DIGITAL-FIRST GEN: EXPLORING ONLINE PAYMENT USAGE AMONG SRI LANKAN UNDERGRADUATES VIA TAM+

Janani Thevananth
Senior Lecturer
Department of Financial Management
University of Jaffna, Sri Lanka
jananit@univ.jfn.ac.lk

ABSTRACT

This study investigates the behavioral factors influencing online payment adoption among Sri Lankan university undergraduates. Using Technology Acceptance Model (TAM) as a foundation, the research incorporates Perceived Usefulness (PER), Perceived Ease of Use (EAS), and Awareness (AWA) as independent variables, with Attitude Toward Use (ATT) and Behavioral Intention to Use (BEH) as mediators, and Actual Usage (ACT) as the dependent variable. A total of 367 valid responses were collected and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) through SmartPLS 4.0. The findings reveal that AWA significantly influences ACT both directly and indirectly through ATT and BEH. PER and EAS, while not having significant direct effects on ACT, positively affect ATT and subsequently BEH, highlighting the mediating role of ATT in shaping behavioral intention. The strongest relationship was observed between ATT and BEH, confirming BEH as the immediate predictor of ACT. Specific indirect effects also support the mediation chain from PER and EAS through ATT and BEH to ACT. These results underscore the importance of increasing awareness and shaping positive attitudes among students to promote digital financial inclusion. The extended TAM model offers theoretical contributions to digital adoption literature and provides practical implications for FinTech developers seeking to enhance online payment usage among young adults in Sri Lanka.

Keywords: *Online payment, Undergraduates, Technology Acceptance Model, FinTech*

1. Introduction

As the digital economy continues to expand, the adoption of online payment systems has increased significantly. Digital payment methods include mobile wallets, QR code transactions, internet banking, and other fintech applications. These tools make transactions faster and more convenient. This trend is especially visible among younger generations, particularly university students. They are more likely to adopt new technologies in their daily activities. In Sri Lanka, the use of digital payments has grown with technological advancements and increased mobile penetration. Government and banking sector initiatives have also encouraged the shift toward a cashless economy.

According to Central Bank of Sri Lanka (CBSL, 2023), mobile-based digital payments, internet banking and QR-based payments have increased steadily in post pandemic period.

Moreover, mobile payment transaction volumes also increased by over 40% in the third quarter of 2023 compared with the previous year. This suggests that consumers are using digital payment methods more frequently as they feel more confident and comfortable with them. University undergraduates are often the earliest adopters of new technologies. Therefore, today's undergraduates, the so-called "Digital-First Generation", have grown up with the era of smartphones, internet access and social networking. Since technology is a natural part of their lives, including their financial behavior, digital natives are a good population for studying the determinants of online payment system use.

To systematically understand such behaviors, the Technology Acceptance Model (TAM) offers a foundational framework. It was introduced by Davis (1989) and indicates that the two beliefs Perceived Usefulness (PER) and Perceived Ease of Use (EAS) influence the Attitude which leads to Behavioral Intention (BEH) which in turn leads to Actual Usage (ACT) (Davis, 1989). The TAM has been used in many studies in the domain of e-commerce, banking, retail, and higher education. However, the TAM has been considered insufficient in explaining technology acceptance in complex interaction environments in developing countries such as Sri Lanka. In this study, the model has been extended with additional construct, Awareness (AWA). Awareness refers to how knowledgeable the users are about the functions, usefulness, and security of online payment systems. Lack of awareness can act as a barrier to using online payments even if access and infrastructure exist (Rahi, Ghani, & Ngah, 2017). Thus, incorporating awareness into the TAM framework allows a more understanding of how cognitive and informational factors interact to influence actual usage.

2. Background of the Study and Research Gap

Although there exists considerable amount of literature on online banking and digital payment acceptance, and despite the relevance of this research area. But in developing countries including Sri Lanka, specific research gaps remain. Previously, researchers have mainly used the Technology Acceptance Model (TAM) to explain acceptance and adoption, with a focus on the major two dimensions of perceived usefulness and perceived ease of use (Davis, 1989; Pikkarainen *et al*., 2004; Rahi *et al*., 2017). However, the extent to which behavioral intention leads to actual usage is less understood, largely due to the predominance of behavioral intention as a dependent variable in these studies (Polasik & Wiśniewski, 2008; Sharma & Govindaluri, 2014). More recent studies, however, continue to provide evidence of the intention-behavior gap in the acceptance of digital payments, with contextual factors serving as influences on actual usage behavior in developing countries (Samarawickrama & Ganegoda, 2024; Sanjeetha *et al*., 2022).

In addition to the TAM constructs, other studies have also shown that perceived risk, security, trust, and consumer innovativeness play a role in determining the adoption of online payments (Aldás-Manzano *et al*., 2009; Giovanis *et al*., 2012; Patel & Patel, 2017). Furthermore, recent empirical studies have found that TAM needs to be extended with contextual and behavioral factors in order to fully understand the adoption of digital financial services (Yong *et al*., 2021; Butt & Butt, 2021; Sahi *et al*., 2022). However, previous studies

related to online and internet banking adoption in Sri Lanka have largely been limited in terms of their choice of variables and regions (Premarathne & Gunatilake, 2016; Madumanthi & Nawaz, 2016). Although recent Sri Lankan studies indicate awareness, communication, and user preparedness as influential factors in digital finance adoption, a thorough theoretical framework has not been explicitly developed (Samarawickrama & Ganegoda, 2024).

However, while user awareness and user readiness are recognized as important antecedent variables in the most recent literature, they are not included in an all-including TAM model that analyzes these variables through user attitude and behavioral intention into actual use. In line with this, there is evidence that digitalization, financial inclusion and technology availability are important factors influencing user behavior, especially among the youth (Zeynalov, 2023; Damayanthi *et al*., 2025).

With the increasing adoption of digital payment systems, the influence of technology on financial inclusion, and the growing cashless market, it is essential to understand what drives users towards this payment option. The key knowledge gap is that user awareness and user readiness have not been integrated into a thorough TAM framework to predict how these constructs influence attitude, behavioral intention, and actual usage. This research gap has particular importance for young users as the digitally-mediated world, financial inclusion, and accessibility to technology accessibility increasingly affect young behavior.

This study, therefore, extends the TAM by going beyond the core constructs of the model to examine the whole behavioral process from user perceptions to the actual behavior of use. This study contributes theoretically by extending the original TAM model as well as providing context-specific empirical evidence on online payment adoption in Sri Lanka.

3. Literature Review

Davis (1989) proposed the Technology Acceptance Model (TAM), a model used to predict and explain technology adoption behavior. TAM advances that perceived usefulness and perceived ease of use toward an information system predicts an individual's attitude toward using the system, which in turn predicts the individual's intention to use the system and actual use of the system. TAM has been tested in the context of digital payments. A study by Yong *et al*. (2021) found that perceived usefulness and perceived ease of use considerably influenced university students' acceptance of mobile payment systems. Similar findings are reported in other studies, from Malaysia and Thailand, finding behavioral intention to be an important predictor of actual usage, reflecting the importance of attitudinal and cognitive influences on digital payment behavior (Kaewratsameekul, 2018; Tenk *et al*., 2020) .

Nonetheless, despite its explanatory power, many studies have concluded that TAM alone fails to fully explain the adoption of digital payments, especially in developing countries. Many studies have therefore extended the original model by including other variables, such as trust, perceived risk, subjective norms, social influence, and easing conditions. Chen *et al*. (2020) investigate the impact of easing and inhibiting factors on mobile payment service adoption intention. Meta-analytic work, finds that, even though perceived usefulness and ease of use remain resistant predictors, external variables considerably increase the explanatory power, reinforcing the call for more integrated frameworks (Liu *et al*., 2019; Tan *et al*., 2022) . In a

similar vein, Patil *et al*. (2018) argue that the adoption of digital payments is a multidimensional phenomenon that is based on technological, psychological, and contextual factors rather than evaluations.

One of the key extensions in the recent literature is the adoption of digital payment, and especially the role of awareness. Awareness constitutes knowledge of availability, benefits and functionalities of digital payment services. The role of awareness is particularly meaningful in emerging economies where levels of digital literacy and familiarity can differ considerably. Gogoi and Baruah (2023) have studied the effect of knowledge on the acceptance of Buy Now Pay Later (BNPL) services. Authors found that knowledge related to BNPL services has a positive effect among the younger generation. Lack of knowledge is the most important barrier to the adoption of a digital banking service where an existing technology infrastructure is available (Ansari, 2018). However, there is inadequate research that explicitly incorporates awareness, whether as an independent variable or in more integrated theoretical frameworks such as TAM, to fully understand its direct and indirect effects on user behavior.

The most important predictor of actual use identified in the literature was behavioral intention. Several studies have confirmed that perceived usefulness, perceived ease of use, trust, and social influences simultaneously determine users' intention to adopt digital payment systems. Other studies have recognized behavioral intention as a strong predictor of mobile payment behavior in various countries (Akgül, 2021; Chua & Wang, 2019), and as a construct that explains the differences between serve and non-serve users of mobile payment (Phonthanukitithaworn *et al*., 2016). Although behavioral intention is a widely noticed predictor of technology acceptance, several studies reported the intention-behavior gap between intention and use of the technology.

The intention-behavior gap is most prominent in developing country contexts. Here, consumers plan to adopt a behavior but do not. For example, past studies on adopting digital banking and internet financial services in developing countries find infrastructure issues, security, trust, and technological literacy obstruct adoption (Hettigoda & Kulathunga, 2024; Madushani & Balendran, 2020). The factors of infrastructure and socioeconomic status have been consistently shown to have a strong impact on adoption in studies of developing country mobile payment services (Mbinkeu, 2014). This supports the idea that actual use should be understood to be a distinct dependent variable, rather than simply an outcome of behavioral intent.

Demographic and user-related variables have also been shown to impact adoption of electronic payment. Various demographic variables such as age, gender, income level and level of technology experience have been studied with respect to different attitudes and behaviors of users. For example, in exploring the factors contributing to internet banking uptake in Sri Lanka, authors found that user experience, enabling technology access, and digital literacy were influential to user uptake (Sanjeetha *et al*., 2022; Chandrasiri & Karandakatiya, 2018). In the context of digital transformation and fintech adoption, it was found that younger consumers were more likely to adopt digital payments due to technology familiarity, but ease of access and skills deficiencies presented barriers to uptake (Butt & Butt, 2021).

Other studies address the impact of digitalization on financial services. For instance, Sahi *et al*. (2022) find that the importance of security and privacy in digital financial services is increasing. Privacy concerns regarding data security can have a strong effect on the adoption of digital payments. According to Zeynalov (2023), while digital payments are a driver of cashless economies, there are still a number of barriers for accessing financial services, especially in developing economies. This study stresses the importance of recognizing both technological and contextual factors to understand digital payment adoption.

Despite the abundance of research in this field, there are some gaps. Some studies focus on digital payment or mobile banking adoption in general rather than the adoption by university students. Second, although awareness is regarded as an important determinant, it has not been fully integrated into the TAM model to directly and indirectly examine its influence on the adoption behavior. Third, there is a tendency to remain at the level of behavioral intention and not investigate the gap between intention and adoption, or usage behavior. Thus, a more integrative perspective involving additional variables and the complete evolution of the intention-performance relationship from perceptions to subsequent usage is required.

Although TAM has been widely used to explain theoretically examining digital payment technology adoption, the huge majority of existing research has focused mainly on the TAM technology acceptance constructs of perceived usefulness and perceived ease of use (Yong *et al*., 2021; Sahi *et al*., 2022), and neglecting a broader perspective of factors affecting digital payment adoption. Digital awareness, digital literacy, financial inclusion, infrastructure, and digital readiness also have equal importance especially in developing nations (Samarawickrama & Ganegoda, 2024; Hettigoda & Kulathunga, 2024; Damayanthi *et al*., 2025). Furthermore, there is an Behavior intention gap, indicating that an individual's positive attitude towards a behavior does not always lead to the actual adoption of that behavior (Uturestantix *et al*., 2022; Dewmini *et al*., 2023). The goal of this study is to extend TAM by adding awareness to the model and testing both its direct and indirect effects on actual usage. Accordingly, this study extends the Technology Acceptance Model by integrating the awareness variable and examining direct and indirect relationships between the constructs. This study fills the gap in the current literature on undergraduates' acceptance of digital payments and provides important context-specific insights into the acceptance of digital payment systems in developing countries and the adoption of financial technology.

4. Model Specification and Methodology

This study selected two mediating variables, Attitude Toward Use (ATT) and Behavioral Intention to Use (BEH), for the gap between perceived perception and the individual behavior of users. ATT is the individual's positive or negative thinking about the payment system. Venkatesh and Davis (2000) found that behavioral intention is the strongest predictor of actual system usage.

In addition to the academic contribution, the factors that affect student adoption of online payment methods can instruct financial institutions, universities, and FinTech firms on the design and implementation of payment systems that appeal to younger consumers. Understanding user adoption behavior is important for the success of Sri Lanka's pursuit of a

cashless economy, as outlined in the Digital Banking Strategy. Even though access and infrastructure matters need to be taken into consideration, behavioral and psychological factors that drive uptake must also be included in policymakers' and developers' analysis. Adoption of digital payments is not yet common in Sri Lanka. Second, even though students in urban areas are more aware and use digital payments more, rural students and students from low-income households are less likely to use such services. Even with payment gateways like LankaQR and financial service apps being freely available, students do not use them because of privacy concerns, cash handling, lack of understanding, or technical issues (Dewmini *et al.*, 2023).

Third, a higher level of infrastructure will make user-centered challenges the biggest barrier to adoption. Behavioral constructs should be included in a structured model like TAM, combined with influential external variables like awareness.

Correlations were investigated using Partial Least Squares Structural Equation Modeling with the software SmartPLS 4.0. PLS-SEM is a method for estimating complex structural equation models with latent variables. Data were analyzed for construct reliability, model validity and path relationships. 367 valid responses were collected from undergraduate students. The study provides theoretical and practical contributions. From a theoretical perspective, they confirm the applicability of the full version of the TAM model in the context of developing countries for a university student population. From a practical perspective, the study identifies a number of important issues in relation to awareness, user attitude and behavioral intention, and the gap between the availability and use of infrastructure. The findings of this study will not only contribute to the technology acceptance literature but also to the digital transformation literature of Sri Lanka particularly with regard to university undergraduates.

The goal of this study is to address one of the major challenges in the digital financial inclusion literature, namely how to ensure the next generation of digital natives continue to utilize digital financial services after they initially adopt them. Researching university undergraduate students contributes to the technology acceptance literature and the digital transformation landscape in Sri Lanka.

The methodology used in the quantitative part of this study was the partial least squares structural equation modeling (PLS-SEM) technique under the extended Technology Acceptance Model (TAM) framework. In this research, stratified random sampling was used to collect data with a survey questionnaire that contained Likert Scale items from different faculties. Data were collected via online questionnaires. Internal consistency and convergent validity were tested for the models and were above the acceptable values (Cronbach's Alpha > 0.70; Average Variance Extracted (AVE) > 0.50). Path coefficients and mediation were evaluated using bootstrapping with 5000 samples in SmartPLS 4.0 software. Discriminant validity was assessed with the Fornell-Larcker criterion and cross-loadings, and predictive relevance was established with the Stone-Geisser Q^2 test with positive Q^2 values. Furthermore, the Variance Inflation Factors (VIF) of all variables remain below five, suggesting that the data did not suffer from multicollinearity issues. Finally, SRMR values below 0.08 were obtained to ensure model fit. The methodological checks and their results further confirm that a rigorous,

valid and reliable analysis and evaluation of the behavioral mechanisms. explaining online payment adoption by university students in Sri Lanka has been conducted.

5. Results and Discussion

5.1. Construct Reliability and Validity

Construct validity is the process of testing whether the indicators of a construct actually represent the construct. Reliability tests the consistency of indicators across measures. 367 valid responses received from the Sri Lankan university undergraduates were analyzed using PLS-SEM application SmartPLS-4.0. The Cronbach's Alpha and CR values of all the constructs were above 0.70 indicating a reliable and consistent scale was used to measure each of the individual constructs. The Table 1 shows the Validity and Composite Reliability test results. For example, Cronbach's Alpha and CR values were 0.847 and 0.890 respectively whereas for PER they were 0.863 and 0.897. The reliability analysis for AWA measure provides high model fit of alpha 0.829 and CR 0.886. The indicators for ATT and BEH also provide high reliability with Cronbach's alpha 0.847 and 0.775 and composite reliability (CR) 0.897 and 0.870 respectively. The dependent variable ACT also shows high Cronbach's Alpha (0.847) and CR of 0.897 respectively. Convergent validity was estimated with the Average Variance Extracted (AVE) method. The results suggested that the AVE value of all the constructs was equal to or higher than 0.50, meaning that the latent variables explained more than 50% of the variance of the estimated indicators. The AVE of PER, EAS, AWA, ATT, BEH and ACT were 0.619, 0.593, 0.662, 0.686, 0.690 and 0.687 respectively. Therefore, it can be concluded that the measurement model of the study shows that the extended TAM with PER, EAS, AWA, ATT, BEH, and ACT were reliably and convergently measured in this study in adopting online payment services among Sri Lankan undergraduates, as the AVE value for the constructs exceeds the threshold level of 0.5.

Table 1. Construct Validity and Composite Reliability

Variable	Item	Outer Loading	Cronbach's Alpha	Composite Reliability	AVE
Perceived Usefulness	PER1	0.749			
	PER2	0.751			
	PER3	0.797	0.847	0.890	0.619
	PER4	0.801			
	PER5	0.833			
Perceived Ease of Use	EAS1	0.784			
	EAS2	0.770			
	EAS3	0.690	0.863	0.897	0.593
	EAS4	0.805			
	EAS5	0.795			
	EAS6	0.769			
Awareness	AWA1	0.858			
	AWA2	0.831	0.829	0.886	0.662
	AWA3	0.797			
	AWA4	0.765			

Attitude Toward Use	ATT1	0.800			
	ATT2	0.813	0.847	0.897	0.686
	ATT3	0.849			
	ATT4	0.850			
Behavioral Intention to Use	BEH1	0.823			
	BEH2	0.839	0.775	0.870	0.690
	BEH3	0.830			
Actual Usage	ACT1	0.843			
	ACT2	0.881	0.847	0.897	0.687
	ACT3	0.845			
	ACT4	0.739			

Source: Survey data

Note: PER - Perceived Usefulness; EAS- Perceived Ease of Use; AWA-Awareness; ATT-Attitude Toward Use; BEH-Behavioral Intention to Use; ACT-Actual Usage

Table 2: Discriminant validity: Heterotrait-monotrait ratio (HTMT) - Matrix

	ACT	ATT	AWA	BEH	EAS	PER
ACT						
ATT	0.659					
AWA	0.767	0.758				
BEH	0.707	0.987	0.707			
EAS	0.583	0.817	0.695	0.790		
PER	0.483	0.756	0.591	0.743	0.717	

Source: Survey data

Table 3: Discriminant validity: Fornell-Larcker criterion

	ACT	ATT	AWA	BEH	EAS	PER
ACT	0.829					
ATT	0.562	0.828				
AWA	0.639	0.639	0.813			
BEH	0.573	0.802	0.572	0.831		
EAS	0.508	0.707	0.594	0.656	0.770	
PER	0.419	0.647	0.507	0.612	0.623	0.787

Source: Survey data

Discriminant validity of the measurement model was assessed using the Heterotrait-Monotrait ratio (HTMT) (Table 2) and the Fornell-Larcker criterion (Table 3). With HTMT, the main analysis found that most (114) pairs of constructs featured HTMT values below the cutoff of 0.90 as recommended, thus indicating sufficient discriminant validity among the majority of constructs. However, the HTMT value for ATT and BEH was 0.987, and based on the accepted threshold it was concluded that the two factors did not provide evidence for discriminant validity. The Fornell-Larcker criterion showed that discriminant validity was established as the square root of the Average Variance Extracted (AVE) for each construct was higher than with other constructs. However, the correlation between ATT and BEH was substantial, and the potential for conceptual overlap is not out of the question. While the results provide support for the discriminant validity of the model, it is important to bear in mind that ATT and BEH may not be empirically distinct.

5.2. Structural Model Analysis

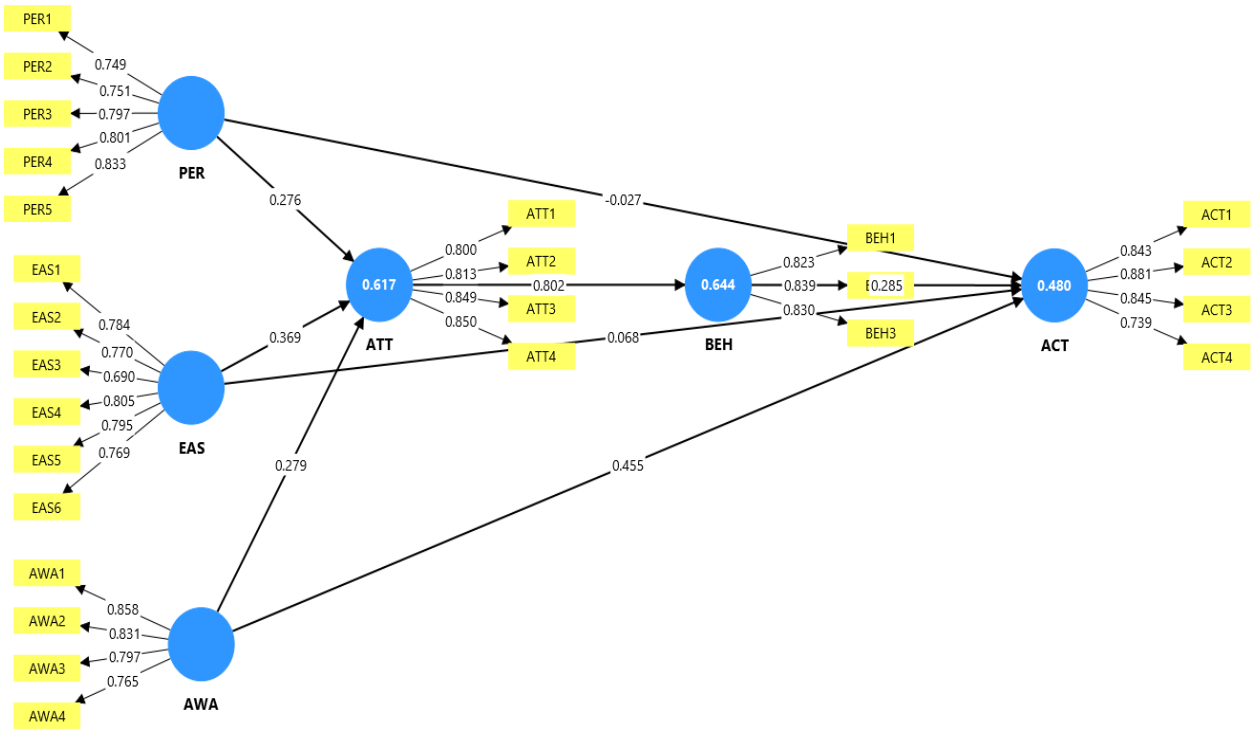

Figure 01: Structural Model

Source: Survey data

Table 4. Results Summary of Path Analysis

Path			*t*-Statistics	*p* values
Perceived Usefulness	->	Actual Usage	0.560	0.575
Perceived Ease of Use	->	Actual Usage	1.269	0.205
Awareness	->	Actual Usage	8.337	0.000
Perceived Usefulness	->	Attitude Toward Use	4.024	0.000
Perceived Ease of Use	->	Attitude Toward Use	5.518	0.000
Awareness	->	Attitude Toward Use	4.586	0.000
Attitude Toward Use	->	Behavioral Intention to Use	32.351	0.000
Behavioral Intention to Use	->	Actual Usage	4.495	0.000

Source: Survey data

The model (Figure 01) was used in SmartPLS to check the importance of the relationships between the constructs that make up the extended TAM and guide this research project on online payment adoption among university undergraduates in Sri Lanka. Based on the output, it can be concluded that AWA has a meaningful direct effect on the ACT of the payment systems, (given in Table 4) with a t-statistic of 8.337 and a *p*-value of 0.000. User Awareness is an important variable for students in using online financial service platforms. Further, User Awareness also has a meaningful effect on ATT ($t = 4.586$, $p = 0.000$). This means that if students have more knowledge of online financial service platforms, they will have a more positive attitude towards using these platforms. PER also contributes considerably to ATT, with a t-statistic of 4.024 ($p = 0.000$). Furthermore, EAS contributes considerably to ATT with a *t*-statistic of 5.518 ($p = 0.000$). This suggests that the students' positive attitude towards the system is influenced by their perceived usefulness and ease of use of the system. However, there is no direct effect of PER and EAS on system use (*t* -values 0.560, $p = 0.575$; and 1.269, $p = 0.205$, respectively). It can thus be inferred that these are better explained by indirect effects through ATT and behavioral intention. The path linking the ATT to the BEH is also meaningful, and with a very high *t*-value ($t = 32.351$, $p = 0.000$). In the same way, the BEH is important for the ACT and it has a *t*-value of 4.495 ($p = 0.000$). The two mediators are then confirmed. Overall, the results confirmed that PER and EAS have an indirect effect on ACT, through ATT and BEH. Comparatively, awareness has both direct and indirect effects on ACT, showing that it is the most important determinant of online payment system usage behavior of Sri Lankan undergraduates.

Table 5. Specific indirect effects Results

Path	*t*-Statistics	*p* values
AWA -> ATT -> BEH -> ACT	3.171	0.002
AWA -> ATT -> BEH	4.469	0.000
EAS -> ATT -> BEH -> ACT	3.404	0.001
EAS -> ATT -> BEH	5.355	0.000
PER -> ATT -> BEH	3.990	0.000
PER -> ATT -> BEH -> ACT	2.987	0.003
ATT -> BEH -> ACT	4.478	0.000

Source: Survey data

The specific indirect effects analysis provides deeper insight into how the independent variables influence Actual Usage (ACT) through mediating pathways in the extended Technology Acceptance Model (TAM). The results (given in Table 5) confirm several statistically significant indirect relationships at the $p < 0.05$ level, supporting the presence of mediating effects by Attitude Toward Use (ATT) and Behavioral Intention to Use (BEH). Notably, the path AWA → ATT → BEH → ACT yielded a T-statistic of 3.171 and $p = 0.002$, indicating that Awareness (AWA) influences actual usage indirectly through its positive effect on attitude and then intention. Similarly, the simpler path AWA → ATT → BEH was also highly significant ($t = 4.469$, $p = 0.000$), showing that awareness contributes meaningfully to behavioral intention via attitude, even before resulting in actual system use.

Likewise, Perceived Ease of Use (EAS) shows strong indirect influence on ACT through ATT and BEH. The indirect path EAS → ATT → BEH → ACT was statistically significant ($t = 3.404$, $p = 0.001$), as was EAS → ATT → BEH ($t = 5.355$, $p = 0.000$). These findings suggest that while ease of use may not directly increase system usage, it positively shapes users' attitudes and intentions, which then lead to higher usage behavior.

A similar pattern is apparent for perceived usefulness (PER). The indirect paths PER → ATT → BEH (3.990, $p = 0.000$) and PER → ATT → BEH → ACT ($t = 2.987$, $p = 0.003$) are significant. The present study also proves that perceived usefulness has an indirect effect on usage mediated by users' attitude and behavioral intention. The cases of ATT → BEH → ACT ($t = 4.478$, $p = 0.000$) also show that Attitude plays an important mediating role between users' perceptions and actual usage, whereas BEH is the immediate role of ACT. This suggests that all specific indirect effects in the model are important, in that PER, EAS and AWA can only considerably affect ACT through ATT and BEH. Hence, in order to get students to actually adopt an online payment technology, it is essential to shape their attitudes and behavioral intentions.

5.3. Theoretical Implications

This study contributes to the growing literature on the adoption of digital payment systems by applying the Technology Acceptance Model (TAM) to the adoption of digital payment systems and adding to its contextual and behavioral variables. Previous studies have shown perceived usefulness and perceived ease of use to be meaningful predictors of technology acceptance; however, this is typically mediated by the behavioral intention. Yet, some of these factors do not necessarily lead to usage (Indan *et al.,* 2016; Yong *et al*., 2021). Thus, this findings provide further support for the theoretical position that the acceptance of information technology is influenced not only by cognitive factors such as perceived ease of use, but also by behavioral factors. In addition, studies have shown that TAM alone cannot explain user behavior in dynamic and complex digital environments, especially in developing countries (Patil *et al*., 2018). However, when awareness as a construct of the extended TAM is examined, the results suggest it is a key component in shaping users' perceptions and behavioral outcomes.

Furthermore, our finding provides empirical support towards the mediating roles of behavioral intention and other psychological factors, which previous studies have identified as critical mediators between perception and actual behavior (Phonthanukitithaworn *et al.,* 2016; Akgül, 2021). Furthermore, these findings support previous studies that highlighted the role of behavioral intention as a strong predictor of technology adoption and usage while stressing that intention does not always lead to technology adoption (Uturestantix *et al*., 2022). It also addresses the intention-behavior gap, a gap that has also been addressed in the mobile payment and online banking literature.

Furthermore, this study contributes to theory by providing context-specific findings through the experience of a developing country (i.e. Sri Lanka), compared with the literature on the usage of digital payments which has demonstrated that awareness, technology, and socioeconomic factors influence the adoption of digital payments in developing countries (Mbinkeu, 2014 and Ansari, 2018). In addition to online banking and virtual banking, the importance of the constructs of awareness, perceived usefulness and perceived ease of use are also studied in the context of Sri Lanka (Sanjeetha *et al*., 2022; Madushani & Balendran, 2020). These studies extend the TAM-based theoretical framework for digital payment adoption in developing countries to a contextual level.

5.4. Practical Implications

Hence, based on the findings, a possible implication for financial service providers, fintech innovators or regulators may be the need to focus on improving awareness and information dissemination to ease the adoption of technology-based payment services. The evidence suggests that lack of knowledge and awareness continues to be one of the main barriers to the common adoption of digital financial services in developing countries (Ansari, 2018; Samarawickrama & Ganegoda, 2024).

Second, this findings show the necessity of improving the perceived usefulness and perceived ease of use of the system, as perceived usefulness and perceived ease of use were reported to be considerably associated with the behavioral intention to use the digital payments

(Indan *et al*., 2016; Yong *et al*., 2021). It means fintech developers should be focused on designing user-friendly platforms and easy transactions and ensuring the technology works reliably.

Third, the current study indicates the necessity of addressing practical and structural barriers that delay the intention to actual usage conversion. Past studies in Sri Lanka have identified barriers such as security concerns, lack of trust, and technological restrictions to be the major limitations to adopting digital banking services in Sri Lanka (Ekanayake *et al*., 2019; Imali & Ashfa, 2020). Consequently, it is necessary for policymakers and service providers to improve the security, infrastructure and perceived trustworthiness of their services to overcome these barriers.

6. Conclusion

This research attempts to explore the factors that affect online payment acceptance by undergraduates in the context of Sri Lanka. Using the extended Technology Acceptance Model, a model was developed that included Perceived Usefulness (PER), Perceived Ease of Use (EAS) and Awareness (AWA) as independent variables, Attitude Toward Use (ATT) and Behavioral Intention to Use (BEH) as mediating variables, and Actual Usage (ACT) as a dependent variable. The SmartPLS structural model run using the data collected from 367 sample respondents revealed meaningful paths that supported the predictive ability of the extended TAM in Sri Lankan undergraduates.

As for using the system, the Awareness (AWA) was found both direct and indirect significant effects on actual usage (t = 8.337, $p < 0.001$). Awareness also strongly impacted Attitude Toward Use (t = 4.586), showing that users are more likely to hold positive perceptions of the system. Although Perceived Usefulness (PER) and Perceived Ease of Use (EAS), did not directly affect Attitude Toward Use (ACT). These are significantly influenced ATT and, indirectly, BEH and ACT. These effects reflect findings from Venkatesh and Davis (2000).

The most important direct effect was between ATT and BEH (t = 32.351, $p < 0.001$), followed by the effect of BEH on ACT (t =4.495). These findings further validate the fundamental proposition of TAM that behavioral intention is the proximate predictor of system usage (Davis, 1989; Hair *et al.,* 2019). Specific indirect effects confirmed the mediation hypotheses (PER to ATT to BEH to ACT, t = 2.987, p = 0.003; EAS to ATT to BEH to ACT, t = 3.404, p = 0.001), indicating that the attitudinal and intentional pathways mediated the effect of the constructs on user behavior.

Theoretically, the study contributes to the empirical validation of the extended TAM with the inclusion of the construct awareness in the context of the emerging country. Beyond the theoretical contributions, the study provides practical implications for FinTech companies, universities, and institutions to develop efforts to raise the awareness and digital literacy of students. Students are more likely to increase their use of mobile financial tools if they believe that the service is useful, easy to use, and if there is a high level of awareness about the tool (Hettigoda & Kulathunga, 2024). When designing a mobile payment solution, it is important to ensure that it is user friendly and well informed in a university system. Ultimately the results

suggest useful and ease of use technology characteristics, along with psychological and autonomy characteristics are equally important for the use of mobile payment systems by the undergraduates, which can ease the overall digital financial inclusion drive of the country including the CBSL (2023) policies to promote cashless payments in Sri Lanka. Future studies may include external determinants such as trust, perceived risk, and system quality to create more strong models of consumer intentions.

Thus, existing literature in this topic could be further improved by suggesting more specific and theory-based future research avenues on the basis of the outcomes and limitations of this study. Besides the sample of undergraduate students being treated as a homogenous group, future research could also consider geographical and income differences, as well as comparisons with other non-student cohorts, in the context of online payment adoption. The awareness was one of the key constructs of this study, future studies could consider integrating trust, perceived risk, security, and system quality, which have been shown to play meaningful roles in the adoption of digital payments but were not explored in this study. Future research could also investigate how institutional-level drivers, initiatives to raise awareness or FinTech incentives, influence user behavior and the speed of digital financial inclusion. Such directions would also strengthen the extended TAM framework, and provide a clearer understanding of online payment technology adoption in developing contexts such as Sri Lanka.

Acknowledgment

The author acknowledges the use of a language editing tool, which was utilized solely for grammatical and linguistic refinement of the manuscript.

References

Akgül, Y. (2021). Predicting the determinants of mobile payment acceptance: A hybrid SEM-neural network approach. In Applications of artificial neural networks for nonlinear data (pp. 117-153). IGI Global Scientific Publishing.

Aldás-Manzano, J., Lassala-Navarré, C., Ruiz-Mafé, C., & Sanz-Blas, S. (2009). The role of consumer innovativeness and perceived risk in online banking usage. *International Journal of Bank Marketing, 27*(1), 53–75.

Ansari, Z. A. (2018). Barriers to internet banking adoption in developing countries: A consumer survey. *International Journal of Electronic Banking, 1*(2), 171-193. https://doi.org/10.1504/IJEBANK.2018.10016658

Butt, M. W., & Butt, U. (2021). Digitalisation of the global FinTech industry. *In Research Anthology on Concepts, Applications, and Challenges of FinTech*. https://doi.org/10.4018/978-1-7998-0131-3.ch021

Central Bank of Sri Lanka. (2023). Payments Bulletin – 2023 Q3. https://www.cbsl.gov.lk

Chandrasiri, R. P. H. D., & Karandakatiya, T. K. (2018). The Factors Impact on Internet Banking Adoption with Special Reference to Kurunegla District. *Wayamba Journal of Management, 9*(1), 23-34. https://doi.org/10.4038/wjm.v9i1.7501

Chen, W. K., Siburian, E. M., & Chen, C. W. (2020). The impacts of facilitating and inhibiting factors on usage intention of mobile payment services. *International Journal of Applied Science and Engineering, 17*(1), 107-120.

Damayanthi, B. W. R., Hettiarachchi, S., Ananda, L., Heenkenda, S., Ranagalage, M., Dissanayake, D. M. S. L. B., ... & Abeyrathna, N. (2025). Undergraduate perceptions of online learning in post-pandemic Sri Lanka: a quantitative study in the humanities and social sciences. *Discover Education, 4*(1), 1-29. https://doi.org/10.1007/s44217-025-00867-y

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319–340. https://doi.org/10.2307/249008

Dewmini, E. A. T., Wijekumara, J. M. N., & Sugathadasa, D. D. K. (2023). Digital financial literacy on financial behaviour among management undergraduates of state universities in Sri Lanka. *Journal of Management Matters, 10*(2), 73-89. https://doi.org/ 10.4038/jmm.v10i2.56 .

Ekanayake, N., Weerasinghe, H., Wijekoon, N., & Katthriarachchi, P. (2019, September). A comparative study of private and public sector e-banking in sri lanka: Analysis of critical success factors. *In International Research Conference, General Sir John Kotelawala Defence University*, Sri Lanka. https://doi.org/10.2139/ssrn.3522632

Fernando, I., & ALF, A. (2020). What factors affects customer adoption towards virtual banking? Study based on Western Province. Sri Lanka. *Journal of Marketing, 5*(2), 44-56.

Giovanis, A. N., Binioris, S., & Polychronopoulos, G. (2012). An extension of TAM model with IDT and security/privacy risk in the adoption of internet banking services in Greece. *EuroMed Journal of Business, 7*(1), 24–53.

Gogoi, J., & Baruah, D. (2023). Buy Now Pay Later (BNPL)-A New Trend: Its Awareness and Acceptance among the Millennials & Generation 'Z'with Special Reference to Jorhat District, Assam. *International Journal for Multidisciplinary Research*, *5*(6), 1-13, https://doi.org/10.36948/ijfmr.2023.v05i06.9844

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2019). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Sage Publications.

Hettigoda, T. M., & Kulathunga, K. M. M. C. B. (2024). Exploring the Factors Influencing Mobile Banking Adoption Among Sri Lankan Undergraduates: The Moderating Role of Financial Literacy. *Management Issues, 8*(2),1–10.

Imali, F., & Ashfa, ALF. (2020). What Factors Affects Customer Adoption Towards Virtual Banking? Study based on Western Province, Sri Lanka. *Journal of Marketing, 5*(2), 44-56. https://doi.org/10.2139/ssrn.3780736

Indan, R., Andika, R., Ridwan, M., & Dharma, R. (2016). The Effect of Usefulness, Ease of Use, Risk, and Trust to Behavioral Intention in the Use of Internet Banking. *Journal of Business and Economic, 1*(1), 1-15. https://doi.org/10.35134/jbe.v1i1.6

Kaewratsameekul, W. (2018). An examination of behavioral intention to use contactless mobile payment: Rapid transit system in Thailand. *Science, Engineering and Health Studies, 12*(2), 85–101. https://doi.org/10.14456/sehs.2018.2

Liu, Z., Ben, S., & Zhang, R. (2019). Factors affecting consumers' mobile payment behavior: a meta-analysis. *Electronic Commerce Research, 19*(3), 575-601. https://doi.org/10.1007/s10660-019-09349-4

Madumanthi, S. M. R., & Nawaz, S. S. (2016). The impact of demographic factors on internet banking adoption in Sri Lanka. *International Journal of Scientific and Research, 6*(1), 483–490.

Mbinkeu, R. C. N. (2014). New Perspectives of Mobile Payment Platform for Developing Countries. In Electronic Payment Systems for Competitive Advantage in E-Commerce (pp. 308-324). IGI Global Scientific Publishing.

Patel, K. J., & Patel, H. J. (2017). Adoption of internet banking services in Gujarat: An extension of TAM with perceived security and social influence. *International Journal of Bank Marketing, 36*(1), 147–169.

Patil, P. P., Rana, N. P., & Dwivedi, Y. K. (2018). Digital payments adoption research: A review of factors influencing consumer's attitude, intention and usage. In Conference on e-Business, e-Services and e-Society (pp. 45-52). Cham: Springer International Publishing.

Phonthanukitithaworn, C., Sellitto, C., & Fong, M. W. (2016). A comparative study of current and potential users of mobile payment services. *Sage Open, 6*(4), 1-14. https://doi.org/10.1177/2158244016675397

Phonthanukitithaworn, C., Sellitto, C., & Fong, M. W. (2016). An investigation of mobile payment (m-payment) services in Thailand. *Asia-Pacific Journal of Business Administration, 8*(1), 37-54.

Pikkarainen, T., Pikkarainen, K., Karjaluoto, H., & Pahnila, S. (2004). Consumer acceptance of online banking: An extension of the technology acceptance model. *Internet Research, 14*(3), 224–235.

Polasik, M., & Wiśniewski, T. P. (2008). Empirical analysis of internet banking adoption in Poland. *International Journal of Bank Marketing, 26*(2), 73–97.

Premarathne, G. C., & Gunatilake, M. M. (2016). Consumer adoption of internet banking in Sri Lanka. *International Journal of Business and Management, 11*(4), 178–189.

Rahi, S., Ghani, M. A., & Ngah, A. H. (2017). A structural equation model for evaluating users' intention to adopt internet banking. *PLOS ONE, 12*(3), e0174484.

Sahi, A. M., Khalid, H., Abbas, A. F., Zedan, K., Khatib, S. F., & Al Amosh, H. (2022). The research trend of security and privacy in digital payment. *Informatics, 9*(2), 1-23. https://doi.org/10.3390/informatics9020032

Samarawickrama, R., & Ganegoda, P. (2024). Communication and adoption of mobile banking services in Sri Lanka. *Asian Journal of Economics, Business and Accounting. 24*(3), 147-159. https://doi.org/10.9734/ajeba/2024/v24i31248

Sanjeetha, M. B. F., Kaliyamoorthy, M., Nawaz, S. S., Murshitha, S. M., & Rashida, M. F. (2022). Customer adoption of online banking: An application of diffusion of innovation theory in Sri Lanka. Proceedings of ICCST. https://doi.org/10.1109/ICCST55948.2022.10040441

Sharma, S. K., & Govindaluri, S. M. (2014). Internet banking adoption in India: Structural equation modeling approach. *Journal of Indian Business Research, 6*(2), 155–169.

Tan, C. Y., Gao, L., & Shi, M. (2022). Second-order meta-analysis synthesizing the evidence on associations between school leadership and different school outcomes. *Educational Management Administration & Leadership, 50*(3), 469-490. https://doi.org/10.1177/17411432209354

Tenk, T. T. M., Yew, H. C., & Heang, L. T. (2020). E-wallet adoption: A case in Malaysia. *International Journal of Research in Commerce and Management Studies. 2*(2), 135-138.

Uturestantix, U., Purwanto, B. M., & Lukito-Budi, A. S. (2022). Role of Desire and Implementation of Intention in the Theory of Planned Behavior: A Bibliometric Analysis. *Binus Business Review, 13*(1), 97-107. https://doi.org/10.21512/bbr.v13i1.7898

Venkatesh, V., & Davis, F. D. (2000). A Theoretical Extension of the Technology Acceptance Model. *Management Science, 46*(2), 186–204.

Yong C., Tham J., Azam S. F., and Khatibi A., The factors influencing college students' acceptance of mobile payment in Malaysia. *European Journal of Management and Marketing Studies, 7*(1), 92–109. https://doi.org/10.46827/ejmms.v7i1.1192.

Zeynalov Z. (2023). The impact of digital payments on the growth of cashless payments and the factors limiting access to financial services. *Agora International Journal of Economical Sciences, 17*(2), 181–186. https://doi.org/10.15837/aijes.v17i2.6455