E-Wallet Literacy Scale Development and Validation

V. V. Devi Prasad Kotni [1]

Abstract

Purpose : Many people used cashless payment methods, mostly e-wallets, during the COVID-19 pandemic. This incentivized numerous financial institutions and banks to offer e-wallets to their clientele, facilitating digital financial transactions. Given the importance of assessing e-wallet literacy, a carefully designed and thoroughly examined scale is needed. This study aimed to create and provide a fully validated and tested scale for assessing the literacy levels of e-wallet users.

Methodology : This study created and validated the scale using the scientific and statistical procedures for scale development. Stakeholders, including academics, researchers, and e-wallet users (656), participated in this study at different phases. To create and validate the e-wallet literacy measure, the study employed panel interviews, primary data gathering, exploratory factor analysis, and confirmatory factor analysis (using AMOS).

Findings : Credit payment transactions *(CPT),* bill payment transactions *(BTT),* investment transactions *(IT),* money transfer transactions *(FTT),* purchase transactions *(PT),* and method of payment *(MOP)* are the six components that the study revealed, which can be used to quantify e-wallet literacy. With 26 scale items, these six constructs were created.

Practical Implications : The measure can be employed by e-wallet service providers to evaluate the degree of e-wallet proficiency within their intended customer base. Campaigns to raise consumer awareness can be tailored to these literacy levels to promote more use of e-wallets. Government authorities and policymakers acknowledged E-wallets as essential tools for achieving financial inclusion.

Originality : Unlike prior research on e-wallets, the current work constructed a scale to examine the literacy levels of users concerning e-wallets.

Keywords : **scale development, scale validation, e-wallets, mobile payments, digital wallets, digital financial transaction, financial inclusion**

JEL Classification Codes : A200, E2, G18, M2, O4

Paper Submission Date : October 25, 2022 ; Paper sent back for Revision : September 5, 2023 ; Paper Acceptance Date : October 16, 2023 ; Paper Published Online : January 15, 2024

In India, there has been a significant increase in the use of digital payment apps, particularly in the aftermath of the epidemic. This increase might be ascribed to people staying home and transacting for food and other commodities through online platforms. Several online companies and aggregator platforms have established cash payment limits to reduce touch with delivery workers. In response to the COVID-19 epidemic, India was compelled to adopt preventive actions like social separation. E-wallet usage increased by 44% during the shutdown period as a result, leading to a notable increase in the use of digital payment methods. The most widely used digital payment platforms are now Paytm, PhonePe, and Google Pay ("42 percent of Indians have increased," 2020). In India, digital payments grew by 33% in the fiscal year 2021–2022. Digital payment transactions during this period totaled 74.22 billion INR, according to the Ministry of Electronics & Information (2021) and the

[1] *Associate Professor,* Department of Marketing, GITAM School of Business, GITAM Deemed to be University, Visakhapatnam - 530 045, Andhra Pradesh. (Email : devi_kvv@yahoo.com)
ORCID iD : https://orcid.org/0000-0002-2951-2160

DOI : https://doi.org/10.17010/ijf/2024/v18i1/171963

Ministry of Electronics and Information Technology (MEIT). This is an increase from the 55.54 billion INR transactions reported in the fiscal year 2020–2021. The Unified Payments Interface (UPI) of the National Payments Corporation of India (NPCI) has become the primary digital transaction platform. According to UPI transactions value dips (2022), UPI contributed to 4.5275 billion transactions totaling ₹ 8.27 lakh crore by the end of February 2022. According to Sengupta (2023), 11.24 billion transactions happened by the end of November 2023, worth ₹ 17.4 trillion.

UPI Product Statistics (NPCI, 2021) showed that the total volume of UPI transactions in February was almost twice as high as in the same month last year. According to the research, in February 2021, 22.92 billion UPI transactions worth 4.25 lakh crore were made. This demonstrates that the use of UPI every month has nearly doubled in the last year ("India made 7,422 cr digital," 2022). The UPI for low-cost feature phones has finally been implemented by India's central bank, i.e., The Reserve Bank of India (RBI). With this step, the RBI hopes to draw people who do not own a smartphone into the digital economy capability. The new feature is the third version of the Unstructured Supplementary Service Data (USSD) service, first introduced in 2016. The new functionality will likely attract more customers and help UPI surpass the ₹ 10-trillion monthly threshold. The value of UPI transactions has grown, but so has the volume (Gera, 2022). Indians performed the majority of these transactions with e-wallets only. According to the Ministry of Electronics & Information (2023), digital transaction volume was 13,462 crore, and digital transaction value was 3,344 lakh crore.

Nowadays, e-wallets have emerged as the most prominent tools for financial inclusion because most of the sellers and buyers in India are also using e-wallets instead of other banking methods amid COVID-19. Accordingly, to achieve financial inclusion with e-wallets, it is imperative to investigate citizens' degrees of digital financial literacy.

A previous study (Gafeeva et al., 2018) discovered a connection between payment forms, household expenses, and spending habits. Previous studies found a link between payment methods, home expenses, and spending behaviors (Deb et al., 2021). According to earlier studies, credit card payments are less accurate at recall than cash payments (Gafeeva et al., 2018). An examination of the actual form and amount spent can be used to determine the degree of openness in payment systems (Soman, 2001). Credit card payments are often seen as less transparent than cash transactions because they don't seem like actual banknotes (Gafeeva et al., 2018).

The notions of "illusion of liquidity" and "decoupling effects" are somewhat connected to the suffering of payment described by Zellermayer (1996). This link creates a payment experience akin to "monopoly money," which lessens the pain and discomfort related to payment (Raghubir & Srivastava, 2008). In the literature, this can also be called the "decoupling effect," where electronic payment is perceived as less transparent; thus, the actual transaction cost is blurred (Khan et al., 2015). Narayanaswamy and Muthulakshmi (2017) stated that a cashless economy implies using as little cash as possible and balancing the transactions using various electronic forms of transaction.

Customer use of mobile phone payments has expanded gradually, from 11% in 2015 to 24% in 2019, according to a global survey by PWC (2019). Additionally, over 51% of those surveyed acknowledged paying invoices and bills online. Particularly in developing nations, mobile phone payments were extensively accepted in 2019. China (86%), Thailand (67%), Vietnam (24%), and the Middle East (20%) had the highest adoption rates. Therefore, it makes sense that future users would choose mobile phone payments made possible by e-wallets over other options. Liu and Dewitte (2021) suggested that payment methods impact spending behavior based on two primary factors: the inclination to pay and the basket value, or the total amount of goods purchased. Prior studies on the connection between payment methods and spending patterns mostly examined credit cards (Thomas et al., 2011). Additionally, research indicates that the ease of using a credit card to make purchases motivates consumers to make larger purchases (Raghubir et al., 2004; Runnemark et al., 2015). Moreover, studies have indicated that the convenience of credit card payments motivates customers to increase their spending (Ming-Yen Teoh et al., 2013;

Soman, 2001). The degree to which people can adjust has also impacted their purchasing expenditures (Soman, 2003). This flexibility has also been demonstrated to affect spending on shopping (Thomas et al., 2011).

However, an unfilled gap exists in the availability of a well-tested scale to measure e-wallet literacy. This research is foremost in developing a scale, i.e., valid for the banking and financial sector to enhance the customer base and satisfaction. Policymakers can also use this measure to help accomplish the more general goal of financial inclusion. This study aims to create and provide a validated, well-tested scale for assessing e-wallet users' literacy levels. Most individuals on the earth utilize e-wallets primarily for cashless transactions during COVID-19. Thus, it is essential to have an e-wallet literacy assessment that is statistically constructed and evaluated.

Most e-wallet companies are owned by banks (like SBI-Yono) and independent merchants (like PayTM). Customers of every bank have access to e-wallets for simple transactions, direct communication, and banking convenience. Similarly, third-party merchants encourage users to use their e-wallets as a revenue model for their firms. In between, the users' literacy levels related to the usage of e-wallets are entirely ignored. By utilizing the e-wallet scale to ascertain the e-wallet literacy levels of their target market, e-wallet service providers can develop customer awareness campaigns to enhance e-wallet adoption. This study offers a validated scale for evaluating the literacy levels of e-wallet users, which could substantially impact mobile banking, financial inclusion, and e-wallets.

Review of Related Literature

Technology is causing considerable changes in retail marketing theory and practice. New distribution and processing technologies have altered the retail financial services business during the last decade, altering how clients view banking and banks. These developments have eliminated economic and geographic obstacles, enabling the global distribution of retail financial services and promoting convergence in the main benefits consumers in industrialized nations want (Haranath & Sathish, 2007). Mobile banking is the most rapidly developing field in banking right now. Given their widespread use, the next logical step for rural banking systems is to integrate mobile devices into inclusive banking (Jerold, 2008). The widespread issue of financial exclusion and banks' challenges in meeting customer service standards have sparked a global quest for technologically advanced remedies. This is especially important given the worldwide trend toward diversifying the sorts of financial service providers (Okoli & Tewari, 2021).

Foreign direct investment (FDI) significantly influenced the banks' overall business, business per employee (BPE), and total income. However, it hurt the profit per employee (PPE) and overall net earnings of the targeted institutions (Malla Reddy, 2016). Given the large proportion of the Indian population with poor digital literacy, banks must transition to digital models to build user-friendly websites and online portals. Furthermore, emphasizing the benefits of Internet banking is critical in creating the desire to use e-banking (Rekha et al., 2020). Global strategists should consider location when creating international rules and introducing new digital products, as it substantially impacts the acceptability of digital banking overall (Sharma et al., 2022). Technology breakthroughs have led to a growing partnership between banks and fintech startups to develop innovative financial services and products that cater to individual customer demands (Patki & Sople, 2022).

Mobile wallets, or m-wallets, are pre-paid buying instruments (PPI) that were supposed to play a major role in encouraging paperless payments and financial inclusion in the Indian economy after the Union Government of India demonetized them on November 9, 2016. It was predicted that after demonetization, bank account holders with debit cards and mobile phones would be the most probable users of m-wallets (Shukla, 2017). India's payment systems have gone digital, and its use of them has been rising. According to Kakkad and Jadhav (2021), digital payment technologies are expected to accelerate the financial sector's development trajectory significantly.

Traditional banking has seen a major upheaval as a result of the rise in the use of mobile payment and banking apps. These applications are appealing to customers (Pahari et al., 2023).

According to a literature review on digital payments, most studies focus on the factors influencing consumers' intention to continue using mobile payments. These determinants include user happiness (Liao et al., 2007), trust antecedents (Shao et al., 2019), security (Wu et al., 2020), and pre-and post-adoption and post-adoption continuing intents (Gupta et al., 2020). Previous studies have demonstrated that certain customers are reluctant to use the e-wallet application and that a negative opinion of it affects their willingness and behavior to use it (Yong et al., 2018). According to more research studies, the e-wallet sector is in its early stages, with significant investments from various companies to attract clients and merchants (Ismail, 2021). Mobile payments have captured the attention of academics (Dahlberg et al., 2015). Mallat (2007) stated that mobile payment transactions pertain to sending money to a recipient through a mobile device, with or without the need for a middleman. Mobile payment distinguishes itself from other cashless payment methods through its process and the media used. According to Liébana-Cabanillas et al. (2014), mobile payment is an individual or corporate activity involving an electronic device connected to a mobile network to facilitate an economic transaction. The Internet, vending machines, mobile phone devices, personal digital assistants (PDAs), and debit and credit cards can all be used to conduct transactions without currency (Khan & Craig-Lees, 2009). According to Bagla and Sancheti (2018), e-wallets function by holding money from a bank account that is transferred online or by debit or credit cards.

According to Tee and Ong (2016), cashless payment refers to transactions not involving physical currency. Mobile payment is a cashless payment that began in 1977 when Coca-Cola introduced a limited number of vending machines that allowed consumers to make mobile purchases (Humbani & Wiese, 2018). It is critical to investigate human behavior associated with behavioral intentions, perceived value and perceived behavioral control when studying consumer behavior, as these aspects shape consumers' willingness to remain loyal to products and services, particularly those incorporating technology (Alalwan, 2020). Specific criteria, such as user happiness and perceived value, may be complex to quantify due to their complicated structures that differ between individuals. Ismail (2021) highlighted that e-wallet usage must be more reliable and live up to expectations. Notably, additional research is needed to determine what factors influence users' inclination to use e-wallet services, especially in light of the COVID-19 pandemic (Daragmeh et al., 2021). There is a gap in empirical evidence regarding the relationship between perceived value, usefulness, ease of use, disconfirmation, subjective norm, perceived behavioral control, satisfaction, and consumers' persistent intention to use e-wallets (Gupta et al., 2020). Specifically, there is still a scarcity of empirical evidence regarding the relationship between several factors, including perceived value, perceived usefulness, perceived ease of use, disconfirmation, subjective norm, perceived behavioral control, and satisfaction, and consumers' ongoing intention to use e-wallets (Alalwan et al., 2017; Wang et al., 2019).

According to Zellermayer (1996), the concept of the agony of paying explains the intense anguish or suffering felt during a financial transaction. The circumstances, which include the tangibility of currency and the payment methods employed, affect how customers perceive pain. The context may be altered to another payment method, such as mobile payment since a credit card is a cashless payment method. Because transactions may be completed using a smartphone, mobile and credit card payments are equivalent in ease and efficiency. Payment acceptance via QR code scanning or in-app payments, as well as the capacity to transfer monies between individuals, is a peer-to-peer (P2P) transaction (Razer, 2019). In their laboratory investigation, Liu and Dewitte (2021) discovered a significant difference in spending quantities dependent on payment modality (cash versus mobile payment). Many banks and non-banking organizations support this e-wallet to provide their clients with frictionless financial transactions (Bagla & Sancheti, 2018). Boden et al. (2020) discovered that convenience moderates the relationship between mobile payment and willingness to pay. Khan et al. (2015) emphasized the importance of consumer emotions when comparing cash versus card-based payment systems. The vital importance of

digitization in banking and financial services as a preventive measure to restrict viral transmission was brought to light by the COVID-19 pandemic. Due to the global health crisis, customers' preferences shifted away from traditional payment methods and toward digital alternatives such as e-wallets (Daragmeh et al., 2021). However, a standardized measure for evaluating e-wallet literacy is needed.

Methodology

Various types of user data were studied at various phases of the scale development. For the focus group meetings, a group of 20 people was chosen. The number of participants in each focus group session is acknowledged in Krueger's (2014) analysis. To validate the scale, 10 finance, commerce, and banking experts collaborated to examine how consumers use e-wallets and conduct online and offline retail transactions based on predetermined buying patterns. The specialists were asked for the same, having their competence in disciplines related to the scale concept that was to be established in mind. Direct consultations were used throughout the whole pre-test and validation phase. For this investigation, ad hoc approaches were made to the interview subjects. Along with the training needed for the survey and a handbook outlining the methodology for data collection, Hair et al. (2010) also conducted a field survey with 656 users, meeting the minimum requirement of 384 respondents (based on a table by Krejcie & Morgan (1970) for a million people) for the purification stage. They also followed the study by Pett et al. (2003), which indicated that the standard for factor analysis is 5 to 10 respondents per item.

This exploratory research aimed to develop a new model (scale) for measuring e-wallet literacy, but while validating the scale, this research comes under descriptive research. The participants in the panel discussion (for construction of scale) and the respondents in the field survey (for scale validation) were identified using purposive sampling where the panelists with rich knowledge in digital and mobile finance and the respondents who are

Table 1. ***Sample Frame of the Respondents***

Variable	Category of Variable	Focussed Group	Pre-Test	Purification
Gender	Male	12	24	421
	Female	8	16	235
Age	18 – 30 years	8	12	125
	31 – 40 years	6	10	216
	41 – 50 years	5	8	145
	51 – 60 years	1	8	124
	above 60 years	0	2	46
Monthly Income	Less than ₹ 10,000/-	6	9	256
	₹ 10,000/- – ₹ 20,000/-	4	7	210
	₹ 20,001/- – ₹ 30,000/-	3	8	120
	₹ 30,001/- – ₹ 40,000/-	2	5	46
	₹ 40,001/- – ₹ 50,000/-	3	6	12
	Above ₹ 50,000/-	2	5	12
Education	Under Graduation	0	6	125
	Graduation	0	6	256
	Post Graduation	4	18	249
	PhD	16	10	26

already using e-wallets were allowed to participate in this research after COVID-19 (i.e., in 2021–2022). The primary data from the sample of 656 e-wallet users was gathered from the Indian cities of Visakhapatnam, Amaravati, Hyderabad, Bangalore, Chennai, and Bhubaneswar; the study sample frame is indicated in Table 1.

Scale Development Process

The standard evaluations proposed by Churchill Jr. (1979) and De Vellis (2003) were combined to create the e-wallet literacy scale. These measurements are currently under consideration, as explained below.

Step 1 : Construct Specification

The current study examines many facets of e-wallet literacy. The preceding section's literature is used to explain the components. Consumer-centric, seller-centric, demographic, and service provider-centric viewpoints contribute to e-wallet literacy.

Step 2 : Item Writing

The literature review and two focus group assessments, as previously mentioned in Step 1, were utilized to determine unique standards (constructs) and associated elements (scale items) for the e-wallet literacy assessment. These studies mainly aimed to categorize the different e-wallet literacy scale dimensions according to digital financial transactions. The guidelines stated by De Vellis (2003) were followed while compiling the items, resulting in the formation of three to five items for each facet (construct) of e-wallet literacy.

Step 3 : Content Validity

A survey was conducted with a panel of eight Ph.D. students and three finance professors to examine the content validity of the questions created in the initial stage. All panelists received standard training, which included explanations of the criteria and items and the intended proportions. Individual conversations were held with each participant to resolve any potential research misunderstandings. The specialists determined the things chosen and their relevance to the research topic. Two keys were utilized as an early measure to forecast item performance throughout CFA implementation, in accordance with Anderson and Gerbing's (1991) method: “the proportion of substantive agreement” and “substantive-validity coefficient.”

Step 4 : Pre-Test

After verifying the legitimacy of the drug, 40 individuals assessed the assessment process. The e-wallet literacy scale was investigated, together with sociodemographic factors like age, gender, family income, and educational attainment of e-wallet users. This step aimed to analyze the correctness and thoroughness of the questionnaire components and replies and the time required to make decisions. Participants' perceptions of the ease or difficulty of comprehending the questions, replies, and supplied options were observed and recorded.

Step 5 : Scale Purification

This stage aimed to investigate and discover aspects relevant to portraying the construct, especially e-wallet literacy and its components. This method tried to eliminate elements that could lead to errors and perhaps impede

model fit, as suggested by Churchill Jr. (1979). We adhered to the proper statistical rules regarding item analysis, consistency, and exploratory factor analysis (EFA). The decision to include or exclude some factors was made to improve the proposed scale's homogeneity. An attempt was made to ensure that Cronbach's alpha complied with relevant research requirements after Hair et al. (2010) conducted their benchmarking study.

Hair et al. (2010) described different approaches for validating study appropriateness, including EFA, Bartlett's sphericity test, the Kaiser–Meyer–Olkin (KMO) test, and the measure of sampling adequacy (MSA). Pett et al. (2003) established criteria for identifying the number of components based on the latent root criteria (eigenvalue > 1) and the screen test. Forsythe et al. (2006) suggested a desirable value of 0.5; however, Hair et al. (2010) and Pett et al. (2003) recommended a loading range of 0.3–0.4 in the current experiment. Furthermore, according to Pett et al. (2003), an effort was taken to avoid high factor loadings (higher than 0.5) on numerous factors (high cross-loadings), and thorough identification was performed while taking academic relevance and context into account.

Step 6 : Construct Validation

This project aimed to assess and validate the arrangement of items on the e-wallet literacy scale. The data from a sample size of 656 (n = 656) were analyzed. Using structural equation modeling and the maximum likelihood technique, the optimum model was identified by analyzing the covariance matrix with SPSS and AMOS. The model's suitability was determined using the established criteria stated in Hair et al. (2010). Furthermore, we examined the metrics offered to determine convergent and discriminant validity. This part aimed to investigate convergent validity to determine the degree of correlation between two matching factor items. The current study employed specified criteria to assess the convergent validity of the original six-factor, 26-item "e-wallet literacy" scale in accordance with the recommendations of Hair et al. (2010) and Fornell and Larcker (1981). Standardized loading values of 0.5 or higher, preferably 0.7 or higher, average variance more than 0.5, and construct validity greater than 0.7 were given priority.

Part A : Exploratory Factor Analysis (EFA)

SPSS was used to perform principal component analysis with promax rotation on the first 46 items. The number of recoverable components was unlimited. The extracted components were determined using parameters such as eigenvalues, the scree test plot, and explained variance. Utilizing Cattell's (1966) methodology, the scree plot identified six elements that corresponded with the proposed "E-Wallet Literacy Scale" model. Hair et al. (2010) recommended that significance (p>0.05) be attained by a significant factor loading of 0.50 in the pattern matrix. As a result, a minimal cut-off of 0.50 for factor loading was set in this study.

Out of the 46 items found, 20 were eliminated through an iterative process using the results of this research. Every one of the 26 elements that were kept was given a proposed factor. A six-factor model in the scree plot solution was suggested to depict the variance explained as 78.22. The range of the item-to-total correlation was 0.533–0.834. In the factor analysis, 71.405 of the variation was explained by the 26 items.

On a 7-point Likert scale (*Strongly Agree* [7],..., *Neutral* [4], *Strongly Disagree* [1]), the respondents were asked to express their agreement or disagreement for 26 attributes/determinants (with proposed scale items) generated from targeted group discussions, literature, user patterns, and observations. A reliability test was run on the data of e-wallet literacy toward specified factors to assess data dependability. The Cronbach's alpha value is discovered to be 0.819, indicating that the data on e-wallet literacy is 81.9% credible, allowing for further investigation.

Applications of factor analysis were evaluated for applicability using KMO and Bartlett's test. According to

Hair et al. (2010), the KMO value exceeds the threshold value of 0.5 at 892. Thus, 89.2% of the sample contains no inaccuracy, and the remaining 11.8% might require greater precision. Bartlett's test of sphericity ($\chi^2 = 8102.783$) is determined to be significant (p .001, df 325). Finally, the data acquired from e-wallet literacy may be suitable for factor analysis.

Constructs Formed in EFA

The first 29 determinants were factored and reduced into six component dimensions, revealing 71.40% of the overall variance. This demonstrates how well the six criteria in Table 2 represent the diversity in the initial data. Figure 1 shows the scree plot of the EFA e-wallet factors. As shown in Table 3, the six recognized elements are purchase transactions (PT), fund transfer transactions (FTT), investment transactions (IT), credit payment transactions (CPT), bill payment transactions (BPT), and method of payment (MOP).

Table 2. ***Factors – E-Wallet Literacy***

Factor	Eigen Values	% Total Variance	Cumulative %
Credit Payment Transactions *(CPT)*	3.790	19.578	19.578
Bill Payment Transactions *(BPT)*	3.179	16.226	35.804
Investment Transactions *(IT)*	2.953	13.356	49.160
Fund Transfer Transactions *(FTT)*	2.901	11.158	60.317
Purchase Transactions *(PT)*	2.127	6.180	66.497
Method of Payment *(MOP)*	1.536	4.907	71.405

Source : Factor Analysis Data Reduction.

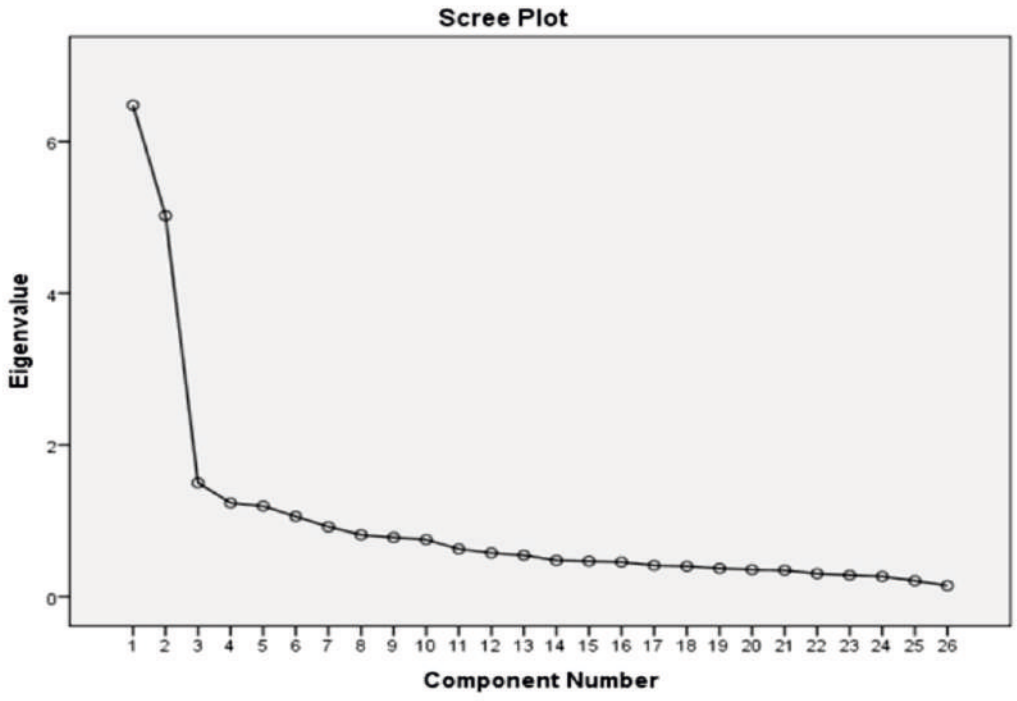
Table 3. ***E-Wallet Literacy - Rotated Component Matrix***

Scale Items	Constructs/Factors					
	CPT	***BPT***	***IT***	***FTT***	***PT***	***MOP***
DT14	0.834					
DT13	0.791					
DT15	0.710					
DT16	0.583					
DT1	0.570					
DT17		0.754				
DT18		0.685				
DT22		0.675				
DT19		0.643				
DT21		0.640				
DT7			0.721			
DT12			0.704			
DT6			0.629			
DT11			0.552			
DT10			0.536			
DT3				0.755		

DT2	0.680		
DT4	0.647		
DT20	0.591		
DT5	0.581		
DT24		0.798	
DT25		0.736	
DT26		0.593	
DT8			0.648
DT9			0.549
DT23			0.533

Source : Factor Analysis Data Reduction.

Figure 1. ***Scree Plot of EFA E-Wallet Factors***



The first construct formed is CPT, with an Eigenvalue of 3.790 and a total variance of 19.578% with five scale items. The first item in this construct is DT14: "I can pay my EMIs using e-wallets," with a factor loading of 0.834, item-to-total correlation of 0.725, and an alpha value of 0.813. The second item in this construct is DT13: "Using e-wallets, I can pay credit card bill" with factor loading 0.791, item to total correlation 0.679, and an alpha value 0.815. The third item in this construct is DT15: "I can perform the transaction of getting an instant loan through e-wallet without any documentation" with factor loading 0.710, item to total correlation of 0.667, and an alpha value of 0.816. The fourth item in this construct is DT16: "I can perform small credit transactions using an e-wallet (like Lazypay)" with a factor loading of 0.583, item to the total correlation of 0.581, and an alpha value of .812.

Table 4. ***First Construct – Credit Payment Transactions (CPT)***

Item Code	Scale Item	EFA Loading	Item to Total "*r*"	Cronbach's Alpha
DT14	I can pay my EMIs using e-wallets.	0.834	0.725	0.813
DT13	Using e-wallets, I can pay credit card bills.	0.791	0.679	0.815
DT15	I can perform the transaction of getting an instant loan through an e-wallet without any documentation.	0.710	0.667	0.816
DT16	I can perform small credit transactions using an e-wallet (like Lazypay).	0.583	0.581	0.812
DT1	For online shopping payments, I can use an e-wallet.	0.570	0.512	0.814

Table 5. ***Second Construct – Bill Payment Transactions (BPT)***

Item Code	Scale Item	EFA Loading	Item to Total "*r*"	Cronbach's Alpha
DT17	I can do my mobile bill recharge using e-wallets.	0.754	0.519	0.810
DT18	I can perform payment of utility bills (like electricity, water etc.) using e-wallets.	0.685	.604	0.805
DT22	I can pay local travel/transport charges using e-wallets like Ola, Uber, Rapido etc.	0.675	0.568	0.810
DT19	I can make travel reservations using e-wallets.	0.643	0.745	0.813
DT21	I can perform donations to charity organizations.	0.640	0.617	0.808

The fifth item in this construct is DT1: "For online shopping payments, I can use an e-wallet" with factor loading 0.570, item to total correlation 0.512, and alpha value 0.814, as presented in Table 4.

The second construct formed is BPT with an Eigenvalue of 3.179 and a total variance of 16.226% with five scale items. The first item in this construct is DT17: "I can do my mobile bill recharge using e-wallets," with a factor loading of 0.754, item-to-total correlation of 0.519, and an alpha value of .810. The second item in this construct is DT18: "I can perform payment of utility bills (like electricity, water etc.) using e-wallets" with factor loading 0.685, item to total correlation 0.604, and an alpha value of 0.805. The third item in this construct is DT22: "I can pay local travel/transport charges using e-wallets like Ola, Uber, Rapido etc." with factor loading 0.643, item to total correlation 0.745, and alpha value 0.813. The fourth item in this construct is DT19: "I can make travel reservations using e-wallets," with a factor loading of 0.643, item-to-total correlation of 0.745, and an alpha value of 0.813. The fifth item in this construct is DT21: "I can perform donations to charity organizations," with a factor loading of 0.640, item-to-total correlation of 0.617, and an alpha value of 0.808, as presented in Table 5.

The third construct formed is IT, with an Eigenvalue of 2.953, total variance of 13.356% with five scale items. The first item in this construct is DT7: "Using e-wallets, I can invest money into various investment avenues (like shares, stocks)" with factor loading 0.721, item to total correlation of 0.648, and an alpha value of .810. The second item in this construct is DT12: "Using e-wallets, I can pay insurance-related money (like online policy buying and paying premiums)" with factor loading 0.704, item to total correlation 0.542, and an alpha value of 0.811. The third item in this construct is DT6: "Through e-wallet, I can file a complaint related to any grievance, failed transactions, etc.," with a factor loading of 0.629, item to total correlation of .580, and an alpha value of .808. The fourth item in this construct is DT11: "I can view bank account transaction statements using e-wallets,"

Table 6. ***Third Construct – Investment Transactions (IT)***

Item Code	Scale Item	EFA Loading	Item to Total "*r*"	Cronbach's Alpha
DT7	Using e-wallets, I can invest money into various investment avenues (like shares, stocks).	0.721	0.648	0.811
DT12	Using e-wallets, I can pay insurance-related money (like online policy buying and paying premiums).	0.704	0.542	0.811
DT6	Through e-wallet, I can file a complaint related to any grievance, failed transactions, etc.	0.629	0.580	0.808
DT11	I can view bank account transaction statements using e-wallets.	0.552	0.548	0.809
DT10	I can perform the transaction of redemption of gift coupons in e-wallets.	0.536	0.585	0.807

Table 7. ***Fourth Construct – Fund Transfer Transactions (FTT)***

Item Code	Scale Item	EFA Loading	Item to Total "*r*"	Cronbach's Alpha
DT3	Transferring money from one bank account to another bank account using e-wallet.	0.755	0.642	0.810
DT2	Transferring money from bank account to e-wallet.	0.680	0.509	0.816
DT4	I can do small amount transactions to big amounts of transactions using e-wallets.	0.647	0.742	0.817
DT20	I can check my bank account balance using e-wallets.	0.591	0.830	0.821
DT5	Transferring money from e-wallet to bank account.	0.581	0.790	0.821

with a factor loading of .552, an item-to-total correlation of 0.548, and an alpha value of 0.809. The fifth item in this construct is DT10: "I can perform the transaction of redemption of gift coupons in e-wallets" with factor loading 0.536, item to the total correlation of 0.585, and an alpha value of 0.807, as presented in Table 6.

The fourth construct formed is FTT with an Eigenvalue of 2.901, total variance of 11.158% with five scale items. The first item in this construct is DT3: "Transferring money from one bank account to another bank account using e-wallet," with a factor loading of 0.755, a total correlation of 0.642, and an alpha value of .810. The second item in this construct is DT2: "Transferring money from bank account to e-wallet" with a factor loading of 0.680, an item-to-total correlation of 0.509, and an alpha value of 0.816. The third item in this construct is DT4: "I can do small amount transactions to big amounts of transactions using e-wallets" with factor loading 0.591, item to total correlation 0.830, and an alpha value of 0.821. The fourth item in this construct is DT20: "I can check my bank account balance using e-wallets" with a factor loading of 0.591, an item to the total correlation of 0.830, and an alpha value of 0.821. The fifth item in this construct is DT5: "Transferring money from e-wallet to bank account," with a factor loading of .581, item to the total correlation of 0.790, and an alpha value of 0.821, as presented in Table 7.

The fifth construct formed is PT with Eigenvalue 2.127, a total variance of 6.180% with three scale items. The first item in this construct is DT24: "I can buy movie tickets using e-wallets in movie ticket-selling apps like Bookmyshow, Justickets, etc." with a factor loading of .798, item to the total correlation of 0.701, and an alpha value of 0.815. The second item in this construct is DT25: "I can pay for petrol/diesel using e-wallets," with a

Table 8. ***Fifth Construct – Purchase Transactions (PT)***

Item Code	Scale Item	EFA Loading	Item to Total "*r*"	Cronbach's Alpha
DT24	I can buy movie tickets using e-wallets in movie ticket-selling apps like Bookmyshow, Justickets, etc.	0.798	0.701	0.815
DT25	I can pay for petrol/diesel using e-wallets.	0.736	0.670	0.810
DT26	I can get food using online food delivery apps by paying through e-wallets.	0.593	0.474	0.810

Table 9. ***Sixth Construct – Method of Payment (MOP)***

Item Code	Scale Item	EFA Loading	Item to Total "*r*"	Cronbach's Alpha
DT8	Using UPI ID, I can use an e-wallet for digital transactions.	0.648	0.667	0.817
DT9	Using a QR Scanner, I can use an e-wallet for digital transactions.	0.549	0.598	0.815
DT23	Using a pin/password, I can use an e-wallet for digital transactions.	0.533	0.671	0.814

factor loading of 0.736, item-to-total correlation of 0.670, and an alpha value of 0.810. The third item in this construct is DT26: "I can get food using online food delivery apps by paying through e-wallets" with a factor loading of 0.593, item to the total correlation of 0.474, and an alpha value of 0.810, as presented in Table 8.

The fifth construct formed is (MOP) with an Eigenvalue of 1.536, a total variance of 4.907% with three scale items. The first item in this construct is DT8: "Using UPI ID, I can use an e-wallet for digital transactions" with a factor loading of 0.648, an item to the total correlation of 0.667, and an alpha value of 0.817. The second item in this construct is DT9: "Using a QR Scanner, I can use an e-wallet for digital transactions" with a factor loading of 0.549, item to total correlation of 0.598, and an alpha value of 0.815. The third item in this construct is DT23: "Using a pin/password, I can use an e-wallet for digital transactions" with a factor loading of 0.533, an item-to-total correlation of 0.671, and an alpha value of 0.814, as presented in Table 9.

Part B : Confirmatory Factor Analysis (CFA)

After executing exploratory factor analysis (EFA) and forming factors (constructs) to validate those constructs and associations, it is mandatory to execute confirmatory factor analysis (CFA).

The scale model's standardized factor loadings are determined to be substantial, with values of at least 0.55. All components have average variance extracted (AVE) values exceeding the threshold of 0.50, ranging from 0.701 to 0.846. In all situations, the recovered average variance outperforms the square of the correlations between the components regarding discriminant validity. The composite reliability range exceeds the suggested threshold of 0.7, suggesting excellent convergence. Regarding discriminant validity, the recovered AVE values are more significant than the square of the correlation between the components.

CFA is performed on the e-wallet literacy scale using IBM AMOS software to test its components' convergent and discriminant validity. Table 10 summarizes the CFA findings, and Figure 2 depicts the route diagram. The model meets the basic statistical requirements for being statistically fit. The model validation results show that the model fit indices are within the acceptable limits, as suggested by Hair et al. (2010). The values of absolute fit

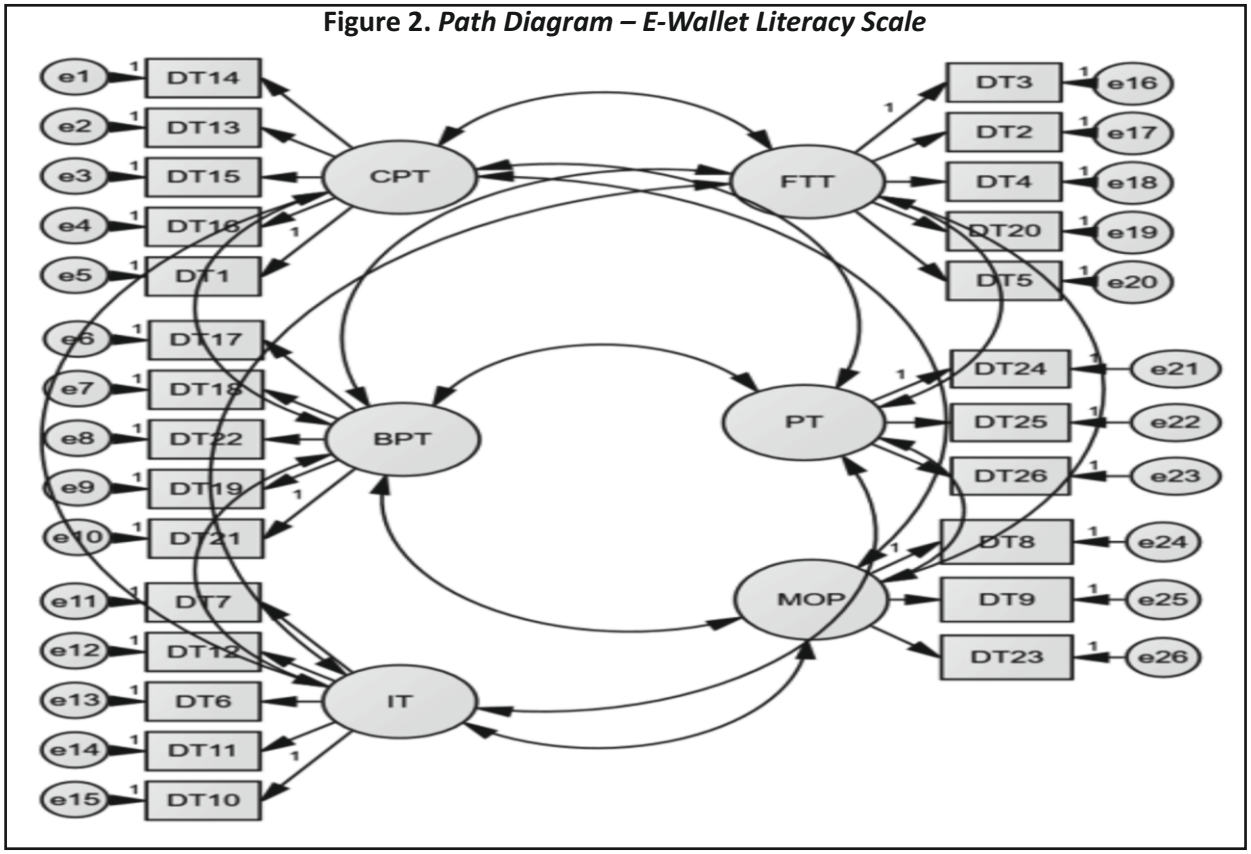
Table 10. ***E-Wallet Scale Covariance Matrix***

Covariances			Estimate	SE	CR	*P*	Correlation
Bill Payment Transactions *(BPT)*	<-->	Purchase Transactions *(PT)*	0.686	0.126	5.447	***	0.306
Bill Payment Transactions *(BPT)*	<-->	Method of Payment *(MOP)*	0.502	0.133	3.783	***	0.195
Bill Payment Transactions *(BPT)*	<-->	Credit Payment Transactions *(CPT)*	1.436	0.143	10.057	***	0.772
Bill Payment Transactions *(BPT)*	<-->	Investment Transactions *(IT)*	0.272	0.122	2.238	***	0.108
Bill Payment Transactions *(BPT)*	<-->	Fund Transfer Transactions *(FTT)*	0.868	0.11	7.901	***	0.467
Purchase Transactions *(PT)*	<-->	Method of Payment *(MOP)*	0.618	0.134	4.625	***	0.268
Purchase Transactions *(PT)*	<-->	Credit Payment Transactions *(CPT)*	0.366	0.091	4.042	***	0.22
Purchase Transactions *(PT)*	<-->	Investment Transactions *(IT)*	1.021	0.143	7.131	***	0.451
Purchase Transactions *(PT)*	<-->	Fund Transfer Transactions *(FTT)*	0.261	0.084	3.108	***	0.157
Method of Payment *(MOP)*	<-->	Credit Payment Transactions *(CPT)*	0.543	0.105	5.167	***	0.284
Method of Payment *(MOP)*	<-->	Investment Transactions *(IT)*	1.857	0.177	10.5	***	0.716
Method of Payment *(MOP)*	<-->	Fund Transfer Transactions *(FTT)*	1.38	0.147	9.402	***	0.724
Credit Payment Transactions *(CPT)*	<-->	Investment Transactions *(IT)*	0.14	0.09	1.556	***	0.075
Credit Payment Transactions *(CPT)*	<-->	Fund Transfer Transactions *(FTT)*	0.786	0.097	8.08	***	0.57
Investment Transactions *(IT)*	<-->	Fund Transfer Transactions *(FTT)*	1.322	0.138	9.563	***	0.706

Note. *** 0.000 level.

Source : CFA run with AMOS .

Figure 2. ***Path Diagram – E-Wallet Literacy Scale***



measures indices of the measurement model are found as $\chi^2 = 2089.214$ at $df = 284$ and $p = 0.000$, $\chi^2/df = 7.356$, goodness of fit index (GFI) = 0.798, and root mean square of approximation (RMSEA) = 0.099, adjusted goodness of fit index (AGFI) = 0.751, and normed fit index (NFI) = 0.74. The incremental fit measure values are also discovered in the limit of acceptability. The model's standardized factor loadings are also significant. The lowest loading discovered is 0.47, while the highest is 0.91. Since all indices are within the threshold value, the e-wallet literacy scale model's fit can finally be assessed (Hair et al., 2010).

Discussion and Conclusion

The study's findings indicate that e-wallet users conduct six distinct kinds of transactions with their devices. The e-wallet literacy scale can consist of the same six types of transactions as constructs, i.e., CPT, BTT, IT, FTT, PT, and MOP. The final validated e-wallet literacy scale is provided in the Appendix. To measure the literacy levels of e-wallet users, the users can respond to these constructs and their scale items. This study is developed based on data from people drawn solely from India; as a result, we cannot substantiate and identify whether our assumptions and implications apply to other regions of the world. Without the validation phase, no scale development process is complete; a separate data set will be obtained and reviewed to validate the scale. We can adapt this scale to different contexts or adopt it as it is in research. This e-wallet literacy scale can be helpful in academia, the industry, and for policymakers.

Implications

Research Implications

This scale can be used in academics to evaluate and adopt technology further by incorporating the literature on e-wallets and adoption domains. The most important theoretical contribution of this research may be a well-validated and tested scale with 26 scale items relating to e-wallet literacy levels, divided into six components.

Practical Implications

For the industry, the scale can be practically used by banks and financial services firms. Nowadays, most banks and financial services offer their e-wallets or at least a mobile banking app for their customers for their ease and convenience and to offer 24×7 services through their apps. Those banks and financial services firms can use this scale to evaluate their customers' literacy levels toward using e-wallets so that they can design appropriate consumer education programs regarding using e-wallets and other mobile banking apps.

Social Implications

This e-wallet literacy scale will be helpful to policymakers and governing bodies to achieve the larger goal of financial inclusion since it will allow them to rapidly identify the citizens who require further e-wallet usage education. Initiatives for education and training could be created and put into action to include these people in the concept of financial inclusion.

Limitations of the Study and Scope for Further Research

This study is limited to measuring the literacy levels of users using e-wallets. However, this scale cannot be used to

measure the quality or satisfaction of e-wallets. The scale was constructed and validated only for 26 items and six constructs. There may be more than 26 valid scale items and more than six constructs. Nowadays, most banks offer their e-wallets, and there are also third-party and merchant e-wallets; this scale may only cover some of the services offered by e-wallets.

Creating many e-wallet scales to evaluate the features, user happiness, and other relevant aspects of e-wallets is possible. This scale can also be customized to match a certain bank or e-wallet that a merchant or third party uses. As we proceed, this scale can be modified by adding relevant constructs.

Author's Contribution

Dr. V. V. Devi Prasad Kotni exclusively developed this scale. He unequivocally states that he is the only one with complete authority to design, develop, and execute the qualitative and quantitative components of the empirical investigation. He searched related literature and used pertinent keywords to locate credible study publications. Using SPSS, he conducted a field survey and collected primary data from the respondents' empirical analysis. His conclusions and implications are his only contributions.

Acknowledgment

The author wants to acknowledge professors, scholars, students, and experts who were a part of the focus group interviews and participated in the survey.

Conflict of Interest

The author certifies that he has no affiliations with or involvement in any organization or entity with any financial or non-financial interest in the subject matter or materials discussed in this manuscript.

Funding Acknowledgment

The author received no financial support for this article's research, authorship, and/or publication.

References

42 per cent Indians have increased use of digital payments during COVID-19 lockdown. (2020, April 14). *The New Indian Express*. www.newindianexpress.com/business/2020/apr/14/42-per-cent-indians-have-increased-useof-digital-payments-during-covid-19-lockdown-report-2130059.html

Alalwan, A. A. (2020). Mobile food ordering apps: An empirical study of the factors affecting customer e-satisfaction and continued intention to reuse. *International Journal of Information Management*, *50*, 28–44. https://doi.org/10.1016/j.ijinfomgt.2019.04.008

Alalwan, A. A., Dwivedi, Y. K., & Rana, N. P. (2017). Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust. *International Journal of Information Management*, *37*(3), 99–110. https://doi.org/10.1016/j.ijinfomgt.2017.01.002

Anderson, J. C., & Gerbing, D. W. (1991). Predicting the performance of measures in a confirmatory factor analysis with a pretest assessment of their substantive validities. *Journal of Applied Psychology*, *76*(5), 732–740. https://doi.org/10.1037/0021-9010.76.5.732

Bagla, R. K., & Sancheti, V. (2018). Gaps in customer satisfaction with digital wallets: Challenge for sustainability. *Journal of Management Development*, *37*(6), 442–451. https://doi.org/10.1108/JMD-04-2017-0144

Boden, J., Maier, E., & Wilken, R. (2020). The effect of credit card versus mobile payment on convenience and consumers' willingness to pay. *Journal of Retailing and Consumer Services, 52*, Article 101910. https://doi.org/10.1016/j.jretconser.2019.101910

Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research, 1*(2), 245–276. https://doi.org/10.1207/s15327906mbr0102_10

Churchill Jr., G. A. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, *16*(1), 64–73. https://doi.org/10.1177/002224377901600110

Dahlberg, T., Guo, J., & Ondrus, J. (2015). A critical review of mobile payment research. *Electronic Commerce Research and Applications*, *14*(5), 265–284. https://doi.org/10.1016/j.elerap.2015.07.006

Daragmeh, A., Sági, J., & Zéman, Z. (2021). Continuous intention to use e-wallet in the context of the COVID-19 pandemic: Integrating the Health Belief Model (HBM) and Technology Continuous Theory (TCT). *Journal of Open Innovation: Technology, Market, and Complexity, 7*(2), Article 132. https://doi.org/10.3390/joitmc7020132

De Vellis, R. F. (2003). *Scale development: Theory and applications*. Sage Publications.

Deb, R., Mahto, P. K., & Deka, L. (2021). Influence of mobile apps on household saving-spending behavior. In O. Yildiz (Ed.), *Recent developments in individual and organizational adoption of ICTs* (pp. 169–187). IGI Global. https://doi.org/10.4018/978-1-7998-3045-0.ch010

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39–50. https://doi.org/10.1177/002224378101800104

Forsythe, S., Liu, C., Shannon, D., & Gardner, L. C. (2006). Development of a scale to measure the perceived benefits and risks of online shopping. *Journal of Interactive Marketing*, *20*(2), 55–75. https://doi.org/10.1002/dir.20061

Gafeeva, R., Hoelzl, E., & Roschk, H. (2018). What else can your payment card do? Multifunctionality of payment modes can reduce payment transparency. *Marketing Letters, 29*, 61–72. https://doi.org/10.1007/s11002-017-9445-2

Gera, I. (2022, March 16). Mapping India' digital transactions. *Business Standard*. https://www.business-standard.com/podcast/finance/mapping-india-s-digital-transactions-122031600062_1.html

Gupta, A., Yousaf, A., & Mishra, A. (2020). How pre-adoption expectancies shape post-adoption continuance intentions: An extended expectation-confirmation model. *International Journal of Information Management, 52*, Article 102094. https://doi.org/10.1016/j.ijinfomgt.2020.102094

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis: A global perspective*. Pearson Prentice Hall.

Haranath, D., & Sathish, A. S. (2007). Technology - An enabler of the global branding of retail financial services. *Indian Journal of Finance, 1*(1), 21–26. https://www.indianjournaloffinance.co.in/index.php/IJF/article/view/72018

Humbani, M., & Wiese, M. (2018). A cashless society for all: Determining consumers' readiness to adopt mobile payment services. *Journal of African Business, 19*(3), 409–429. https://doi.org/10.1080/15228916.2017.1396792

India made 7,422 cr digital payments in FY22 at 33% growth rate: MeitY. (2022, March 23). *Livemint*. https://www.livemint.com/technology/tech-news/india-made-7-422-cr -digital-payments-in-fy22-at-33-growth-rate-meity-11648038672792.html

Ismail, I. (2021, April, 18). E-wallet use in Malaysia growing. *News Straits Times*. www.nst.com.my/opinion/columnists/2021/04/683345/e-wallet-use-malaysia-growing

Jerold, V. A. (2008). Financial inclusion and literacy in India - A critical study. *Indian Journal of Finance, 2*(4), 25–33. https://www.indianjournaloffinance.co.in/index.php/IJF/article/view/71663

Kakkad, S. A., & Jadhav, H. V. (2021). A detailed analysis of selected digital payment systems in India. *Arthshastra Indian Journal of Economics & Research, 10*(1), 41–58. https://doi.org/10.17010/aijer/2021/v10i1/155366

Khan, J., & Craig-Lees, M. (2009). "Cashless" transactions: Perceptions of money in mobile payments. *International Business & Economics Review, 1*(1), 23–32. http://hdl.handle.net/10437/2527

Khan, J., Belk, R. W., & Craig-Lees, M. (2015). Measuring consumer perceptions of payment mode. *Journal of Economic Psychology*, *47*, 34–49. https://doi.org/10.1016/j.joep.2015.01.006

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30*(3), 607–610. https://doi.org/10.1177/001316447003000308

Krueger, R. A. (2014). *Focus groups: A practical guide for applied research*. Sage Publications.

Liao, C., Chen, J.-L., & Yen, D. C. (2007). Theory of planning behavior (TPB) and customer satisfaction in the continued use of e-service: An integrated model. *Computers in Human Behavior*, *23*(6), 2804–2822. https://doi.org/10.1016/j.chb.2006.05.006

Liébana-Cabanillas, F., Sánchez-Fernández, J., & Muñoz-Leiva, F. (2014). Antecedents of the adoption of the new mobile payment systems: The moderating effect of age. *Computers in Human Behavior, 35*, 464–478. https://doi.org/10.1016/j.chb.2014.03.022

Liu, Y., & Dewitte, S. (2021). A replication study of the credit card effect on spending behavior and an extension to mobile payments. *Journal of Retailing and Consumer Services, 60*, Article 102472. https://doi.org/10.1016/j.jretconser.2021.102472

Malla Reddy, M. (2016). Impact of FDI on performance of select private sector banks in India. *Indian Journal of Finance, 10*(3), 52–65. https://doi.org/10.17010/ijf/2016/v10i3/89024

Mallat, N. (2007). Exploring consumer adoption of mobile payments – A qualitative study. *The Journal of Strategic Information Systems, 16*(4), 413–432. https://doi.org/10.1016/j.jsis.2007.08.001

Ming-Yen Teoh, W., Chong, S.-C., & Mid Yong, S. (2013). Exploring the factors influencing credit card spending behavior among Malaysians. *International Journal of Bank Marketing, 31*(6), 481–500. https://doi.org/10.1108/IJBM-04-2013-0037

Ministry of Electronics & Information Technology, Government of India. (2023, April, 2). *Growth in digital payments. RBI-DigiDhanDashboard. https://digipay.gov.in/dashboard/default.aspx#*

Ministry of Electronics & Information Technology, Government of India. (2021, May 23). *Digital economy division*. https://www.meity.gov.in/digidhan

Narayanaswamy, T., & Muthulakshmi, A. P. (2017). Demonetization to e-monetisation in India: The way forward. *Indian Journal of Finance, 11*(5), 30–39. https://doi.org/10.17010/ijf/2017/v11i5/114249

NPCI. (2021, August 01). *What we do? : UPI product statistics*. https://www.npci.org.in/what-we-do/upi/product-statistics

Okoli, T. T., & Tewari, D. D. (2021). Determinants of penetration of financial technology among the heterogeneous African economies. *Indian Journal of Finance, 15*(11), 25–40. https://doi.org/10.17010/ijf/2021/v15i11/166830

Pahari, S., Manna, A., & Biswas, D. (2023). Pay with confidence: A thematic analysis of user intentions and perceptions on third-party and banking payment apps. *Indian Journal of Finance, 17*(5), 25–38. https://doi.org/10.17010/ijf/2023/v17i5/172735

Patki, A., & Sople, V. (2022). Open banking ecosystem: The Indian perspective. *Indian Journal of Finance, 16*(5), 24–40. https://doi.org/10.17010/ijf/2022/v16i5/169516

Pett, M. A., Lackey, N. R., & Sullivan, J. J. (2003). *Making sense of factor analysis.* Sage Publications. https://doi.org/10.4135/9781412984898

PWC. (2019). *It's time for a consumer-centred metric: Introducing 'return on experience*'. *Global Consumer Insights Survey.* www.pwc.com/gx/en/consumer-markets/consumer-insights-survey/2019/report.pdf

Raghubir, P., & Srivastava, J. (2008). Monopoly money: The effect of payment coupling and form on spending behavior. *Journal of Experimental Psychology: Applied, 14*(3), 213–225. https://doi.org/10.1037/1076-898X.14.3.213

Raghubir, P., Inman, J. J., & Grande, H. (2004). The three faces of consumer promotions. *California Management Review, 46*(4), 23–42. https://doi.org/10.2307/41166273

Razer. (2019, March 19). *E-wallets.* Razer Merchant Services. https://merchant.razer.com/v3/channels/e-wallets/

Rekha, I. S., Basri, S., & Kavitha, T. C. (2020). Acceptance of internet banking : Comparing six theoretical models. *Indian Journal of Finance, 14*(3), 7–21. https://doi.org/10.17010/ijf/2020/v14i3/151073

Runnemark, E., Hedman, J., & Xiao, X. (2015). Do consumers pay more using debit cards than cash? *Electronic Commerce Research and Applications, 14*(5), 285–291. https://doi.org/10.1016/j.elerap.2015.03.002

Sengupta, A. (2023, December 1). UPI transactions witness decline in volume, slight spike in value in Nov. *The Economic Times*. https://bfsi.economictimes.indiatimes.com/news/fintech/upi-transactions-witness-decline-in-volume-slight-spike-in-value-for-nov/105654626

Shao, Z., Zhang, L., Li, X., & Guo, Y. (2019). Antecedents of trust and continuance intention in mobile payment platforms: The moderating effect of gender. *Electronic Commerce Research and Applications, 33*, Article 100823. https://doi.org/10.1016/j.elerap.2018.100823

Sharma, S., Sharma, R., Kayal, G., & Kaur, J. (2022). Digital banking : A meta-analysis approach. *Indian Journal of Marketing, 52*(5), 41–68. https://doi.org/10.17010/ijom/2022/v52/i5/169416

Shukla, U. N. (2017). An empirical study on future of mobile - Wallets in India : A gateway for cashless payments. *Arthshastra Indian Journal of Economics & Research, 6*(6), 51–62. https://doi.org/10.17010/aijer/2017/v6i6/120117

Soman, D. (2001). Effects of payment mechanism on spending behavior: The role of rehearsal and immediacy of payments. *Journal of Consumer Research, 27*(4), 460–474. https://doi.org/10.1086/319621

Soman, D. (2003). The effect of payment transparency on consumption: Quasi-Experiments from the field. *Marketing Letters, 14*(3), 173–183. https://doi.org/10.1023/A:1027444717586

Tee, H.-H., & Ong, H.-B. (2016). Cashless payment and economic growth. *Financial Innovation, 2*, Article 4. https://doi.org/10.1186/s40854-016-0023-z

Thomas, M., Desai, K. K., & Seenivasan, S. (2011). How credit card payments increase unhealthy food purchases: Visceral regulation of vices. *Journal of Consumer Research, 38*(1), 126–139. https://doi.org/10.1086/657331

UPI transactions value dips to Rs 8.27 lakh crore in February. (2022, March, 2). *The Economic Times*. https://bfsi.economictimes.indiatimes.com/news/fintech/upi-transactions-value-dips-to-rs-8-27-lakh-crore-in-february/89935848

Wang, Y.-S., Tseng, T. H., Wang, W.-T., Shih, Y.-W., & Chan, P.-Y. (2019). Developing and validating a mobile catering app success model. *International Journal of Hospitality Management, 77*, 19–30. https://doi.org/10.1016/j.ijhm.2018.06.002

Wu, D., Moody, G. D., Zhang, J., & Lowry, P. B. (2020). Effects of the design of mobile security notifications and mobile app usability on users' security perceptions and continued use intention. *Information & Management, 57*(5), Article 103235. https://doi.org/10.1016/j.im.2019.103235

Yong, C.-C., Yew, S.-Y., & Wee, C.-K. (2018). Financial knowledge, attitude and behaviour of young working adults in Malaysia. *Institutions and Economies, 10*(4), 21–48. https://ijie.um.edu.my/article/view/13444

Zellermayer, O. (1996). *The pain of paying* [Doctoral dissertation, Department of Social and Decision Sciences, Carnegie Mellon University]. https://www.researchgate.net/publication/280711796_The_Pain_of_Paying

Appendix

Appendix. *E-Wallet Literacy Scale*

Item Code	Scale Item
	Credit Payment Transactions (CPT)
DT14	I can pay my EMIs using e-wallets.
DT13	Using eWallets, I can pay my credit card bill.
DT15	I can perform the transaction of getting an instant loan through an e-wallet without any documentation.
DT16	I can perform small credit transactions using an e-wallet (like Lazypay).
DT1	I can do online shopping payments using an e-wallet.
	Bill Payment Transactions (BPT)
DT17	I can do my mobile bill recharge using e-wallets.
DT18	I can perform payment of utility bills (like electricity, water etc.) using e-wallets.
DT22	I can pay local travel/transport charges using e-wallets (like for Ola, Uber, Rapido, etc).
DT19	I can make travel reservations using e-wallets.
DT21	I can perform donations to charity organizations.
	Investment Transactions (IT)
DT7	Using e-wallets, I can invest money into various investment avenues (like shares and stocks).
DT12	Using e-wallets, I can pay insurance-related money (like buying a policy online or paying a premium).
DT6	Through e-wallet, I can file complaints about any grievance, failed transactions, etc.
DT11	I can view bank account transaction statements using e-wallets.
DT10	I can perform the transaction of redemption of gift coupons in e-wallets.
	Fund Transfer Transactions (FTT)
DT3	Transferring money from one bank account to another bank account using e-wallet.
DT2	Transferring money from bank account to e-wallet.
DT4	I can do small amounts of transactions to big amounts of transactions using e-wallets.
DT20	I can check my bank account balance using e-wallets.
DT5	Transferring money from e-wallet to bank account.
	Purchase Transactions (PT)
DT24	I can buy movie tickets using e-wallets in movie ticket-selling apps (like BookMyShow, Justickets, etc).
DT25	I can pay for petrol/diesel using e-wallets.
DT26	I can get food using online food delivery apps by paying through e-wallets.
	Method of Payment (MOP)
DT8	Using UPI ID, I can use e-wallet for digital transactions.
DT9	Using a QR scanner, I can use an e-wallet for digital transactions.
DT23	Using a pin/password, I can use an e-wallet for digital transactions.

About the Author

V. V. Devi Prasad Kotni works as an Associate Professor at GITAM School of Business, GITAM (Deemed to be University), Visakhapatnam. He has four years of industry experience, 15 years of academic experience, and 19 years of overall experience. About 20 indexed journals in Scopus, ABDC, and Web of Science contain his publications. Supported by the Government of India, he traversed the world and gave papers in the USA, Australia, Malaysia, and Thailand. He finished two UGC research projects: one as lead investigator and the other as co-investigator on a major research project. As a primary investigator, he received the 2013 AICTE Career Award for YoungTeacher Research funding. He led two project completions as a consultant. He provides industry professionals with MDPs and training programs.