure 5. Differences of the Path Coefficients — generation

