Journal of Engineering Research and Education
Volume 15, 2023 [49-60]

Unveiling the Dynamics: An Empirical Study on the Adoption of Mobile Shopping Apps among Malaysian Consumers During the COVID-19 Pandemic

H. Hartini[1], Nurul Shazwani Ab Rahim[2],

[1] School of International Studies, Universiti Utara Malaysia, Sintok, Malaysia
[2] Public Mutual Berhad, Kuala Lumpur, Malaysia

ABSTRACT

The growth of smartphone technology has facilitated the introduction of mobile shopping apps. These apps have revolutionized how people shop by providing convenient and accessible platforms for browsing, comparing, and purchasing products from the comfort of their mobile devices. This study aims to determine and understand factors that influence the adoption of mobile shopping apps among Malaysian consumers. Data were gathered via an online survey involving a sample of 319 mobile shopping app users in Malaysia. The data were then analysed using the Statistical Package for Social Science (SPSS) version 26.0 software. Findings indicate that perceived ease of use, and value consciousness have a significant positive effect on the adoption of mobile shopping apps but perceived usefulness did not have any significant influence. The findings can serve as a guideline for online retailers and marketers when formulating an effective marketing strategy to enhance the adoption of mobile shopping apps among Malaysian consumers.

Keywords: Mobile Shopping Apps Adoption; Perceived Usefulness; Perceived Ease of Use; Value Consciousness.

1. INTRODUCTION

Mobile phones have become a necessity for most people throughout the globe [1], which has witnessed the exponential growth of mobile users worldwide. The Malaysian Communications and Multimedia Commission [2] reported that as of 2021, 94.8 percent of Malaysians use smartphones to access the internet, signifying that the nation's smartphone adoption has increased tremendously. Malaysian mobile shopping (m-commerce) is forecasted to develop faster than e-commerce, with a 14 percent compound annual growth rate (CAGR) by 2024 [3]. The growth of mobile shopping suggests that Malaysian consumers are becoming more comfortable and confident in making purchases through their mobile devices.

Shopping applications are among the most popular apps downloaded, accounting for 88.3 percent of spending by Malaysians in 2021 [4]. The COVID-19 pandemic accelerated the adoption of mobile commerce as a means for local businesses to connect with customers, deliver their brand value proposition, and remain competitive during challenging times. Mobile shopping applications offer a safe and convenient means for consumers to browse, order, and pay for products and services without leaving their homes. Mobile shopping apps such as Shopee, Lazada, Zalora, 11 Street, and Taobao are more likely to be increasingly used by consumers, leading to the popularity of mobile shopping apps in Malaysia [5].

*Corresponding Author: h.hartini@uum.edu.my

Despite the various benefits of utilizing mobile shopping applications, mobile shopping adoption is not as strong as anticipated. Shopping cart abandonment is a significant challenge for online retailers, and it can result in potential losses. Shopping cart abandonment occurs when a prospective customer initiates the checkout process by adding items to their online shopping cart but then exits the website or application before finalizing the purchase [6].

Smartphone users are more likely to abandon their shopping carts compared to users of other devices. It is estimated that the average shopping cart abandonment rate for mobile devices is around 85.65 percent [7]. A high abandonment rate may signal that the shopping application might have some underlying flaws. Users may perceive the shopping app as unreliable or untrustworthy if they frequently encounter problems during the checkout process, which can deter them from adopting the app for future purchases.

The Technology Acceptance Model [8] has been widely applied to understand and predict the adoption of various technologies, including online shopping [9] [10], online banking [11], e-commerce [12] [13], online learning [14] [15], and social media [16] [17]. Previous studies on mobile shopping apps have focused on outcomes, such as purchase intention [18], user satisfaction [19], and impulse buying behaviour [20].[21] examined mobile shopping apps by using the lens of the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2). Nevertheless, no empirical study has been conducted to explore Malaysian online shopping app usage through the Technology Acceptance Model (TAM).

Consumers today have high expectations for seamless and convenient mobile shopping experiences. Understanding factors driving mobile shopping app usage helps businesses meet these expectations and stay competitive. Thus, this study aimed to investigate factors that influence mobile shopping app adoption, particularly among Malaysian consumers.

2. LITERATURE REVIEW

2.1 Perceived Usefulness

Perceived usefulness (PU) was described by [8] as "the extent to which a person believes that using a particular system would enhance his or her usage behaviours". [22] defined perceived usefulness as “the extent to which potential users or customers believe that using a particular technology, such as a mobile shopping app, will result in a significant value or benefit for them”. In the context of this study, perceived usefulness refers to how individuals perceive the process of conveniently searching for products, making payments for purchases, and accessing after-sales services through their mobile devices [23].

Perceived usefulness is a fundamental component of the TAM, and it is one of the important variables for predicting whether consumers will adopt technology [24]. [25] highlighted that when individuals perceive a high level of usefulness of a technology, they are much more inclined to embrace and adopt it. Scholars have found a significant association between perceived usefulness and the adoption of online banking [11][26], e-commerce [12] and online shopping [9][27]. [28] reinforced the importance of perceived usefulness in the context of mobile shopping and technology adoption. The finding that there is a significant positive relationship between perceived usefulness and the intention to use mobile phones for shopping purposes corroborates the importance of this construct in understanding user behaviour.

This study proposed perceived usefulness as a critical factor in determining whether users will adopt mobile shopping apps. When users perceive mobile shopping apps as valuable tools that simplify their shopping experiences, save time and money, and provide access to a wide range of products, they are more likely to embrace and use them regularly.

Therefore, it is hypothesised that:

H1: Perceived usefulness has a significant positive influence on mobile shopping app adoption.

2.2 Perceived Ease of Use

Perceived ease of use (PEOU) represents the tendency for an individual to perceive that applying a specified system would be free of exertion and mental effort [8]. The ultimate objective of advancement in technology is to make life more convenient. When customers encounter a new technology, their perception of how easy or difficult it is to use greatly influences their willingness to adopt it. [29] and [30] contended that consumers are more likely to adopt a new system or technology when they perceive that it is easy to learn and use them. Thus, from this perspective, it is anticipated that consumers are more likely to engage in a technology that they feel comfortable using and believe they can easily operate.

Perceived ease of use is a key determinant of the adoption and continued use of online shopping platforms and mobile shopping apps. When users perceive these platforms as user-friendly and convenient, they are more likely to shop online, and this perception can drive long-term adoption [30][31]. User-friendliness and convenience are essential elements of a positive user experience. When users have a smooth, hassle-free experience while shopping online, they are more likely to return to the technology for repeat usage.

In the context of a mobile shopping app, perceived ease of use would relate to how users perceive the app in terms of its simplicity, user-friendliness, and effort required to navigate and complete tasks using the app. When users perceive the app as being easy to use, they are more likely to have positive experiences and continue using it for their shopping needs.

Hence, this study hypothesized:

H2: Perceived ease of use has a significant positive influence on mobile shopping app adoption.

2.3 Value Consciousness

Low pricing and product quality are two critical factors that hold significant importance for value-conscious consumers [32]. These consumers are often highly mindful of how they spend their money, thus, seeking the best possible value for the products they purchase.

Mobile shopping apps offer unique advantages over other shopping channels, and these advantages align well with the preferences and priorities of value-conscious consumers. The flexibility and convenience offered by mobile shopping apps have transformed the way people shop and have indeed provided a significant advantage over traditional markets. Access to comprehensive product information is crucial for value-conscious consumers [33]. Mobile shopping apps provide a rich source of information for value-conscious consumers, which allows them to make well-informed purchase decisions.

Value-conscious consumers are known for seeking a balance between price and quality. In the context of mobile shopping apps, this means they are more likely to favour and adopt apps that offer a range of products that align with their price-quality expectations [34]. Value-conscious shoppers can make purchase decisions more swiftly by using their knowledge of product value and pricing. The ability to shop quickly and efficiently leads to a positive perception of the mobile shopping app's ease of use [33].

Thus, the following hypothesis was proposed:

H3: Value consciousness has a significant positive influence on mobile shopping app adoption.

Figure 1 below provides an overview of the research framework.

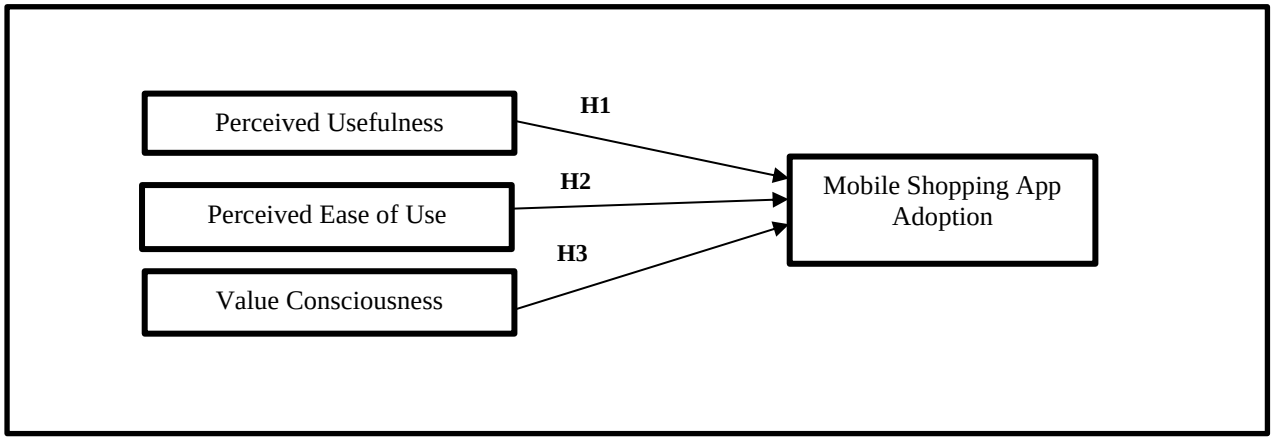

Figure 1 Research Framework

3. METHODOLOGY

3.1 Sample and Data Collection

Data were collected via the online survey method due to the enforcement of the Movement Control Order (MCO) in Malaysia during the onset of the COVID-19 pandemic. Respondents were approached through various social media platforms such as WhatsApp, Facebook, and Instagram. Questionnaires involving 324 participants who had completed the survey were collected between March 5th and June 26th, 2021.

The purposive sampling method was utilised by this study to choose the sample. Purposive sampling, also known as selective sampling, is "a sampling method where the researcher deliberately chooses whom to include in the study based on their ability to provide necessary data" (Parahoo, 2014, p. 232). Several criteria must be considered when selecting the sample. Firstly, the participants must be Malaysian citizens aged above 18 years old and have experience using mobile shopping applications. A filter question ('Have you ever purchased a product using mobile shopping applications') was used to screen out respondents who answered 'No' as they were not qualified to participate in the survey. After data screening, 319 questionnaires were found to be usable and subjected to further analysis.

Demographic data indicated that most respondents (70.8 percent) were females, whereas the remainder (29.2 percent) were male respondents. In terms of age, the majority of participants were between the ages of 30-39 years old (40.4 percent), while 159 respondents (49.8 percent) were married, and 158 respondents (49.5 percent) were single.

Overall, 197 respondents (61.8 percent) were Malay, followed by 29 Chinese respondents (27.9 percent), 23 Indian respondents (7.8 percent), and 8 respondents (2.5 percent) classified as others. In terms of academic achievement, 163 respondents (51.1 percent) possessed a bachelor's degree and the majority of respondents (32.6 percent) were private employees. With regard to income, the majority of respondents did not have an income (21 percent). The most popular mobile shopping app platform was Shopee (79 percent), with Lazada being the second most visited mobile shopping app platform (10 percent). Table 1 below depicts the respondents' demographic details.

Table 1 Respondent's Demographic Profile

Respondents' Profile		Frequency	Percentage (%)
Gender	Male	93	29.2
	Female	226	70.8
Age (years)	18-29	119	37.3
	30-29	129	40.4
	40-49	39	12.2
	50-59	23	7.2
	60 and above	9	2.8
Marital Status	Single	158	49.5
	Married	159	49.8
	Others	2	0.6
Races	Malay	197	61.8
	Chinese	89	27.9
	Indian	25	7.8
	Others	8	2.5
Highest educational level	STPM or lower	33	10.3
	Diploma	57	17.9
	Bachelor Degree	163	51.1
	Master's Degree or Higher	66	20.7
Occupation	Private employee	104	32.6
	Student	84	26.3
	Professional	39	12.2
	Self-employed	29	9.1
	Civil Servant	29	9.1
	Housewife	16	5.0
	Retired	11	3.4
	Unemployed	7	2.2
Income per month	Do not have income	67	21.0
	Below RM1,000	32	10.0
	RM1,000-RM1,999	30	9.4
	RM2,000-RM2,999	36	11.3
	RM3,000-RM3,999	46	14.4
	RM4,000-RM4,999	44	13.8
	RM5,000 and above	64	20.0
Average usage of mobile shopping apps	1 time/month	75	23.5
	2 – 3 times/month	133	41.7
	4 - 5 times/month	46	14.4
	>5 times/month	65	20.4
Mobile shopping app platform you frequently use	Shopee	252	79.0
	Lazada	32	10.0
	Go Shop	12	3.8
	Zalora	9	2.8
	Carousell	2	0.6
	Others	12	3.8

3.2 Measures

The scales utilised in this study were adapted and altered from various literature. This study utilised the measurement of perceived usefulness developed by [35]. The perceived ease of use scales were measured by items derived from [36]. Value consciousness was evaluated by adapting the instrument developed by [33]. Each sentence was rated using a Seven-point Likert-type scale, with '1' representing "Strongly Disagree" and '7' representing "Strongly Agree."

4. DATA ANALYSIS AND RESULTS

This study conducted a series of tests, including the normality test, reliability test, and the Kaiser-Meyer-Olkin (KMO) test, before assessing the hypotheses.

4.1 Test of Normality

Skewness and Kurtosis were used to assess data normality. Data is considered normally distributed if skewness values fall between -3 to +3, and kurtosis values between -10 and 10 [37].

Table 2 Normality Test Results

Variables	Skewness Statistics	*(S.E-skew)2*	Kurtosis Statistics	*(S.E- kurt)2*
PU	-0.911	0.137	1.035	0.272
PEU	-1.025	0.137	1.777	0.272
VC	-1.130	0.137	1.616	0.272
MSA	-1.166	0.137	1.892	0.272

Note: PU = Perceived Usefulness, PEU= Perceived Ease of Use, VC=Value Consciousness, MSA= Mobile Shopping App Adoption

Results of the normality test in Table 2 indicate that the skewness values for the main variables were in the range of -1.166 to -0.911 and the kurtosis values were in the range of 1.035 to 1.892, which is acceptable and within the recommended range.

4.2 Reliability Test

Cronbach's Alpha is computed to measure the reliability or internal consistency of a measurement scale. The internal consistency was tested using composite reliability, and the ideal value should be greater than 0.7 [38].

Table 3 Reliability Test Results

Construct (s)	Cronbach's Alpha Statistics	N of Items
Perceived Usefulness	0.863	4
Perceived Ease of Use	0.899	4
Value Consciousness	0.894	6
Mobile Shopping App Adoption	0.849	4

Cronbach's alpha values for all variables exceeded the threshold value of 0.7, indicating that all constructs in the model satisfied the requirements for reliability.

4.3 Test of Sampling Adequacy (Kaiser-Meyer-Olkin Test)

The Kaiser-Meyer-Olkin (KMO) test was used to determine sampling adequacy. The cut-off point for the minimum level of KMO was set at 0.5 [39].

Table 4 Kaiser-Meyer-Olkin Measure of Sampling Adequacy

Construct(s)	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	Bartlett's Test of Sphericity		
		Approx. Chi-Square	*Df*	Sig.
Perceived Usefulness	0.826	597.609	6	.000
Perceived Ease of Use	0.848	768.263	6	.000
Value Consciousness	0.901	1050.006	15	.000
Mobile Shopping App Adoption	0.749	716.271	3	.000

The KMO test results in Table 4 show that KMO values for all variables are greater than 0.5, thus, confirming the adequacy of the sample size.

4.4 Hypothesis Testing

Table 5 Hypothesis Testing Results

Hypothesis	Relationship	β	S.E.	T	Sig.	Results
H1	PU ⟶ MSA	0.117	0.093	1.267	0.206	**Not supported**
H2	PEOU ⟶ MSA	0.196	0.095	2.072	0.039	**Supported**
H3	VC ⟶ MSA	0.188	0.081	2.320	0.021	**Supported**

(*) Significant at $p<0.05$, at one-tailed T statistics value of 1.65

PU = Perceived Usefulness, PEU= Perceived Ease of Use, VC=Value Consciousness, MSA= Mobile Shopping App Adoption

The proposed model was tested using the regression analysis. As depicted in Table 5, two out of three hypotheses were found to be significant. Perceived usefulness did not exhibit any significant influence on mobile shopping app adoption with a T value of 1.27. Perceived ease of use indicated a positive significant influence on mobile shopping app adoption, with a T value of 2.07, and value consciousness indicated a positive significant influence on mobile shopping app adoption, with a T value of 2.32. Thus, H2 and H3 are supported, while H1 is not supported.

5. DISCUSSIONS

Hypothesis H1 postulates that perceived usefulness (PU) positively relates to mobile shopping app adoption. However, the findings of the study reveal that the effect of perceived usefulness on mobile shopping app adoption was not significant. In the context of this study, this implies that customers' perception of how useful a mobile shopping app is did not play a substantial role in their decision to adopt it. This result was consistent with prior studies, which found that when individuals have sufficient experience, they develop more informed beliefs and perceived usefulness does not appear to influence the intention to use the self-service app [40] [41]. During the initial stages of adopting a technology, perceived usefulness holds substantial influence and it has a lesser impact when users continue using it over time [42].

Customers who utilise mobile shopping apps grow more accustomed to and knowledgeable about the system's features, conveniences, and usefulness. Over time, their attitude toward mobile shopping apps may change as a result of their familiarity and knowledge [43]. Reports indicate that 41.7 percent of respondents in the study used mobile shopping apps two to three times per month. When users consistently use mobile shopping apps to purchase products, it is a clear indication that they have become not just familiar, but highly comfortable and accustomed to using this particular technology. In such cases, the influence of perceived usefulness tends to diminish compared to when users are new to the mobile app technology.

This study found that perceived ease of use (PEOU) has a direct effect on mobile shopping app adoption. The positive effect of H2 mirrors the findings of [30], which demonstrated that perceived ease of use positively affects Malaysian shoppers' intentions to adopt mobile shopping. This finding is also consistent with [44], who found that perceived ease of use significantly affects Iranian consumers' attitudes toward mobile app use. Both studies emphasized the critical importance of a user-friendly and convenient mobile shopping app that leads to its adoption. A straightforward and user-friendly mobile shopping app reduces the cognitive load on consumers. When the process is simple and intuitive, users can focus on their shopping goals without feeling overwhelmed by complexity. When users perceive that the mobile shopping app is effortless and straightforward, they are more inclined to use it.

The findings reveal that value consciousness is the most influential factor that drives individuals to use mobile shopping apps. [33] confirmed the postulation that high-value-conscious customers tend to accumulate more experience and knowledge about the shopping process, which plays a significant role in their ability to make informed decisions and engage in mobile shopping effectively. This outcome is also supported by [34] who found that value consciousness increases the likelihood of online purchasing. When value-conscious individuals shop online, they are often motivated by the potential for cost savings and finding the best deals while not compromising on product quality.

Value-conscious consumers are known for their diligent approach to shopping, which involves spending time collecting relevant information about products and services, while actively checking and comparing prices across different brands to ensure they get the best possible value for their money [45]. Mobile shopping apps allow users to browse, search for information, and make purchases from their mobile devices wherever and whenever they want. This level of convenience aligns with the busy lifestyles of Malaysian consumers and enables value-conscious individuals to shop on their own terms. Consumers are more likely to rely on the app for their shopping needs when they can easily acquire trustworthy information about products, including accurate descriptions, clear images, and honest customer reviews, which can help users make informed decisions. When users believe they can rely on the information provided in the app, they are more likely to shop confidently.

6. CONCLUSION

This study provides theoretical and practical insights into mobile shopping app adoption based on the results of the hypothesis testing. This current study had effectively utilized the Technology Acceptance Model (TAM) as a basis for examining the effect of perceived usefulness, perceived ease of use and value consciousness on the adoption of mobile shopping apps among Malaysian consumers. This study contributes to a deeper understanding of technology adoption in the context of mobile shopping. Online sellers and app providers can use the insights from this study to enhance user engagement with consumers. Hence, by focusing on perceived ease of use and value consciousness, they can create a more attractive and user-friendly shopping environment, which encourages users to explore and purchase products. The findings also benefit customers, which is ultimately crucial to the overall online shopping experience. The emphasis on ease of use means that mobile shopping apps should be more intuitive, making it easier for customers to navigate, search for products, and complete transactions. Value-conscious customers highly appreciate transparent pricing and information when using mobile shopping apps. These customers frequently engage in comparative shopping; comparing prices and features across different brands and products. Transparent information facilitates this process and enables them to identify the best value. Despite its contributions, this current study has several limitations that present opportunities for future investigations. Firstly, the current study is a cross-sectional study in which information was gathered over a specific point in time. It would be beneficial to explore changes in consumers' behaviour over time by conducting a longitudinal study. Secondly, the respondents were confined to mobile shopping app users in Malaysia, which acts as a limitation to this study. Thus, it would be beneficial to make cross-country comparisons or extend the scope by collecting data from other developing nations. Lastly, this research empirically investigated the relationship between perceived usefulness, perceived ease of use, and mobile shopping app adoption. The current research can be expanded by adding potential factors, such as perceived risk, trust, and security privacy. Future studies can also broaden the model by integrating it with other theories.

References

[1] Ariffin, N. M. *A conceptual study on adoption of mobile shopping apps among users in Malaysia*. Journal of International Business and Management, 2:3, 1-06. (2019)

[2] Malaysian Communications and Multimedia Commission (MCMC). *Hand Phone Users Survey 2021*. Retrieved from: https://www.mcmc.gov.my/skmmgovmy/media/General/pdf2/FULL-REPORT-HPUS-2021.pdf (2021)

[3] Morgan, J.P. *Global E-Commerce Trends Report*. Retrieved from: https://www.jpmorgan.com/content/dam/jpm/treasury-services/documents/global-e-commerce-trends-report.pdf (2021)

[4] Datareportal. *Digital 2021: Malaysia*. Retrieved from: https://datareportal.com/reports/digital-2021-malaysia (2021)

[5] Aziz, N. A. A., Zin, L. H., Azman, H., & Sufian, A. *Determining the factors of consumer's attitudes and its influence on continuous usage of mobile shopping applications.* European Journal of Molecular & Clinical Medicine, 7:3, 2903-2921. (2020)

[6] Manjula, N., & Kumar, M. E-commerce cart abandonment: exploring consumer behavior's and reasons for cart abandonment. *International Journal of Engineering Research & Technology*, 8:9, 254-260. (2019)

[7] Barilliance. *Complete list of cart abandonment statistics: 2006-2023*. Retrieved from: https://www.barilliance.com/cart-abandonment-rate-statistics/#tab-con-14 (2023)

[8] Davis, F. D. *Perceived usefulness, perceived ease of use, and user acceptance of information technology*. MIS Quarterly, 13:3, 319–340. (1989)

[9] Copeland, L.R., Bhaduri, G. & Huang, O. *Understanding Chinese Gen Z and their online shopping intentions through TAM*. Asia Pacific Journal of Marketing and Logistics. https://doi.org/10.1108/APJML-03-2022-0241 (2023)

[10] Ofori, D., & Appiah-Nimo, C. *Determinants of online shopping among tertiary students in Ghana: an extended technology acceptance model*. Cogent Business and Management, 6:1,1-20. (2019)

[11] Ly, B. & Ly, R. *Internet banking adoption under Technology Acceptance Model—evidence from Cambodian user*s. Computers in Human Behavior Reports, 7:100224, 1-7. (2022)

[12] Fayad, R., & Paper, D. *The Technology Acceptance Model e-commerce extension: A conceptual framework.* Proceedings of the 4th World Conference on Business, Economics and Management, WCBEM, 68, 1000 -1006. (2015)

[13] Al-Haraizah, A., & Choudhury, I. *Applying the electronic commerce technology acceptance (ECTA) framework to overcome challenges facing governmental institutions' emailing systems technology adoption in Jordan*. Journal of Algorithms and Computational Technology, 6:3, 351-374. (2012)

[14] Alassafi, M.O. *E-learning intention material using TAM: a case study*. Materials Today Proceedings, 61, 873–877. (2022)

[15] Bhattacharyya, S. S., Verma, S., & Sampath, G. *Ethical expectations and ethnocentric thinking: exploring the adequacy of Technology Acceptance Model for millennial consumers on multisided platforms*. International Journal of Ethics and Systems, 36, 465–489. (2020)

[16] Hyun, H., Thavisay, T., & Lee, S.H. *Enhancing the role of flow experience in social media usage and its impact on shopping*. Journal of Retailing and Consumer Services, 65:102492. (2022)

[17] Al-Qaysi, N., Mohamad-Nordin, N. & Al-Emran, M. *Employing the technology acceptance model in social media: A systematic review*. Education and Information Technologies, 25, 4961–5002. (2020)

[18] Patel, V., Das, K., Chatterjee, R., & Shukla, Y. *Does the interface quality of mobile shopping apps affect purchase intention? An empirical study*. Australasian Marketing Journal, 28:4, 300-309. (2020)

[19] Fernandes, N., & Barfknecht, C. *Keep customers coming back: Enhancing value and satisfaction in a mobile shopping application context*. Cogent Business and Management, 7:1788874, 1-22. (2020)

[20] Chen, J.C., Ruangsri, S., Ha, Q-A. & Widjaja, A. E. *An experimental study of consumers' impulse buying behaviour in augmented reality mobile shopping apps*. Behaviour & Information Technology, 41:15, 3360-3381. (2022)

[21] Chopdar, P.K., Korfiatis, N., Sivakumar, V.J. & Lytras, M.D. *Mobile shopping apps adoption and perceived risks: A cross-country perspective utilizing the unified theory of acceptance and use of technology*. Computers in Human Behavior, 86, 109-128. (2018)

[22] Olaleye, S.A., Oyelere, S.S., Sanusi, I.T. & Agbo, J.F. *Experience of ubiquitous computing technology driven mobile commerce in Africa: Impact of usability, privacy, trust, and reputation concern.* International Journal of Interactive Mobile Technologies (iJIM), 12:3, 4-20. (2018)

[23] Shang, R.A., Chen, Y.C. & Shen, L. *Extrinsic versus intrinsic motivations for consumers to shop online*. Information and Management, 42:3, 401- 413. (2005).

[24] Isaac, O., Abdullah, Z., Ramayah, T., & Alrajawy, I.M. *Integrating user satisfaction and performance impact with technology acceptance model (TAM) to examine the internet usage within organizations in Yemen*. Asian Journal of Information Technology, 17:1, 60-78. (2018)

[25] Filieri, R. *What makes online reviews helpful? A diagnosticity-adoption framework to*

explain informational and normative influences in e-WOM. Journal of Business Research, 68:6, 1261-1270. (2015)

[26] Albort-Morant, G., Sanchís-Pedregosa, C., & Paredes Paredes, J. R. *Online banking adoption in Spanish cities and towns. Finding differences through TAM application.* Economic Research-EkonomskaIstraživanja, 35:1, 854-872. (2022)

[27] Ofori, D., & Appiah-Nimo, C. *Determinants of online shopping among tertiary students in Ghana: An extended technology acceptance model*. Cogent Business and Management, 6:1, 1-20. (2019)

[28] Zhang, L., Zhu, J. & Liu, Q. *A meta-analysis of mobile commerce adoption and the moderating effect of culture*. Computers in Human Behavior, 28:5, 1902-1911. (2012)

[29] Pikkarainen, T., Pikkarainen, K., Karjaluoto, H., & Pahnila, S. *Consumer acceptance of online banking: an extension of the technology acceptance model*. Internet Research, 14:13, 224-235. (2004)

[30] Ghazali, E. M., Mutum, D. S., Chong, J. H., & Nguyen, B. *Do consumers want mobile commerce? A closer look at M-shopping and technology adoption in Malaysia*. Asia Pacific Journal of Marketing and Logistics, 30:4, 1064-1086. (2018)

[31] Ramayah, T., & Ignatius, J. *Impact of perceived usefulness, perceived ease of use and perceived enjoyment on intention to shop online.* ICFAI Journal of Systems Management (IJSM), 3:3, 36-51. (2005)

[32] Ismail, A. R., Nguyen, B., Chen, J., Melewar, T. C., & Mohamad, B. *Brand engagement in self-concept (BESC), value consciousness and brand loyalty: a study of generation Z consumers in Malaysia*. Young Consumers, 22:1, 112-130. (2020)

[33] Camoiras-Rodriguez, Z. & Varela, C. *The influence of consumer personality traits on mobile shopping intention.* Spanish Journal of Marketing - ESIC, 24:3, 331-353. (2020)

[34] Riorini, S.V. *Social media marketing toward perceptual consciousness and its impact on online purchasing intention*. European Research Studies Journal, 21:1, 402-416. (2018)

[35] Murillo-Zegarra, M., Ruiz-Mafe, C., & Sanz-Blas, S. *The effects of mobile advertising alerts and perceived value on continuance intention for branded mobile apps.* Sustainability, 12:17, 6753. (2020).

[36] Shukla, A., & Sharma, S. K. *Evaluating consumers' adoption of mobile technology for grocery shopping: An application of technology acceptance model*. Vision, 22:2, 185–198. (2018)

[37] Kline, R. B. *Principles and practice of structural equation modeling*. Guilford Publications. (2015)

[38] Sekaran, U. & Bougie, R. *Research methods for business: A skill-building approach*. (7th ed.). Wiley & Sons. (2016)

[39] Hair, J.F., Sarstedt, M. & Ringle, C.M. *Rethinking some of the rethinking of partial least squares*. European Journal of Marketing, 53:4, 566-584. (2019)

[40] Muñoz-Leiva, F., Climent-Climent, S., & Liébana-Cabanillas, F. *Determinants of intention to use the mobile banking apps: An extension of the classic TAM model*. Spanish Journal of Marketing - ESIC, 21, 25-38. (2017)

[41] Hong, S. J., Thong, J., & Tam, K. Y. *Understanding continued information technology usage behavior: a comparison of three models in the context of mobile internet*. Decision Support Systems, 42:1, 1819–1834. (2006)

[42] Venkatesh, V., Thong, J.Y.L., & Xu, X. *Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology*. MIS Quarterly, 36, 157–178. (2012)

[43] Shim, H.-S., Han, S.-L. & Ha, J. *The effects of consumer readiness on the adoption of self-service technology: Moderating effects of consumer traits and situational factors.* Sustainability, 13:95, 1-17. (2021)

[44] Vahdat, A., Alizadeh, A., Quach, S., & Hamelin, N. *Would you like to shop via mobile app*

technology? The technology acceptance model, social factors and purchase intention. Australasian Marketing Journal, 29:2, 187–197. (2021)

[45] Itani, O.S., Kassar, A-N., & Loureiro, S.M. Value get, value give: *The relationships among perceived value, relationship quality, customer engagement, and value consciousness.* International Journal of Hospitality Management, 80: 78-90. (2019)