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# EXPLORING THE ROLE OF PERSONAL CHARACTERISTICS IN MOBILE SHOPPING APPS USAGE

## ABSTRACT

**Purpose:** The influence of demographic characteristics on purchasing behaviour through mobile applications is a field of research that combines various scientific areas such as elements of consumer psychology, technology application and marketing. Personal characteristics that influence the purchase of mobile applications include age, gender, education level, individual differences in technology use and attitudes. The aim of this paper is to analyse the influence of personal characteristics on purchase intentions via mobile applications. In addition, we analysed the role of the same characteristics in the intention to recommend purchases via mobile applications. We also investigated the role of the time spent online on purchase and download behaviour.

**Methodology:** The research was conducted using primary data based on a purposive sample of respondents aged between 18 and 48 collected from May to September 2023. Based on the nature of the dependent variable, binary logistic regression is used.

**Results:** The results confirmed the importance of age and time spent online for the intention to download, while the level of education plays an important role for the intention to recommend mobile shopping apps.

**Conclusion:** App developers and companies should consider personal characteristics of users when developing mobile applications and focus on creating features that encourage recommendations for those who are not inclined to use mobile apps in the context of shopping. Understanding the role of personal characteristics in mobile app usage, recommendation and download can help businesses and app developers adapt their mobile app marketing strategies, design user-friendly interfaces and create personalised shopping experiences to increase customer satisfaction and sales.

**Keywords:** Mobile apps download, personal characteristics, recommendation intention

## 1. Introduction

Almobaireek and Alshumaimeri (2015) stated that mobile marketing is rapidly evolving and is the fastest growing marketing tool of the last decade. Mobile

marketing has gained popularity due to its interactivity and availability. Lin and Chen (2019) found that mobile marketing has become an effective additional channel for companies' promotion and advertising to increase consumers' purchase intentions. Mo-

mobile marketing tools have a direct impact on users' purchasing behaviour and decision-making process (Patsiotis et al., 2020) and companies recognise their great potential to influence consumer purchase intentions (Alameer et al., 2022). Therefore, the development of mobile technology has significantly changed consumer buying behaviour as mobile devices are available anytime and anywhere.

Mobile devices have influenced consumer behaviour and their mindset. Mobile devices are used in various daily activities and tasks of consumers and have been recognised as a new, additional communication channel. Mobile marketing represents a great growth opportunity for businesses, especially as an additional communication channel. Strauss (2016) found that companies perceive mobile devices as a highly effective source of communication with the market. It can therefore be seen as a tool for targeting, interacting and building relationships with consumers (Shabhu et al., 2016). Nowadays, more and more people own a mobile device and usually use it to find information about their brands or to make a purchase.

The information technology revolution has radically changed the way companies communicate with their customers. The rapidly growing number of internet users and the global availability of mobile applications are encouraging users to spend more time on their phones (Garg & Telang, 2013). Gitnux (2024) pointed out that 46% of smartphone users say they could not live without their devices and that mobile apps account for 57% of all digital media. The global proliferation of mobile applications has opened up some new opportunities for businesses to reach a new generation of users (Kim et al., 2013). Mobile apps can be seen as a convenient tool and are perceived as valuable by consumers, which can lead to higher purchase intention and ultimately future repeat purchases (Wang et al., 2015). In addition, Alam et al. (2015) found that consumers view mobile phones as personal devices that can be used conveniently because they are always close to them. With the increasing penetration of mobile phones and mobile internet, consumers are increasingly using their mobile devices for shopping (Rejali et al., 2024). Mobile apps provide consumers with instant access to their brands' stores. Worku (2020) reports that the number of global mobile phone users is expected to reach 4.68 billion by 2025. The evolution of innovation and accessibility associated with mobile apps has changed the way consumers experience and use mobile apps, particularly in their

purchasing behaviour (Narang & Shankar 2016). The key advantage of mobile apps over traditional retail channels is the ability to collect and analyse data in real time (Wilson & Green, 2023) and to provide a unified experience that users seek such as consistent shopping experience across all channels (Miller & White, 2023). Mobile apps could increase consumer reach by customising content, providing a wealth of information, ensuring 24/7 availability and reducing costs (Amaro & Duarte, 2015).

Today, companies need to regularly update their apps with new features to stay competitive (Khan et al., 2024). According to Gitnux (2020), the global mobile advertising market is projected to reach \$408.58 billion by 2026 and in-app advertising revenue is expected to reach \$226 billion by 2025. Consequently, mobile apps offer features that allow users to engage with brands, explore new offers, obtain new information, make purchases and connect with the brand, which can reduce user stress and allow them to get the information they want faster (McLean et al., 2022). Alnawas and Aburub (2016) note that previous researchers attempted to predict or assess the intention to use a mobile application. Previous studies did not focus on determining the impact of mobile applications on consumer purchase behaviour. Therefore, there is a lack of studies that have analysed the influence of antecedents on usage and purchase intention or purchase recommendations via mobile applications. The aim of this paper is to analyse the influence of personal characteristics on purchase intentions via mobile applications and the role of the same characteristics in the intention to recommend purchases via mobile applications. In addition, we investigated the role of the time spent online on purchase and download behaviour.

The paper is organised as follows. The first section is the introduction. The second section provides a theoretical background on mobile apps in consumer purchasing behaviour. The third section describes the methodology, and the section after presents the research findings. Finally, the fifth section summarises the findings and provides implications for business management and directions for future research.

## 2. Literature review

It is important for any business to understand consumer buying behaviour, and with the increasing use of mobile apps, companies are realising their potential as an effective marketing or communica-

tion tool (Seitz & Aldebasei, 2016). The globalisation of markets and advances in technology have led to an unprecedented rise in digital innovation and competitiveness (Ziakis & Vlachopoulou, 2023). Mobile phones have become essential tools for communication and information consumption, ultimately changing the way businesses interact with their customers (Eze et al., 2021; Tong et al., 2020). Therefore, companies are investing in mobile apps to provide their customers with a unique shopping experience that is also convenient and engaging (Kim & Park, 2023). According to Tong et al. (2020), the ubiquity of mobile devices allows companies to interact more effectively and immediately with users and obtain information that can lead to the design of their marketing strategies and campaigns as a 'next-generation website.' As companies continue to invest in mobile marketing and technology, the role of mobile apps in relation to purchasing will only increase (Emon & Chowdhury, 2024).

Mobile apps need to be understandable, relevant to the product, appropriate and realistic (Zhang et al., 2010). Companies should develop mobile apps to communicate with their customers (Kim et al., 2015). Such communication is useful for the companies because it provides various information about the needs and expectations of their existing customers. Based on this, companies can customise their products, resulting in higher usage intent or purchase intent. Timotius and Octavius (2021) found that some consumers prefer using mobile applications as a shopping platform compared to websites. Similarly, consumers tend to show a stronger purchase intention when interacting with branded applications (Seitz & Aldebasei, 2016). In other words, they are more likely to make a purchase if they have branded apps on their mobile phones (Bellman & Potter, 2011). Therefore, companies are trying to encourage purchase through mobile applications by providing users with quality service and convenient features in the applications (Tiwari & Buse, 2007; Thakur, 2018).

According to Pavlou (2003), online purchase intention can be characterised as a situation in which a consumer is ready to make a purchase, which occurs in three stages: information gathering, information transfer and product purchase. Purchase intention is important for predicting consumer behaviour because the higher the purchase intention, the more likely it is that the consumer will be more inclined to make an actual purchase. Murillo-

Zegarra (2020) explains that purchase intention can be seen as the perceived value and subsequent purchase behaviour of consumers. The consumer's purchase intention can be seen as the aspiration to buy a product or service. The study by Hsu and Lin (2016) also shows that consumers who have a positive attitude towards apps increase both their usage and purchase intentions.

Some studies show that consumers have a positive attitude and intention to use mobile apps because: (i) consumers will not use a mobile app if they are highly interrupted, and (ii) mobile apps need to provide highly targeted experiences that are close to purchase (Bianchi, 2021). The study found that perceived usefulness and perceived ease of use are positively related to behavioural intention to use apps (Gurtner et al., 2014; Zhang & Zhou, 2023; Foroughi et al., 2023; Chanda, 2023). The results reveal that perceived safety, perceived usefulness, perceived compatibility and subjective norms have a significant influence on the intention to use (Ramos de Luna et al., 2023). However, there are not many studies that have investigated the influence of antecedents on mobile app downloads and intention to use. User ratings and recommendations of mobile apps also play an important role in app downloads and usage intention. Studies show that the perceived credibility of the information source as well as the shared relationships between the information source and the recipient of the information have a major influence on the intention to use mobile applications (Dramani, 2019). In addition, the evaluation of mobile application reviews is part of the decision-making process. It is important for companies to know the purchase intention of their customers in order to make mobile apps more convenient for them.

The low retention rate of mobile app users is a cause of concern for many companies, likely due to the diversity of mobile apps available. Users are increasingly switching from one app to another and abandoning the app after just one use. Companies need to invest in positive word-of-mouth (WOM), which helps to increase low retention rates (San-Martin et al., 2015; Calvo-Porrall et al., 2017). Mobile app user retention rates are very low and organisations can benefit from positive word-of-mouth to attract more users. Therefore, it is important for organisations to influence user dwell time in mobile apps to increase retention rates. There are limited studies that have analysed the impact of dwell time in mobile apps. Consequently, it would be necessary to investigate its influence on usage intention, pur-

chase intention and giving a recommendation or rating for mobile app purchase.

Technological innovations and the growing trend towards recommendations for online purchases are making them increasingly important for the decision-making process. For example, purchase recommendations can influence consumer purchasing behaviour. Personalised recommendations and offers are perceived as credible and valuable information that can influence the consumer's evaluation and decision-making process (Zhang et al., 2012, Mahapatra, 2017). Reviews in the digital environment refer to consumer-generated content or product reviews published by previous consumers (Chen, 2016). Reviews created in the digital environment regularly contain personal experiences and evaluations of the products, which provide valuable information and recommendations for potential consumers (Park & Kim, 2008). Therefore, potential consumers consider the content of reviews in the digital environment as a high-quality source of information that helps them make decisions. As a result, mobile app users are likely to perceive reviews and recommendations as more reliable and helpful than marketer-generated content. Some previous studies have suggested that high-quality reviews can influence user attitudes and purchase intentions to increase company sales (Park & Kim, 2008; Duan et al., 2008; Waheed, 2021; Teixeira & Nunes, 2024; Macheka et al., 2024). Consequently, high quality reviews can have a positive influence on consumer usage and purchase intention for mobile applications.

The study shows that there are differences between men and women in terms of technology-related behaviour (Faqih & Jaradat, 2015) and that there are gender differences in the use of mobile devices (Zhitomirsky-Geffet & Blau, 2016; Dai et al., 2019; Correia et al., 2024). Therefore, gender can play an important role in the adoption of technological innovations (Faqih, 2016). In general, studies show that mobile app characteristics can influence mobile app usage among all genders, such as the aesthetic view of the mobile environment (Anbumathi et al., 2023), the classic aesthetics of the mobile environment (Oyibo et al., 2019), and confidence in using mobile apps (Chawla & Joshi, 2020; Mumu et al., 2022). Noei and Lyons (2022) investigated the difference between men and women in giving ratings. They show that women rate apps more positively than men, but leave fewer reviews. However,

the results show that women's reviews receive a higher rating than men.

Numerous studies have been conducted over the years that have also considered the variable of age in relation to usage and purchase intention. Shahina and Sachitra (2021) found that mobile marketing provides users, especially the younger generation, with constant access to information and communication anywhere, anytime. However, the study by Girija (2016) examined the impact of mobile usage on young people's way of life and found that youngest users know little about mobile marketing activities. However, most users of a similar age are likely to have similar consumption patterns, attitudes and purchase intentions (Bilgihan, 2016). Therefore, users of the same generation tend to exhibit similar behavioural patterns when using their mobile apps.

Younger people are more inclined to adopt new technologies into their daily lives (Lissitsa & Kol, 2016) as they find them easy to use (Agárdi & Alt, 2022). Younger people are more likely to use new technological tools to obtain important and valuable information and recommendations (Agárdi & Alt, 2022). Older users, on the other hand, have a negative attitude towards technological innovations because they find them difficult to understand and complicated to use (Blut & Wang, 2020). The study by Natarajan et al. (2018) found a correlation between the type of mobile device and the age of users regarding their intention to use mobile shopping applications. Despite the numerous age-appropriate functions integrated into mobile apps, approval of mobile apps is still low (Wildenbos et al., 2018). However, Chua et al. (2023) point out that adding senior-friendly usability features can increase the intention to use mobile apps for older users, as older people are less capable due to their lower cognitive learning ability. It can be concluded that younger users recognise the benefits of new technologies and are more open to adopting innovative technologies compared to older people.

Gong et al. (2020) found significant differences between education levels and trust in mobile app use, with users having higher education levels tending to show greater trust in mobile apps than users with lower income. However, some studies have shown that there are no significant differences between education levels and mobile app usage or user trust in mobile app advertising (Leong et al., 2020).

The study by Laukkanen (2007) argues that a high level of education, a high income, experience with

the use of internet banking and the frequency of use are some of the reasons that influence mobile banking acceptance. For example, the use of mobile banking is much more common among higher income users (Sulaiman et al., 2007; Alafeef et al., 2011; Olaleye et al., 2022). Dakduk et al. (2020) also found that expectations, performance expectations, social influence and perceived security significantly influence the usage intention of low-income users. Mobile app users tend to be younger and have above average income and education levels. Consequently, companies need to improve the ability to reach consumers by enabling personalisation of the content and context of the message in order to achieve a higher propensity to use, purchase and give a rating for purchase via mobile apps.

### 3. Data description and methodology

An online survey was conducted, yielding 230 questionnaires completed by mobile application users. The selection of respondents was based on a purposive sample of respondents between the ages of 18 and 48. In this study, all analysis was done based on primary data collected from May to September

2023. The questions were created based on previous literature, although little is known about the factors that influence consumer intention to use and purchase through mobile apps, or even about the recommendations to purchase via mobile apps. The questionnaire was divided into two sections. The first section included socio-demographic characteristics of the respondents such as gender, age, education level, income level and time spent on mobile apps. The second section contained the constructs of intention to use, intention to purchase and recommendation to purchase mobile apps.

The aim of this paper is to investigate the influence of gender, age, education level, income and time spent online on three variables (Table 1):

- the probability of downloading a mobile application
- the likelihood of purchasing via mobile applications
- the likelihood of recommending a purchase via a mobile application

Table 1 Variables in the model

download	Yes	64%
	No	36%
purchase	Yes	67%
	No	33%
recommendation	Yes	66%
	No	34%
gender	Females – ref. category	67%
	Males	33%
age	18-26 – ref. category	61.30%
	27-37	14.30%
	38-48	24.30%
education	High school diploma or less – ref. category	49%
	University degree or higher	51%
earnings	Less than 1000 euros – ref. category	58.7%
	More than 1000 euros	31.7%
	Do not want to say	9.6%
time spent on the internet	Less than 2 hours – ref. category	36%
	More than 2 hours	64%

Source: Authors' calculations

Variable *download* summarises the responses to the statement “I am willing to download mob apps”, where 64% of respondents agreed with the statement. The dependent variable *purchase* results from the reactions to the following statement in the questionnaire: “I will very likely shop via mobile applications in the future.” It can be seen that a very large proportion of the sample (67%) intends to use mobile applications for shopping in the future. The *recommendation* variable is the result of the statement “I would recommend shopping via mobile applications”, where two thirds of respondents would recommend this shopping channel.

The table above shows that two thirds of respondents are women and a younger population aged 18 to 26, which is in line with expectations in terms of online purchases. In terms of education level, the sample is evenly divided between respondents with a high school diploma or less and those with a university degree or higher. Almost 60% of respondents receive a salary that is below the national average, i.e. less than a thousand euros, while 9.6% did not want to provide information on the amount of their monthly income. When asked about the amount of time they spend online, most respondents (64%) answered that they spend more than two hours a day on the internet. Generally, the model could be written as follows:

*Download/Purchase/Recommendation* = *f* (*gender, age, education, earnings, time spent on the internet*)

Since dependent variables take on two values, binary logistic regression was chosen as the appropriate method.

$$P(X=1 | X=0) = F(\beta_1 + \beta_i X_i),$$

where  $P(X=1 | X=0)$  represents the probability that an event occurs. In this study, the first regression analyses the probability that a person is willing to download a mobile app. The second and the third regression analyse the probability of purchasing and the probability of recommending the purchase via a mobile app, respectively. All three regressions

investigate how the mentioned variables depend on gender, age, education level, income and daily time spent on the internet. Based on the previous explanation, the following hypotheses are proposed:

H1: Personal characteristics in combination with time spent online influence the intention to download shopping mobile apps.

Mobile apps can be a powerful sales channel that offers unique opportunity to improve user loyalty. The first step to increase sales through this channel is to get consumers to download apps, and therefore it is important to identify the factors that influence mobile shopping app download intent. By focusing on these factors, organisations can better understand user motivation and develop strategies to encourage downloads of their mobile shopping apps (Natarajan et al., 2018; Blut & Wang, 2020; Noei & Lyons, 2022).

H2: Personal characteristics influence the intention to recommend a purchase via a mobile app.

Shopping via mobile apps is becoming increasingly popular due to their convenience and user-friendliness. When planning and developing apps, customising mobile apps to specific target groups can increase the company’s reach through a higher recommendation rate. By understanding the aforementioned role of personal characteristics in users’ recommendation intention, businesses can focus on increasing user satisfaction and loyalty, which ultimately leads to a higher recommendation rate for their mobile shopping app and higher sales (San-Martin et al., 2015; Calvo-Porrall et al. 2017; Bilgihan 2016; Agárdi & Alt, 2022; Chua et al., 2023).

#### 4. Results and discussion of the findings

Binary logistic regression results used to test the hypothesis are given in Table 1. Diagnostics of the binary logistic regressions support the validity of the models, with high sensitivity and specificity and a statistically insignificant Hosmer and Lemeshaw test.

Table 2 Binary logistic regression results

	Regression 1		Regression 2		Regression 3	
Dependent variable	download		purchase		recommendation	
	Coefficient	Odds Ratio	Coefficient	Odds Ratio	Coefficient	Odds Ratio
Gender – ref. cat. Females						
Males	.357 (0.341)	1.429	-0.545* (0.335)	0.580	-0.070 (0.329)	.932
Age – ref. cat. 18-26						
27-37	-0.371 (0.474)	.690	-0.744 (0.475)	0.475	-0.430 (0.472)	.650
38-48	-1.480*** (0.384)	.228	-1.508*** (0.394)	0.221	-1.031*** (0.383)	.357
Education – ref. cat. high school diploma or less						
Graduates	0.504 (0.319)	1.656	0.124 (0.317)	1.132	1.025*** (0.311)	2.786
Earnings – less than 1000 EUR						
More than 1000 EUR	0.160 (0.397)	1.173	.909** (0.398)	2.481	0.324 (0.384)	1.382
Do not tell	-0.226 (0.521)	.798	1.230** (0.606)	3.423	-0.380 (0.497)	.684
Time – ref. cat. less than 2 hours						
More than 2 hours	0.688** (0.335)	1.989	.646* (0.340)	1.908	0.417 (0.333)	1.517
Constant	-0.129 (0.567)	.879	1.126* (0.576)	3.083	0.183* (0.554)	1.201

Note: \*, \*\*, \*\*\* - significant at 10%, 5% and 1%, respectively

Source: Authors' calculations

Time spent on the internet will influence the probability of downloading apps and purchase intention. More time spent online increases exposure to various mobile apps through advertisements, social media, and online communities. This exposure leads to greater awareness and exploration of new apps. However, this probability decreases with age since the 38-48 group has a negative coefficient and a low odds ratio. This partially confirms hypothesis H1 and raises the question for companies as to how they can encourage certain age groups to download more. One way is to tailor features to consumer values and interests, creating a compelling reason for them to download and engage with their mobile shopping app.

In the second regression, gender turned out to be statistically significant, with a negative coefficient

and an odds ratio lower than one. This indicates that men are less likely than women to make purchases via mobile apps, which aligns with expectations. Age is statistically significant for the group of people in the 38–48 age range. A negative coefficient and the odds ratio mean that the probability of future purchases via mobile apps, recommendation and the downloading probability decrease with age. Older consumers tend to be less inclined to make purchases via mobile apps due to their lower familiarity with digital environments.

In the third regression, education turned out to be statistically significant, implying that graduates are more likely to recommend purchases via mobile apps; there is even a three times higher probability that individuals with higher education levels will recommend making purchases via mobile applica-

tions. These individuals generally exhibit greater digital literacy and tech-savviness. They are more comfortable navigating mobile apps, understanding their features, and trusting online payment systems, which can translate into greater trust in mobile apps and online transactions. Educated consumers are more likely to recognise secure websites and trusted payment methods, reducing apprehension about fraud and data breaches. Results therefore partially confirm H2, indicating that the level of education, as a personal characteristic, influences the intention to buy via mobile applications and the intention to recommend this purchasing method to others.

Downloads and especially recommendations of mobile apps can help companies to reach new customers via personal networks such as social media or word-of-mouth, leading to an increase in sales and brand awareness. When developing mobile apps, companies should ensure that they encourage customers to download and recommend them, and the question arises as to how this can be achieved. This requires companies to adopt a strategic approach that focuses on utility, convenience and engagement features. Some examples of these types of incentives include exclusive information, discounts, offers or rewards for first-time users who download the app and for those who recommend it to others. This also emphasises the role of developers, who bear the burden of creating a user-friendly interface that simplifies the purchase and referral process.

## 5. Conclusion

The influence of personal characteristics on purchasing behaviour via mobile apps is a multifaceted area of study that integrates the elements of consumer psychology, technology adoption, and marketing. Personal characteristics that impact mobile app purchases typically include demographic factors, psychographic factors, and individual differences in technology use and attitudes. The aim of the paper was to investigate several relationships. Firstly, we analysed the influence of personal characteristics on purchase intentions via mobile apps. Secondly, we analysed the role these same characteristics play in our behaviour in terms of recommending purchases via mobile apps. We also analysed whether time spent online has an impact on purchase, recommendation and download of mobile apps. The binary logistic regression results

confirmed the importance of gender, age and the level of education, as well as the importance of time spent online on our purchase and recommendation intentions. Spending more time online allows users to conduct thorough research on products, read reviews, compare prices, and watch product demonstrations, leading to informed purchasing decisions via mobile apps.

Although this study provides valuable implications for mobile apps usage, it has some limitations. The first limitation of the study is the sample size that may affect the generalisation of the findings. The second limitation refers to the number of variables included. Future research could include variables such as the continuity of mobile app usage, types of mob apps (free or paid apps), the reliability and security of mobile apps and the interface design of mobile applications.

This research opens up a broad field for further research. Although we found that women are more likely to shop via mobile apps, gender differences can influence the types of products purchased via mobile apps. For instance, it could be interesting to investigate in future research whether women are more likely to buy fashion and beauty products, while men are more likely to buy electronics and gadgets. Future research could also include more detailed analysis of the role of education and income in mobile apps usage and download.

The rise of mobile applications (apps) has significantly changed how users interact with companies and make purchasing decisions. Understanding the factors influencing purchase intentions via mobile app is crucial for companies to develop effective mobile apps. The struggle that companies face is the provision of generated information in mobile applications, which reduces the credibility and relevance of the data or content provided. App developers should develop applications that provide individualised and tailored content to their users in order to gain a clear advantage over other digital communication tools. In addition, mobile applications have to allow users to access the most current and up-to-date information, which can increase user satisfaction. The growing satisfaction of mobile application users will also positively influence their likelihood to recommend the app to others.

In the context of research findings, app developers and companies should consider personal characteristics of users when developing mobile applica-

tions and focus on creating features that encourage recommendation to those who are not inclined to use mobile apps in the context of shopping, such as men or older people. Understanding the role of researched personal characteristics in mobile apps

usage, recommendation and download can help businesses and app developers to adapt their mobile app marketing strategies, design user-friendly interfaces and create personalised shopping experiences to increase customer satisfaction and sales.

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