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Exploring User Acceptance in Mobile Commerce: A Personality-Based Approach

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Abstract

Purpose: In the era of digital transformation, mobile commerce plays an important role in promoting the operational efficiency of retail businesses. This study aims to consolidate the theoretical understanding of Vietnamese consumers' usage intention of m-commerce, thereby helping retail enterprises make decisions regarding mobile retail channels. **Research design, data and methodology**: The research framework was developed from integrating the FFM model and the UTAUT model. The survey data from 343 Vietnamese mobile phone users were analyzed using the PLS-SEM model. **Results**: The results confirmed the impact of extraversion, neuroticism, conscientiousness, and openness on effort expectation, performance expectation, and then on the intention to use m-commerce. Unlike other personality traits, agreeableness only had a positive effect on effort expectation but had an insignificant impact on performance expectation. **Conclusions**: These findings significantly enhance understanding of the influence of personality traits on mobile commerce usage intention, mediated by effort and performance expectation. The results enable mobile retail businesses to formulate targeted strategies by leveraging insights into how these personality dimensions shape consumer perceptions in using mobile commerce. This understanding can effectively stimulate consumer purchases on their platforms and subsequently aid in optimizing mobile retail distribution by streamlining the entire product flow from supplier to consumer.

Keywords: Mobile Retail Distribution, Mobile Commerce, Personality Traits, UTAUT, Purchase Intention

JEL Classification Code: M10, M31, L81, O30.

1. Introduction

Today, information technology has fundamentally reshaped global retail distribution networks, dramatically expanding market access and ensuring a continuous flow of transactional data and market intelligence. Mobile smart devices, with their portability and wireless connectivity, are now pivotal in streamlining retail logistics management, optimizing intricate supply chain orchestrations, and enhancing broad-scale e-commerce operations. By enabling real-time asset tracking, precise inventory control, and accurate demand forecasting, these devices empower retail businesses to significantly improve operational efficiencies, reduce distribution costs, and meet evolving customer service level expectations within an increasingly competitive retail marketplace environment, ensuring

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products reach consumers effectively and efficiently (Huang et al., 2024). According to WeAreSocial (2025), the world has about 5.52 billion Internet users, 5.75 billion mobile phone users, and 60% of Internet capacity comes from mobile devices. The development of mobile devices and robust mobile application platforms has spurred the creation of the mobile-based business model, also known as m-commerce, profoundly impacting product and service distribution and market reach (Makudza et al., 2024). According to WeAreSocial (2025), Vietnam had about 80 million Internet users, accounting for 79% of the national population. The number of mobile subscribers reached 127 million, an increase of 2.2 million (equivalent to 1.8%) over the same period last year. On average, each person spends more than 6 hours/day accessing the Internet, of which up to 83.3% of Internet access is on smartphones. The report also recorded that Vietnam's electronic retail commerce revenue in 2024 reached 13.9 billion USD, of which mobile retail commerce accounted for 55.1% of total revenue, equivalent to 7.1 billion USD.

In the popularity of mobile commerce, there are many studies on this purchasing method published in prestigious scientific journals (Huang et al., 2024; Makudza et al., 2024). These studies confirm that customers' acceptance of using mobile commerce comes from their cognitive states about using mobile phones when shopping online; the impact of external factors, environmental stimuli can change these cognitive states. However, very few studies on mobile commerce acceptance have addressed the effect of personality traits on cognitive states and, subsequently, on mobile commerce acceptance.

Maddi (1996) proposed customer personality traits as a stable set of traits and tendencies that account for variations in individuals' thoughts, emotions, and behaviours. These personality traits are stable over time, shaped partly by innate factors and partly by adaptive processes influenced by daily interactions, such as education, learning, and personal experiences (Brandstätter, 2011). Each individual possesses a distinct combination of personality traits that form a unique profile, enabling differentiation from others. Personality traits are useful indicators of how individuals are likely to behave and provide insight into the differences in behaviour among people (Brandstätter, 2011). In particular, many studies stated that personality traits can affect individuals' willingness to adopt and accept various forms of technology (Singh & Basri, 2024; Xie & Liao, 2024). This model has proven useful in predicting various online behaviours, including mobile payments (Changchit et al., 2024), online shopping (Camoiras & Varela, 2020; Piroth et al., 2020), online learning (Gupta, 2021), mobile banking (Agyei et al., 2020), sharing of electricity-using devices (Xie & Liao, 2024), and virtual reality advertising (Srivastava et al., 2024).

Building upon an analysis of the current retail logistical landscape of mobile commerce in Vietnam and a review of relevant distribution theory frameworks, this study emphasizes the crucial need to examine consumer personality traits and their influence on cognitive states. This is particularly pertinent in shaping consumer acceptance and driving market penetration of mobile retail platforms. Given the increasingly pivotal role of digital platforms in streamlining retail supply chain optimization and enhancing order fulfillment processes, understanding these psychological drivers offers both profound theoretical insights for retail distribution science and significant practical value for retail channel management. To address this target, the study first explores mobile shopping intentions within the retail context through the lens of personality traits. A research model, corresponding hypotheses, and methodological approach are then proposed. The study concludes with a discussion of key findings, along with conclusions, identified limitations, and future research directions for retail businesses.

2. Literature Review

2.1. Technology Adoption

In an era of rapid information technology development, understanding consumers` purposes for using technology products and services is becoming increasingly important. Therefore, Venkatesh et al. (2003) developed the Unified Theory of Acceptance and Use of Technology (UTAUT). This theoretical model outlines social influence, facilitating conditions, expectation of performance and effort as the four primary determinants of technology adoption. The first three factors influence users' behavioural intentions, which subsequently affect their actual usage behaviour. In contrast, researchers theorize that facilitating conditions directly affect technology use, independent of behavioural intention.

The UTAUT theory has proven to be very effective in explaining consumers' intended use of technological products and services (Venkatesh et al., 2003). However, Venkatesh et al. (2016) argued that this model is too complex toward an overly cautious approach and thus limited in explaining individual behaviour. They also found that market data eliminated some theories, rendering the combination of multiple theories in their research model meaningless. Therefore, researchers mainly use the UTAUT theory when building hypotheses and proposing theoretical research models, combining it with other theories or expanding it with endogenous and exogenous structures. suitable for the specific research context (Venkatesh et al., 2016; Zhang, 2025).

2.2. Personality Traits

In order to assess and understand individual personality traits, many theories have been developed over time. Among them, the model proposed by Eysenck et al. (1985) identifies three primary dimensions of personality: extraversion, neuroticism, and psychoticism. Building upon this foundation, McCrae and Costa (1987) introduced the Five-Factor Model (FFM) with five core personality traits. As noted by Bove and Mitzifiris (2007), the FFM offers a succinct yet comprehensive framework for capturing personality characteristics. Hahn et al. (2012) further emphasized the model's robustness, highlighting its consistency in describing traits that individuals use to characterize themselves and others.

In measuring personality traits, most acceptable measurement models usually have 60 or 40 survey items (Hahn et al., 2012). Researchers have also introduced some personality scales applying the FFM model with fewer questions. For example, the scale of Gosling et al. (2003) proposed five personality traits with 10 observed variables. Olsen et al. (2016) based on the five personality trait scale of Gosling et al. (2003) to build a scale with 16 observed variables. Gupta (2021) based on the customer personality trait model of Bove and Mitzifiris (2007) built a scale of five customer personality traits with 28 observed variables as questions.

Researchers have widely applied the Five-Factor Model (FFM) across diverse research domains. An expanding body of the literature shows that personality traits have a significant influence on individuals' intended use of various forms of technology (Singh & Basri, 2024; Srivastava et al., 2024; Xie & Liao, 2024). The FFM has proven to be a valuable framework in predicting a range of online behaviours, including mobile payments (Changchit et al., 2024), online shopping (Camoiras & Varela, 2020; Piroth et al., 2020), online learning (Gupta, 2021), mobile banking (Agyei et al., 2020), the sharing of electricity-using devices (Xie & Liao, 2024), and virtual reality advertising (Srivastava et al., 2024).

2.3. Previous Research Overview

Venkatesh et al. (2016) asserted that individual behaviour towards technology products and services shows that consumers change their technology usage behaviour because of changes in how they perceive the performance of technology and the efforts to use the technology. The change in these cognitive components depends on the personality traits. Some empirical studies on the behaviour of using technology products and services have analysed individual personality traits and their impacts on cognitive components, and technology adoption. These studies have achieved certain results but also left some issues that need further clarification.

Extraverts are sociable, energetic, and communicative (Agyei et al., 2020), often valuing deep and meaningful interpersonal connections (Urueña et al., 2018). Prior research has associated extraversion with increased use of the Internet, social media platforms, and other social applications (Meng & Leung, 2021). Similarly, Ibrahim et al. (2024) found that extraverts had more positive attitudes toward the use of new technology than introverts. However, Agyei et al. (2020) did not provide evidence of an impact of extraversion on technology efficacy expectation or effort to use technology proficiently.

Neuroticism, often associated with sensitivity, reflects the extent to which individuals commonly experience anxiety, depression, and restlessness in their everyday lives (Urueña et al., 2018). Consumers with low sensitivity exhibit emotional stability and state a greater capacity to adjust and adapt to changing environments (Srivastava et al., 2024). Because of a lack of self-confidence, sensitive individuals often perceive new technologies and services as intimidating or difficult to access, which diminishes their motivation to adopt innovations such as mobile applications in their daily activities (Wang et al., 2024). Ibrahim et al. (2024) also observed that heightened sensitivity adversely affects users' performance expectation toward new technologies. However, some studies did not support the significant effect of sensitivity on effort expectation in technology use (Agyei et al., 2020; Ibrahim et al., 2024).

Conscientiousness encompasses characteristics such as self-discipline, attentiveness, self-regulation, organization, and dependability (Agyei et al., 2020; Liu & Mensah, 2024). Empirical studies stated that highly conscientious consumers are less likely to engage with entertainment-focused mobile applications, viewing them as distractions that lack productivity. Consistent with this, Gupta (2021) reveal that conscientious students are more inclined to use online training products or services. However, Nguyen (2022) reported no significant association between conscientiousness and the effort invested in mastering mobile applications. Likewise, Xie and Liao (2024) found no evidence supporting a link between conscientiousness and either effort expectation or performance expectation.

Individuals high in agreeableness are typically characterized by kindness, likability, thoughtfulness, forgiveness, and a cooperative nature (Agyei et al., 2020). Their flexibility and tolerance contribute to a greater willingness to embrace new technologies and engage more frequently with mobile platforms (Roos & Kazemi, 2022; Urueña et al., 2018). According to Dzogbenuku et al. (2021), agreeable individuals will respond to the positive aspects of technology when addressing assigned tasks. Agyei et al. (2020), Ibrahim et al. (2024) indicated that agreeableness is

a valuable predictor of performance expectation in contexts involving collaborative technologies. Liu and Mensah (2024) also found a positive effect of agreeableness on effort expectation. However, Wang et al. (2024) reported no statistically significant evidence supporting this association in their study.

According to Agyei et al. (2020), open-mindedness, independence, and a strong inclination to explore novel ideas and engage in a wide range of experiences typically characterize consumers with high levels of openness to experience. Similarly, Wang et al. (2024) indicated a positive impact of openness to experience on the effort disbursed in mastering new technologies. Empirical studies suggest that individuals high in openness may act as an early adopters of new technological products (Liu & Mensah, 2024; Singh & Basri, 2024). However, findings from Ibrahim et al. (2024) and Nguyen (2022) did not provide conclusive evidence supporting a positive influence of openness on performance expectation in work-related technological applications. Meanwhile, Xie and Liao (2024) reported a positive effect of openness on performance expectation but found its impact on effort expectation to be minimal.

Venkatesh et al. (2016) described performance expectation as "the extent to which individuals believe that using a specific technology will improve their job performance". Research by Migliore et al. (2022) demonstrated that performance expectation significantly influences users' adoption of mobile services. Consistent findings from prior studies confirm that performance expectation directly affect users' behavioural intentions regarding technologies such as online payments (Namahoot & Jantasri, 2023) and online banking (Cardozo et al., 2023). Alongside other key factors, Venkatesh et al. (2016) suggested effort expectation as a critical determinant in shaping user intentions. Empirical evidence consistently supports a positive influence of effort expectation on users' intentions to engage with internet-based services and mobile shopping platforms (Hanif et al., 2022; Huang, 2023). For instance, Huang (2023) reported that effort expectation affects the adoption of mobile entertainment applications. Similarly, Kalinić et al. (2019) found that effort expectation strongly predicts users' willingness to make mobile payments for hotel accommodations in the U.S. Further reinforcing these findings, Hanif et al. (2022) confirmed that people will buy online when they find it easy to make the purchase.

In summary, the results of the review of previous studies show that a consumer's perception of a product plays a key role in shaping their purchasing behavior, and this perception is deeply influenced by their unique personality traits. However, studies have not reached a consensus on the role of personality traits in consumer's intended use of m-commerce through the mediation of performance and effort expectation. To fill the research gap, this study proposes a research framework to clarify the relationship between personality traits, cognitive states, and m-commerce usage intention.

3. Research Model Development

Rooted firmly in the behavioral research framework, we aim to dissect the intricate psychological processes that drive consumer engagement with mobile retail platforms and applications. We posit that beyond mere technological access; an individual's unique personality traits serve as fundamental antecedents. These traits are hypothesized to significantly precondition a consumer's performance expectation - their belief in the efficacy and tangible benefits of using a mobile retail app for shopping, such as convenience, speed, or personalized offers. Concurrently, personality traits are also theorized to shape effort expectation - their perception of how easy or difficult it will be to learn and operate a mobile retail interface, minimizing perceived complexities. These two crucial determinants, performance and effort expectation, are then posited as direct drivers of a consumer's intention to use mobile retail commerce, ultimately influencing their actual purchasing behavior within this vital digital channel. The following hypotheses will formally articulate these proposed relationships, setting the stage for our empirical investigation into the nuances of mobile retail adoption.

3.1. Extraversion

Extroverts, being sociable and outgoing individuals (Agyei et al., 2020), naturally embrace new digital interactions, consistently linked to increased Internet and social media use (Meng & Leung, 2021). This positive attitude toward new technology Ibrahim et al. (2024) directly influences their effort expectation in retail, they anticipate mobile shopping platforms will be intuitive and require minimal effort to browse products and complete transactions, streamlining the customer journey. Furthermore, this inherent optimism and digital comfort translate into a positive performance expectation, where extroverts believe mobile retail channels will effectively and efficiently deliver desired shopping outcomes, thereby optimizing the initial stages of the retail distribution and fulfillment process. Therefore, this study hypothesizes that:

H1: Extraversion has a positive impact on effort expectation.
H2: Extraversion has a positive impact on performance expectation.

3.2. Neuroticism

Neuroticism, reflecting anxiety and restlessness (Urueña et al., 2018), significantly impedes mobile retail adoption. Highly sensitive individuals, exhibiting low emotional stability and heightened fear (Srivastava et al., 2024), anticipate greater effort in mastering mobile shopping technologies. This perceived difficulty, as Wang et al. (2024) note, diminishes their intention to adopt, creating friction in the initial customer interaction for retail distribution. Furthermore, their sensitivity adversely affects performance expectation (Liu & Mensah, 2024), leading them to doubt mobile commerce's ability to efficiently meet their needs. Consequently, neuroticism negatively impacts both performance and effort expectation of mobile retail platforms, hindering seamless engagement and efficient product flow throughout the distribution chain. Therefore, this study hypothesizes that:

H3: Neuroticism has a negative impact on effort expectation.
H4: Neuroticism has a negative impact on performance expectation.

3.3. Conscientiousness

Conscientious individuals, characterized by self-discipline, organization, and reliability, possess an inherent drive for success and critically assess technology for efficiency and performance (Agyei et al., 2020; Liu & Mensah, 2024). This influences their effort expectation in retail: they anticipate that mobile retail platforms will require minimal effort due to efficient design, allowing them to quickly complete purchases. Their focus on task performance (Gupta, 2021; Wang et al., 2024) drives a positive performance expectation, believing mobile commerce will reliably and effectively facilitate their shopping goals. Consequently, conscientious consumers positively influence performance and effort expectation of mobile retail commerce, streamlining order placement and optimizing the digital aspects of product distribution. Therefore, this study hypothesizes that:

H5: Conscientiousness positively affects effort expectation.
H6: Conscientiousness positively affects performance expectation.

3.4. Agreeableness

Agreeable individuals, characterized by kindness, cooperation, and tolerance (Agyei et al., 2020), exhibit a strong receptiveness to new technologies and mobile platforms (Roos & Kazemi, 2022; Urueña et al., 2018). Their flexible nature positively influences their effort expectation for mobile retail, as they are less likely to perceive learning or using these platforms as arduous. They anticipate a seamless experience due to the convenience and accessibility of mobile commerce, perceiving minimal effort for tasks like Browse or completing purchases. Furthermore, their focus on positive aspects of technology Dzogbenuku et al. (2021) leads to a positive performance expectation, believing mobile retail platforms will effectively and efficiently meet their shopping needs. Consequently, agreeableness significantly predicts positive perceptions of both effort and performance in mobile commerce (Agyei et al., 2020; Ibrahim et al., 2024; Liu & Mensah, 2024), fostering smoother consumer interaction and optimizing the initial stages of product distribution. Therefore, this study hypothesizes that:

H7: Agreeableness positively affects effort expectation.
H8: Agreeableness positively affects performance expectation.

3.5. Openness to Experience

Individuals high in openness to experience are open-minded, independent, and eager to explore novel ideas and knowledge (Agyei et al., 2020). This inherent curiosity and embrace of change (Ibrahim et al., 2024; Liu & Mensah, 2024), significantly impact their mobile retail perceptions (Gupta, 2021). They exhibit a positive effort expectation, anticipating that mobile shopping platforms will be relatively easy to master and navigate, requiring minimal cognitive load to discover products or complete transactions (Gupta, 2021; Wang et al., 2024). Furthermore, their desire for new experiences and intellectual curiosity translates into a positive performance expectation, believing mobile commerce will efficiently and effectively meet their diverse shopping needs and deliver superior outcomes (Ibrahim et al., 2024; Singh & Basri, 2024). This facilitates smoother consumer interaction and optimizes the digital touchpoints of the retail distribution process. Therefore, this study hypothesizes that:

H9: Openness to experience positively affects effort expectation.
H10: Openness to experience positively affects performance expectation.

3.5. Effort and Performance Expectation

Venkatesh et al. (2016) established that effort and performance expectation are crucial antecedents to technology acceptance, a foundational principle directly applicable to mobile retail commerce adoption. Parallelly, Huang (2023) and Setiawan et al. (2024) demonstrated that

consumers are more inclined to adopt applications, including those outside of retail, when they are perceived to offer clear value and be easy to navigate. This insight is particularly relevant for mobile retail applications, where a seamless and beneficial user experience is key to driving engagement.

Further reinforcing this, Hanif et al. (2022), Cardozo et al. (2023), and Park (2024) consistently found that when a technology tangibly benefits its users, it significantly encourages its adoption. For retailers, this means that m-commerce platforms must offer distinct advantages, such as convenience, personalized offers, or efficient shopping experiences, to attract and retain users. This conclusion is widely supported across digital services, as evidenced by Namahoot and Jantasri (2023) in their study on online payment systems and Migliore et al. (2022) on online banking services, both of which are integral components of the broader mobile retail ecosystem and share similar drivers for user acceptance. Therefore, this study hypothesizes that:

H11: Effort expectation has a positive impact on mobile shopping intention.

H12: Performance expectation has a positive impact on mobile shopping intention.

In summary, consumers are highly rational; they change their behavior when their perceptions change. This shift originates from their personality traits. This reciprocal relationship is illustrated in the proposed research model, which integrates FFM and UTAUT (Figure 1).

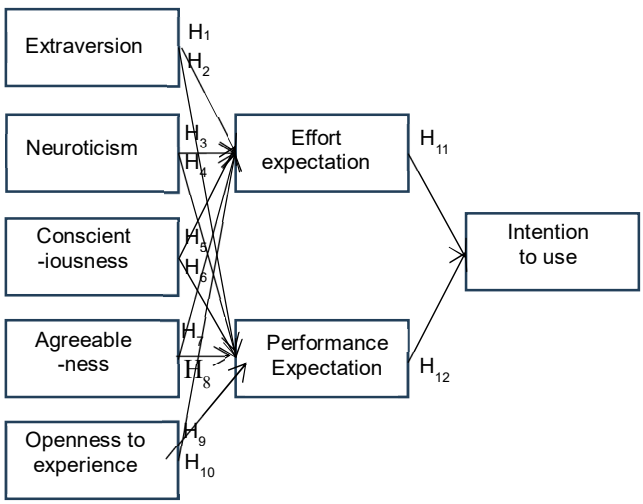

Figure 1: Proposed Research Model

4. Methodology

This study collected data from a self-designed questionnaire with 34 questions on 8 concepts in the research model. The scale comes from Agyei et al. (2020), Kalinić et al. (2019), and Liu and Mensah (2024). Specifically, intention to use (IU) includes ready to use retail mobile platform, try to use new features or services offered through mobile platform, recommend the mobile retail channel to others, use mobile retail commerce regularly; expected effort (EE) includes easy to learn how to use retail mobile application, their confidence in achieving proficient use, clear and easy-to-understand the entire shopping journey from product browse to checkout, not requiring many complex skills for smooth retail experience; expected performance (PE) includes being able to make better purchasing decisions, potentially increasing purchase volume due to convenience or offers, significantly expediting the overall shopping process, effectively achieving specific shopping goals, gaining seamless visibility and control over the entire retail transaction lifecycle; Extraversion (EX) includes being comfortable with people, full of energy with people, enjoying meeting others, easily communicating with others; Neuroticism (NE) includes being easily worried, moody, stressed, unable to withstand pressure; Conscientiousness (CO) includes planning and committing to implementation, paying attention to details, working accurately, efficiently, and thoroughly; Agreeableness (AG) includes being friendly, cooperative, forgiving, kind to everyone; Openness (OP) includes being curious about new things, quickly understanding things, enjoying presenting new ideas, having a rich imagination.

The study used the convenience sampling method to collect primary data. Selected mobile phone users received the invitation to take part in the survey. After two months, 394 users have answered, in which 343 responses were valid, accounting for 87%. This data is suitable for quantitative research methods. The study used SmartPLS software to evaluate the measurement model and structural model as suggested by (Hair et al., 2022).

5. Findings

5.1. Measurement Model Validation

The validation of the scale's reliability involves evaluating both the reliability of observed variables and the latent constructs. The Cronbach's alpha (CA) and composite reliability (CR) analyses are suitable to validate the reliability of the observed variables. The results pointed out that 28 out of 34 observed variables had outer loading values

below the threshold of 0.708, while all latent constructs exhibited CA coefficients exceeding 0.794 (Table 1). According to Hair et al. (2022), the scale comprising these 28 observed variables is consistent and reliable.

Convergent validity indicates the degree to which a construct is positively correlated with other measures that assess the same underlying concept. According to Hair et al. (2022), this study used the Average Variance Extracted (AVE) index to evaluate the convergent validity. The AVE values of the analysis are all greater than 0.5, the smallest is Extraversion (EX) with AVE = 0.706, the largest is Openness (OP) with AVE = 0.823 (Table 1). Thus, the scale achieves convergent validity.

Table 1: The Results of the Measurement Model Validation

Constructs	Outer loading	Outer VIF values
Intention to use (IU): CA=0.9, CR=0.93, AVE=0.77		
I intend to use in the future	0.884	2.701
I will recommend to friends	0.881	2.657
I will try to use where feasible	0.871	2.434
I plan to use frequently	0.875	2.475
Performance expectation (PE): CA=0.91, CR=0.94, AVE=0.79		
It is useful to me	0.854	1.766
It improves my productivity		
It helps me choose good items	0.895	2.627
It helps me keep tract my cart	0.9	2.773
It helps me shopping quickly		
Effort expectation (EE): CA=0.85, CR=0.91, AVE=0.78		
It is easy for me to use	0.898	2.334
It is easy to learn how to use	0.911	2.647
The usage is clear		
M-commerce is easy to use	0.882	2.355
Skills are easily required		
Extraversion (EX): CA=0.79, CR=0.87, AVE=0.7		
I am talkative around people	0.863	1.64
I am energetic		
I am passionate to others	0.821	1.629
I am outgoing, sociable	0.836	1.834
Neuroticism (NE): CA=0.89, CR=0.92, AVE=0.76		
I am easily anxious	0.85	2.586
I have frequent mode swings	0.877	2.68
I'm stressed	0.862	2.36
I can't handle pressure	0.899	2.753
Conscientiousness (CO): CA=0.84, CR=0.9, AVE=0.76		
I make plans, commit to them	0.906	2.34
I pay attention to details		
I do a thorough job	0.809	1.699
I do things effectively	0.903	2.523
Agreeableness (AG): CA=0.91, CR=0.94, AVE=0.79		
I am friendly to others	0.896	2.903
I like to cooperate with others	0.886	2.826
I have a forgiving nature	0.892	2.805
I am kind to others	0.898	2.903
Openness to experience (OP): CA=0.89, CR=0.93, AVE=0.82		
I am curious with novelty	0.91	2.776
I am quick to understand things	0.9	2.553
I like to present new ideas		
I have an active imagination	0.912	2.639

Discriminant validity of a scale is to examine whether a concept is truly different from other research concepts by empirical standards. The results of the discriminant validity assessment show that the Heterotrait-Monotrait (HTMT) correlation index of the factors are all less than 0.85, from 0.126 to 0.681 (Table 2). Therefore, the study has a scale that achieves discriminant validity (Hair et al., 2022).

Table 2: The HTMT Correlation Index

	AG	CO	EE	EX	IU	NE	OP	PE
AG								
CO	0.254							
EE	0.518	0.456						
EX	0.463	0.438	0.481					
IU	0.519	0.422	0.681	0.427				
NE	0.291	0.126	0.423	0.208	0.226			
OP	0.423	0.217	0.476	0.345	0.475	0.203		
PE	0.433	0.314	0.645	0.535	0.567	0.424	0.451	

5.2. Structural Model Testing

Prior to evaluating structural relationships, it is essential to assess multicollinearity to prevent distortion of regression outcomes. The analysis results show that the VIF index of all observed variables is less than 3, and the VIF index of all factors is less than 1.470 (Table 3). Thus, multicollinearity problems do not occur among the independent variables of the study (Hair et al., 2022).

Table 3: Measurement Model Testing Results

	Hypothesis	Estimate	P value	Result	VIF index	f^2 index
H1	EX -> EE	0.131	0.033	Accepted	1.343	0.022
H2	EX -> PE	0.269	0.000	Accepted	1.343	0.085
H3	NE -> EE	-0.235	0.000	Accepted	1.092	0.089
H4	NE -> PE	-0.247	0.000	Accepted	1.092	0.088
H5	CO -> EE	0.224	0.000	Accepted	1.171	0.082
H6	CO -> PE	0.115	0.038	Accepted	1.171	0.008
H7	AG -> EE	0.234	0.000	Accepted	1.356	0.065
H8	AG -> PE	0.077	0.087	Rejected	1.356	0.000
H9	OP -> EE	0.211	0.000	Accepted	1.222	0.065
H10	OP -> PE	0.212	0.000	Accepted	1.222	0.058
H11	EE -> IU	0.475	0.000	Accepted	1.470	0.258
H12	PE -> IU	0.233	0.001	Accepted	1.470	0.062

The results of the structural model analysis support hypotheses H_1, H_2, H_3, H_4, H_5, H_6, H_7, H_9, H_{10}, H_{11}, H_{12} within the 95% confidence interval. Meanwhile, the results do not support hypothesis H_8 about the impact of agreeableness on expected performance when the coefficient β is 0.077 and is not within the 95% confidence interval (Table 3). The R^2 values of the endogenous variables in the research model range from 0.354 to 0.424,

reaching a medium impact level (from 0.25 to 0.50). The variance explained by these endogenous variables is adequate (Hair et al., 2022). Thus, the endogenous variables of the research model, namely Effort Expectation, Performance Expectation and Intention to Use, are fully explained at the average level, and the research achieved its initial objectives (Figure 2).

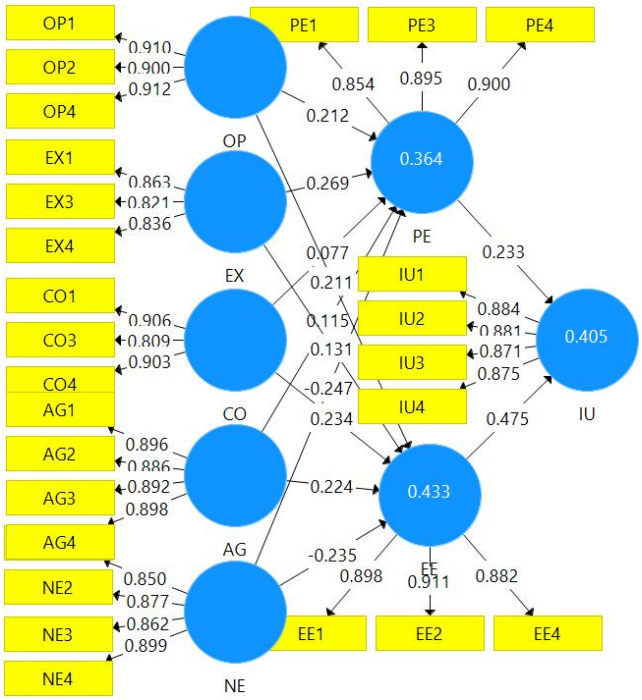

Figure 2: The Structural Equation Model Diagram

The results of the f^2 index (Table 3) show that the impact of conscientiousness and agreeableness on performance expectation is very small ($f^2 < 0.02$). Meanwhile, the impact of effort expectation on intention to use is medium ($0.15 \leq f^2 < 0.35$). In addition, all other impacts are small in magnitude ($0.02 \leq f^2 < 0.15$).

To measure the predictive ability of the model, Hair et al. (2022) proposed the Q^2 index. The Q^2 index is meant to evaluate the predictive ability of an independent variable for a dependent variable in the structural component model. The results of the Q^2 index evaluation (Table 4) show that the Q^2 values range from 0.270 to 0.337, the independent factors have an average predictive level ($0.15 \leq Q^2 \leq 0.35$). Thus, the overall structural model of the study achieves overall quality.

Table 4: Model's Explanatory and Predictive Capabilities

Code	Endogenous factors	R^2	R^2 adjustment	Q^2 index
EE	Effort expectation	0.433	0.424	0.337
PE	Performance expectation	0.364	0.354	0.270
IU	Intention to use	0.405	0.402	0.308

6. Discussions

The study validated a comprehensive framework to examine mobile shopping intention of Vietnamese consumers. The study applied the FFM model (McCrae & Costa, 1987) and UTAUT theory (Venkatesh et al., 2016) to clarify the relationship between personal characteristics and mobile shopping intention through the mediation of cognitive components of performance expectation and effort expectation.

The results of the study indicate that both effort expectation and performance expectation have a positive influence on mobile shopping intention. This suggests that when consumers recognize the streamlined process or valuable outcomes achievable through mobile retail channels, their motivation to engage in m-commerce increases. This directly impacts retail distribution by driving demand through mobile platforms, thereby optimizing order fulfillment and the efficient movement of goods through the supply chain. Therefore, in m-commerce, this result confirms the validity of UTAUT theory (Venkatesh et al., 2016) and reaffirms the prior studies of Huang (2023), Hanif et al. (2022), and Liu and Mensah (2024).

The study reveals that the five personality dimensions proposed by McCrae and Costa (1987) significantly influence effort expectation. Specifically, consumers demonstrating extroversion, conscientiousness, agreeableness, and openness to experience are more inclined to value the frictionless nature of mobile retail channels. These individuals perceive mobile shopping platforms as intuitive for product discovery and order placement, requiring minimal effort in their customer journey. Conversely, sensitive, anxious, and emotionally unstable individuals often view mobile shopping as a complex and challenging task, demanding significant effort to navigate product offerings and complete transactions, potentially creating friction in the initial stages of the retail distribution pipeline. In mobile commerce, this result reaffirms related studies by Agyei et al. (2020), Camoiras and Varela (2020), and Roos and Kazemi (2022).

The results also assert that extraversion, conscientiousness, neuroticism, and openness to experience significantly impacted performance expectation within a retail context. While neuroticism negatively affected a customer's anticipated success or efficiency in using mobile retail channels for purchases, the other personality components positively influenced this expectation. This impacts retail distribution as a higher performance expectation translates to a smoother customer journey and more efficient order placement, ultimately influencing the speed and accuracy of goods flowing through the supply chain. This result reaffirms the related studies of Agyei et al. (2020), Ibrahim et al. (2024), and Wang et al. (2024). However, the study's

results did not support the hypothesized impact of agreeableness on performance expectation within mobile retail channels. This might be because agreeable consumers, often demanding in evaluating product or service acquisition, are content with conventional shopping experiences. Consequently, they may have minimal interest or low expectations for mobile commerce applications and thus may not fully appreciate the convenience or superior features of mobile platforms for product discovery or order fulfillment, as traditional retail distribution methods adequately meet their needs.

7. Conclusion, Limitation, Further Studies

7.1. Conclusion

This study aims to determine the impact of individual personality traits on mobile commerce usage intention, mediated by their performance and effort expectation for this modern retail distribution channel. Leveraging fundamental consumer behavior theories like the FFM and UTAUT, a research model was developed focusing on mobile shopping intention. The model's three major components encompass five personal personality traits, two cognitive response components (performance expectation, effort expectation related to mobile retail platforms), and the behavioral response (intended use of these distribution channels).

The research findings enhance the measurement system for personal personality components, consumer cognitive states, and the intended use of mobile retail channels. This refined scale offers a valuable reference for empirical studies concerning technology products and services within the retail distribution sphere. This study further offers a significant advancement in understanding the drivers of mobile commerce adoption. By specifically examining how the Big Five personality traits indirectly influence mobile commerce intention through the mediating roles of effort and performance expectation, it provides a more nuanced view than previous research. This approach recognizes that individual psychological predispositions play a crucial role in shaping how readily consumers perceive mobile commerce as easy to use and beneficial for achieving their goals.

The practical implications of these findings are substantial for mobile retail businesses. By understanding the personality profiles of their target consumers, businesses can formulate highly targeted marketing and platform development strategies. For instance, understanding a target consumer's personality can directly inform marketing campaigns: highly extraverted individuals might respond better to ads emphasizing social features or trending products, while conscientious consumers might be drawn to messages highlighting efficiency and secure transactions. This allows for hyper-targeted promotions that resonate more deeply with specific psychological profiles

Furthermore, these findings are invaluable for optimizing platform design and user experience. To mitigate potential anxiety for users high in neuroticism, mobile apps should prioritize extreme simplicity, intuitive navigation, and readily accessible customer support. Conversely, integrating community features and robust review sections can build trust among agreeable users. The model also underpins personalized product recommendations, where inferred personality traits can lead to more relevant suggestions, for example, innovative items for open-minded individuals or highly rated, reliable products for conscientious ones.

Ultimately, these insights empower mobile retailers to not only effectively stimulate consumer purchases on their platforms but also to optimize their entire mobile retail distribution. By streamlining the product flow from supplier to consumer, considering the psychological factors that drive adoption, businesses can enhance overall efficiency and trade. This comprehensive understanding, moving beyond purely technological factors to include individual differences, offers a competitive edge in the rapidly evolving mobile commerce landscape.

7.2. Limitation

Despite its contributions, the study has certain limitations. Specifically, it confines the explanation of mobile commerce usage intention to the influence of effort expectation and performance expectation, whereas many other factors may play a critical role in shaping consumers' intentions to adopt technology-based products and services. The study only focuses on personality components in the role of stimulation from the individual, ignoring environmental stimulation factors such as social influence, electronic word of mouth, etc. In addition, the study uses data collected by convenient methods, low representativeness, and uneven stratification among data components.

7.3. Further Studies

The further studies can overcome these limitations. Quantitative research data can be collected with responses selected by the probability sampling method to ensure representativeness of the whole. Further research could consider social influence, electronic word of mouth, third-party assurance, etc. as environmental stimuli. These factors express the role of the environment in environmental factors playing an increasingly important role in all human decisions through their cognitive states.

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