

# A Study of Satisfaction and Loyalty for Continuance Intention of Mobile Wallet in India

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## ABSTRACT

How do satisfaction and loyalty drive Indian consumers' continued use of mobile financial applications? Do age, education, and income moderate these relationships? An analysis of 1,060 Indian participants revealed that consumer satisfaction and loyalty were correlated with continuance intention. Satisfaction seemed to be a more emotional factor for the continuance of mobile wallet use, while loyalty was more cognitive behavior. Income and education showed opposite and significant moderating effects on the main driving factors. In general, the research findings can provide a deeper understanding of the continued use of mobile financial applications.

## KEYWORDS

Continuous Intention, Digital Payment, Education, Indian, Loyalty, Mobile Wallet, Satisfaction, Youth

## INTRODUCTION

Indian mobile wallet use (or e-wallet or digital wallet) has become widespread in the last 15 years. The first Indian e-wallet, Wallet365.com, was a joint product of the Times Group and YES Bank in 2006. From 2006 to 2017, the number of e-wallet service providers expanded sixtyfold (Anand, 2018). Intense competition generated alliances: telecom companies joined banks to offer digital payment products, e.g., Airtel joined the Kotak Mahindra Bank to start Airtel money; Reliance Jio began a mobile wallet with the State Bank of India; Idea Cellular and Axis Bank partnered up to create Idea Money (Axis Bank, 2018). mRupee, one of the major players in the industry, was an initiative by TATA and Docomo (Handford, 2013). By 2019, India had mobile wallets such as Paytm, PhonePe, Freecharge, Mobikwik, Google Pay, Amazon Pay, and Airtel Money (Behani, 2019).

The Indian government catalyzed mobile wallet use by advocating a digital economy - the Digital India Movement - consisting of "faceless, paperless, cashless" transactions. In 2016, the Indian government demonetized its 500-rupee and 1000-rupee notes, thus increasing the need for mobile

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wallets. In 2017, the Indian government approved mobile wallet interoperability, further increasing competition (Research and Markets, 2019).

By 2020, India had 748 million smartphone consumers, with 149.7 million consumers being added per year (Statistica, 2021). There were 1.10 billion mobile connections in India in January 2021 and 624 million Internet users, about 79% of the total population (Kemp, 2021). In 2021 about 90% of these Indian users visited an online retail site or store, 82% searched online for products, 77% purchased a product online, and 69% used a shopping app on a mobile device. Indian consumers also increased their total time spent using mobile phones by 30% annually. While 79.9% of consumers had accounts with a financial institution, only 3.0% had credit cards, indicating that Indian consumers could bypass cards and go directly from “cash” to mobile wallet apps.

In summary, Indian mobile wallet use has grown exponentially bypassing the intermediate stages of cordless telephones and plastic money (Eappen, 2019). India’s immense market opens opportunities for more mobile financial applications. Given the expansion of Indian mobile wallets and the assortment of available telecom carriers and digital payment products, we focus on two critical factors on the consumer’s decision to continue product use: satisfaction, a dedication factor, and loyalty, a constraining factor. We ask:

1. To what extent do Indian customers weigh satisfaction and loyalty as a determinant of continuance intention to use mobile wallet?
2. To what extent do age, education, and income moderate the effects of satisfaction and loyalty to continuance intention?

## LITERATURE REVIEW

### Satisfaction

Satisfaction is an accumulated cognitive and emotional construct. Cognitively, satisfaction is the sum of gaps between expectations and delivery (Parasaruman et al., 1988). It is the end state from where consumers compare their experiences before and after consumption. Consumers calculate net pleasure or disappointment by comparing the perceived performance against expectations (Chiu et al., 2012; Chinomona & Dubihlela 2014; Lin et al., 2015). Consumers are satisfied when they “trust that consumption provides results that are relative to the standards of happiness and unhappiness” (Woisetschlager et al., 2011). Emotionally, satisfaction is an accumulated experience of pleasure, happiness, fun, and enjoyment.

Many studies established how consumer satisfaction is key to continued willingness to use for mobile wallets social media, and electronic products. Chea & Luo (2006) found that consumer satisfaction with electronic services directly and indirectly affects continuance intention. Chen et al. (2009) showed that consumer satisfaction affects the willingness to continue using self-service technologies. Finn et al. (2009) found that customer satisfaction contributes to the success of electronic services. Kim et al. (2013) proposed that satisfaction can strongly affect consumers’ willingness to participate continuously. Gwebu et al. (2014) show that consumer satisfaction will directly affect consumer willingness to continue FaceBook use.

When customer satisfaction increases, willingness and actual repurchase behavior increases. Kuo et al. (2009) found that customer satisfaction positively affects buyers’ intentions in value-added services in Taiwan. For Lin et al. (2015), satisfied consumers increase their loyalty to IT products and continue purchasing. When customers perceive higher service quality, they feel more satisfied and show positive behavioral intentions (Lu et al., 2011). Shiau & Luo (2013) found a strong relationship between consumer satisfaction and continued willingness for Thai consumers.

**H1a:** Satisfaction is positively related to Continuance Intention.

There are mitigating and moderating factors between satisfaction and continuance intention, however. It is necessary to measure both cognitive and emotional factors to understand the impact on behavioral intentions. Emotion-based satisfaction, for example, may reflect future behavioral intentions rather than traditional cognitive satisfaction (Martin et al., 2006). Hellier et al. (2003) proposed that consumer satisfaction affects willingness to repurchase indirectly through mediating variables. When inertia is injected into the model as a mediating variable, the path relationship between satisfaction and continuance intention is not statistically significant (Amoroso et al., 2017). The study found that consumer satisfaction has a weaker prediction of continuance willingness and is regulated by habits.

Age may be a factor in the relationship between satisfaction and continuance intention. Studies have found that younger consumers were the strongest users of mobile wallet apps. For young Chinese consumers, financial apps bring satisfaction after the initial excitement and fun online of using it. Reddy et al. (2019) found that the prominent individuals who use the most digital wallets are 18-22 years old. Raj (2019) found that the utilization of the mobile wallet applications is strongest by younger consumers, mainly in the age group of 18-25 years. According to Sharma et al. (2019), young Indian consumers are interested in e-wallets, e-banking, e-shopping, and other applications. Chakraborty & Mitra (2018) found that older consumers' use of mobile resulted in negative scores on self-efficacy, social influence, perceived ease of use, perceived usefulness, and satisfaction. Eappen (2019) found that regardless of the consumer's gender, more than 85% of consumers are between the ages of 20-26, reflecting the substantial use of this technology by young people who are the critical demographics for digital wallets.

If age affects use, so might income and education level. Lewis & Soureli (2006) probed into loyalty's components and established a model of how emotional, functional, social, and brand identification correspond to loyalty and is moderated by age and gender. Chakraborty & Mitra (2018) found that higher income levels by consumers resulted in higher self-efficacy, social influence, perceived ease of use, perceived usefulness, and satisfaction. Sharma (2018) found mobile wallet continuance usage was moderated by education and income. Leong et al. (2020) found that education has a negative effect on mobile wallet resistance, and this indicates that the higher education achievement, the lesser the resistance toward mobile wallet adoptions. However, income has a significant positive impact on mobile wallet resistance, and this indicates that the higher the income, the stronger the resistance toward using the mobile wallet. Given the literature on age, education, and income, we hypothesize that:

**H1b:** Age moderates the relationship between Satisfaction and Continuance Intention.

**H1c:** Education moderates the relationship between Satisfaction and Continuance Intention.

**H1d:** Income moderates the relationship between Satisfaction and Continuance Intention.

## Loyalty

Loyalty initiated by a commitment a vendor has earned by creating products and services that are desirable to consumers (Amoroso et al., 2018). Chiu et al. (2012) found that loyalty significantly affects repeat purchase intentions, and habit negatively affects the relationship between loyalty and repeated purchase intentions. Loyalty impacts participants' willingness to continue to use Facebook (Gwebu et al., 2014). Chinomona & Dubihlela (2014) found loyalty helps retailers maintain a competitive advantage and plays a crucial role in customer repurchase decisions. Lin et al. (2015) defined loyalty as a consumer's dependence and goodwill to a product or service. Goodwill is manifested by purchase and repurchase intentions. When the habit is weak, loyalty will dominate the impact on repeat purchase intentions. Pena-Garcia et al. (2018) establish how consumer loyalty positively affects Spanish and Colombian consumers' repurchase intentions.

Like the satisfaction construct, loyalty comprises cognitive and emotional components. Worthington et al. (2010) propose that loyalty behavior comprises cognitive, emotive, and behavioral

components. Depending on the product, loyalty can have higher cognitive content versus other components: commitment is based on cognitive evaluations of price and features, and positive thoughts and beliefs about the product. Lewis & Soureli (2006) offer a model of how emotional, functional, social, and brand identification have a relationship with loyalty. Yeh et al. (2016) propose a model that smartphone brand loyalty is driven by functional and social value. Loyalty can therefore have conscious, cognitive components. Similarly, Roy et al. (2014) present loyalty as a series of stages: attempted action, action, cognitive, and affective components. They investigate how such stages affect the word-of-mouth and viral marketing behaviors of website customers. They found that cognitive and action loyalty stages are most effective for word-of-mouth transmittal of a product to happen.

### **H2a:** Loyalty is positively related to Continuance Intention.

Loyalty's relationship to repurchase intention may not be so simple as many other factors may moderate loyalty effects. Palmer et al. (2000) found that older customers responded differently than younger customers to repurchase after service failures. Dolarslan (2014) found that income level affected loyalty and repurchase intention. Goncalves & Sampaio (2012) found that age affected loyalty and repurchase intention. Henrique & de Matos (2015) likewise found age affects the relationship between loyalty and repurchase. Fang et al. (2016) found that older shoppers tended to be more conscious of product quality and time and effort investment in shopping. Soares et al. (2017) likewise studied tech-savvy Gen-Y consumers and found they were more likely to complain about service failures than Gen-X consumers prior to repurchase.

Kim et al. (2006) found that education and income affected perceptions of service quality, which might be extended to repurchase intention. Mittal and Kamakura (2018) found that education level, among other factors, had different thresholds such that, at the same level of rated satisfaction, repurchase rates were systematically different among different consumer groups. Kim et al. (2006) found that income affected perceptions of service quality. Dolarslan (2014) found that income level affected both loyalty and continuance intention. Henrique & de Matos (2015) found that higher income consumers tended to place less importance on loyalty in their mobile financial applications. Given the above literature on loyalty, we hypothesize the following:

**H2b:** Age moderates the relationship between Loyalty and Continuance Intention.

**H2c:** Education moderates the relationship between Loyalty and Continuance Intention.

**H2d:** Income moderates the relationship between Loyalty and Continuance Intention.

## **Continuance Intention**

Continuance intention is the tendency to repurchase or reuse products and services, and in this paper's context, mobile wallet applications (Amoroso, 2018). It represents a consumer's decision to continue to consume the product (Chinomona & Dubihlela 2014). Repurchase intention refers to the willingness of consumers to buy from the same company for extended periods. Several studies found factors such as perceived value, perceived usefulness, inertia, and enjoyment all might drive continuance intention (Song et al., 2007; Kuo et al., (2009); Tsai et al., 2019; Gupta et al., 2020). Put together the citations from Gupta, et al, 2020; Amin, 2009 and so forth (Amin, 2009; Agrebi & Jallais, 2015; Lewis et al., 2015; Patel, 2016). Inertia, or its analogs, habit and switching costs as studied in numerous articles, also drives repurchase and continuance; humans may be cognitively lazy and repurchase regardless of product quality, satisfaction, or loyalty. ((Barnes, 2011; Lu et al., 2011; Shih, 2012; Chiu et al. 2012; Cheng et al., 2017; Amoroso & Lim, 2017). Finally, enjoyment positively affects consumers' repurchase intentions (Prasad & Aryasri, 2009; Al-Maghrabi & Dennis, 2010; Kim et al., 2014). We will however defer research on these factors for this paper, however we felt it is important to briefly review these constructs as they will be important to discuss as future research.

## METHOD

### Research Model

Our research model shows the relationships of satisfaction to continuance intention and loyalty to continuance intention, with each path moderated by age, education, and income.

### Measures

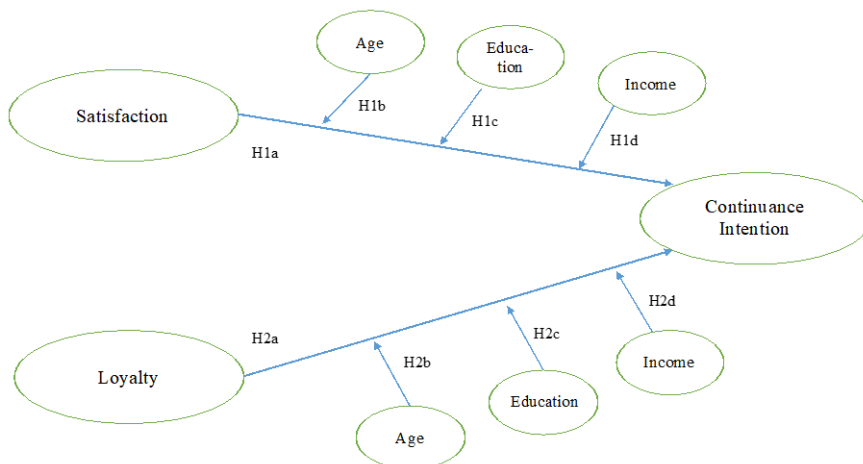
Our research measured three main constructs: continuance intention, satisfaction, and loyalty. Satisfaction's items were adapted from Limayem et al. (2007), Kim & Son (2009), Kuo et al. (2009), Bhattacharjee (2001), Limayem & Cheung (2008), Bhattacharjee et al. (2012). The loyalty items were adapted from Kim & Son (2009) and Cyr et al. (2006). Continuance intention's items were based on Lowry et al. (2013), Lankton & McKnight (2012), and Limayem et al. (2007). The final summary of our items for each scale and the sources for the items is shown in Table 2. To ensure a higher level of validity, we deleted redundant options based on expert feedback. We used a 5-point Likert scale from strong disagreement, slight disagreement, neutrality, slight consent, and strong agreement.

### Data Collection

We used SurveyMonkey to collect our responses from Indian respondents. The electronic survey link was posted on different social media. We determined that social media-generated samples could provide a high-quality method for procuring large sample sizes (Kosinski, et al., 2017; Balter & Brunet, 2012). We also asked respondents to refer others, creating what is referred to as a snowball approach. Such an approach to collect data was described by Atkinson & Flint (2001), who found that snowball sampling mirrors true randomization while adding increased sample sizes and new respondents that were not previously targeted using traditional data collection techniques.

The snowball sampling method does not require complicated planning, and is often used to locate hidden populations. To ensure survey objectivity, our questionnaire was conducted anonymously. We collected 1266 responses and cleaned the data, including checking for data consistency, invalid values, and missing values. We extracted 1060 valid responses, a usable response rate of 86.5%.

Figure 1. Research model



## DEMOGRAPHICS

Table 1 shows the demographics for this study. The 1060 respondents were divided roughly between 60% male and 40% female. The modal age group was 21-25, or 69.1% of the total. Participants over the age of 25 accounted for only about 15.8% of the total participants. Undergraduate and graduate students represented 71.7% and 14.9%, respectively. Participants with a monthly income of less than \$600 used mobile wallets more frequently (65.1%) than those with monthly incomes above \$600 at 34.9%. The respondents either had Apple or Android phones, 36.4%, and 52.7%, respectively. Of the 1,060 surveyed, 684 or 64.5% chose prepaid plans, while 25.8% chose post-paid plans. For financial application usage, 68% of Indian consumers use mobile wallets to pay their bills, 61.2% checked their account balances, 60.2% transferred money, and 54% shopped online. Only 38% of consumers buy music and games with their mobile wallets. For telecom company choice, about 38%

Table 1. Study demographics

<i>Demographic Profile</i>		<i>Number</i>	<i>Percentage</i>
GENDER	Male	680	64.2%
	Female	380	35.8%
AGE	Under 18	29	2.7%
	18-20	131	12.4%
	21-25	732	69.1%
	26-30	114	10.8%
	31-35	25	2.4%
	36-40	12	1.1%
	Over 40	17	1.6%
EDUCATION	High school	35	3.3%
	2-year college	97	9.2%
	Bachelor's degree	760	71.7%
	Master's degree	158	14.9%
	Doctorate degree	10	0.9%
INCOME	< \$300	366	34.5%
	\$300-600	324	30.6%
	\$600-900	194	18.3%
	\$900-1200	78	7.4%
	\$1200-1500	39	3.7%
	\$1500-3000	24	2.3%
	> \$3000	35	3.3%
OPERATING SYSTEM	Apple IOS	386	36.4%
	Android	559	52.7%
	Symbian	25	2.4%
	Windows	61	5.8%
	Blackberry	29	2.7%
SIM CARD TYPE	Prepaid	684	64.5%
	Postpaid	273	25.8%
	Both	103	9.7%

of our respondents use Airtel, the first telecom operator to expand in the mobile wallet industry, Jio, Vodafone, and Idea has 38%, 17% and 13% market shares, respectively.

## ANALYSIS

### Reliability Analysis

We analyzed construct reliability by Cronbach's  $\alpha$ . Table 2 shows that satisfaction had five items had a Cronbach's  $\alpha = 0.846$ ; loyalty had six items = 0.860; and continuance intention had four items = 0.812. All the Cronbach's  $\alpha$  were greater than 0.70, indicating a high level of reliability.

### Validity Analysis

The average variance extracted (AVE) estimate is the amount of variance captured by a construct concerning the variance due to random measurement error, which ranged from 0.787 to 0.857. Discriminant validity requires that the square root of the AVE be greater than the correlation between the two constructs. We calculated the square roots of the AVE and compared with each correlation score, and we found that with all constructs, the AVE was greater than the correlations between the constructs. This indicates that all the constructs shared more variance with their indicators than with other constructs. Therefore, our measures exhibited sufficient discriminant validity. Discriminant validity (see Table 3) was further established when the construct indicators were loaded on the construct as intended with factor loadings greater than 0.5270. We used principal components analysis where Eigenvalues were greater than 1.0 with Varimax rotation for the exploratory factor analysis (EFA). The results showed that all factor loadings confirmed construct convergent validity with little evidence of cross-loadings.

Confirmatory factor analysis (CFA) was performed to confirm the instrument based upon three hypothetical factors using AMOS 29 to check the consistency of the measurement model. To evaluate the goodness of fit of the CFA measurement model, the model fit indicators were all reasonable, where recommended values should exceed 0.90 (Hair, et al., 2011) – NFI = 0.944, RFI = 0.930, IFI = 0.967, TLI = .958, and CFI = .968. Additionally, the RMSEA = 0.076, which is well under the threshold of 0.08. According to Hair et al. (2011), the sample size exceeding 250 respondents requires

Table 2. Item means and standard deviations

Item Content	Derived from	Mean	SD
<b>Consumer Satisfaction <math>\alpha=0.846</math></b>			
I am satisfied with my decision to use the mobile apps for financial applications.	Kim & Son (2009)	3.39	1.197
If I had to decide again, I would not feel differently about using the mobile.	Bhattacharjee et al. (2012)	3.49	1.082
My choice to use the mobile apps was a good one.	Limayem & Cheung (2008)	3.52	0.106
I think I did the right thing to use the mobile apps for financial applications.	Kuo et al. (2009)	3.58	1.029
Overall, I am satisfied with the financial services offered the mobile apps that I use.	Lam et al. (2009)	3.54	1.026
<b>Loyalty <math>\alpha=0.860</math></b>			
I will recommend certain mobile apps to friends and relatives.	Lam et al. (2009)	3.40	1.201
I will use the same apps for financial services in the future.	Cyr et al. (2006)	3.52	1.077
I plan to return to using mobile apps for financial services when I get superior customer service.	Cyr et al. (2006)	3.41	1.054
I consider myself to be very loyal to using certain mobile apps for financial services.	Kim & Son (2009)	3.47	1.035
I will choose certain mobile apps as my first choice in the decision process.	Lam et al. (2009)	3.49	1.054
I consider certain financial service mobile apps to be better than others.	Lam et al. (2009)	3.50	1.007
<b>Continance Intention <math>\alpha=0.812</math></b>			
I always try to use the mobile apps as much as possible.	Limayem & Cheung (2008)	3.39	1.203
I would consider using the mobile apps in the long term.	Lankton & McKnight (2012)	3.53	1.110
In the future I intend use mobile apps rather than going to a physical store.	Limayem & Cheung (2008)	3.45	1.089
Overall, I will use a mobile apps to procure financial services.	Kuo et al. (2009)	3.47	1.059

Table 3. Factor analysis

Item	1	2	3
SAT3	0.5970	0.2070	0.3630
SAT4	0.6540	0.3440	-0.1280
SAT5	0.7300	0.1490	0.1760
LOY2	0.1760	0.5270	-0.0070
LOY4	0.1230	0.7270	0.1550
LOY6	0.2000	0.6870	0.1380
CI3	0.3120	0.2210	0.6130
CI4	0.2290	0.3410	0.5220

a loading factor of at least 0.35 to determine statistical significance at the .05 level, which determines the strength of an item or indicator related to a construct or latent variable in a CFA analysis. The loading factor for all items was above 0.5270 demonstrating that all the eight items measured the formed three constructs.

### Regression Analyses With Interaction Effects

Regression analysis was conducted using SPSS 29. All three runs analyzed the impact of satisfaction and loyalty on continuance intention without moderation effects, and subsequently with moderation effects. To test for moderation, the standardized value of the independent variables (demographic variables (age, education, and income) was computed. New variables were created to analyze the interaction effect by multiplying the standardized value of the moderator with the standardized value of the independent variable individually. The new variables represent the interaction effect of the moderator variable (e.g., Interaction Age + Satisfaction).

Table 4 shows the regression of satisfaction, loyalty, and age on continuance intention. The first run shows age as a third independent variable where 68.6% of the variance is explained in the model. Although satisfaction and loyalty were found to be statistically significant, where  $t=14.111$ ,  $p=.000$  and  $t=18.496$ ,  $p=.000$  respectively, age was not found to be significant,  $t=-1.086$ ,  $p=.278$ . With the addition of the moderator variables, both interactions age + satisfaction and age + loyalty were not

Table 4. Regression – age moderation

Model w/o Moderation Effect	F	Sig.	Adjusted R2		
	772.569	0.000	0.686		
	Unstandardized		Standardized		
	B	Std. Error	Beta	t	Sig.
(Constant)	0.236	0.087		2.705	0.007
Satisfaction	0.400	0.028	0.381	14.111	0.000
Loyalty	0.542	0.029	0.499	18.496	0.000
Age	-0.019	0.017	-0.019	-1.086	0.278
Model w/ Moderation Effect	F	Sig.	Adjusted R2		
	463.360	0.000	0.686		
	Unstandardized		Standardized		
	B	Std. Error	Beta	t	Sig.
(Constant)	0.231	0.088		2.634	0.009
Satisfaction	0.400	0.028	0.381	14.063	0.000
Loyalty	0.543	0.029	0.500	18.485	0.000
Age	-0.018	0.017	-0.018	-1.029	0.304
Interaction Age + Satisfaction	-0.010	0.019	-0.012	-0.506	0.613
Interaction Age + Loyalty	0.021	0.021	0.024	1.011	0.312



found to be statistically significant,  $t=-.506, p=.613$  and  $t=1.011, p=.312$  respectively. After running the moderation effect model, the variance explained is still 68.6%.

Table 5 shows the regression of satisfaction, loyalty, and education on continuance intention. The first run offers education as a third independent variable where 68.6% of the variance is explained in the model. Although satisfaction and loyalty were found to be statistically significant, where  $t=14.014, p=.000$  and  $t=18.467, p=.000$  respectively, education was not found to be significant,  $t=0.712, p=.477$ . With the addition of the moderator variables, both interactions education + satisfaction and education + loyalty were found to be statistically significant, where  $t=-2.805, p=.005$  and  $t=2.683, p=.007$  respectively. After running the moderation effect model, the variance explained is about the same at 68.6%. Therefore, we can conclude that education moderates both satisfaction to continuance intention and loyalty to continuance intention.

Table 6 shows the regression of satisfaction, loyalty, and income on continuance intention. The first run shows income as a third independent variable where 68.6% of the variance is explained in the model. Although satisfaction and loyalty were found to be statistically significant, where  $t=14.017, p=.000$  and  $t=18.425, p=.000$  respectively, income was not found to be significant,  $t=-1.266, p=.206$ . With the addition of the moderator variables, both interactions income + satisfaction and income + loyalty were found to be statistically significant, where  $t=-2.382, p=.017$  and  $t=2.170, p=.030$  respectively. After running the moderation effect model, the variance explained is the same at 68.6%. Therefore, we can conclude that income moderates both satisfaction to continuance intention and loyalty to continuance intention.

## DISCUSSION

### Findings

We reiterate our research questions:

1. To what extent do Indian customers weigh satisfaction and loyalty as a determinant of continuing use of mobile wallet?
2. To what extent do age, education, and income moderate the effects of satisfaction and loyalty to continuance intention?

Table 5. Regression – education moderation

Model w/o Moderation Effect	F	Sig.	Adjusted R2		
	771.853	0.000	0.686		
	Unstandardized		Standardized		
	B	Std. Error	Beta	t	Sig.
(Constant)	0.134	0.094		1.419	0.156
Satisfaction	0.399	0.028	0.379	14.014	0.000
Loyalty	0.542	0.029	0.499	18.467	0.000
Education	0.017	0.024	0.012	0.712	0.477
Model w/ Moderation Effect	F	Sig.	Adjusted R2		
	466.718	0.000	0.687		
	Unstandardized		Standardized		
	B	Std. Error	Beta	t	Sig.
(Constant)	0.124	0.097		1.280	0.201
Satisfaction	0.404	0.028	0.385	14.219	0.000
Loyalty	0.535	0.029	0.493	18.243	0.000
Education	0.022	0.025	0.016	0.877	0.381
Interaction Education + Satisfaction	-0.064	0.023	-0.083	-2.805	0.005
Interaction Education + Loyalty	0.063	0.024	0.081	2.683	0.007

Table 6. Regression – income moderation

Model w/o Moderation Effect		F	Sig.	Adjusted R2		
		773.020	0.000	0.686		
Unstandardized		Standardized				
	B	Std. Error	Beta	t	Sig.	
(Constant)	0.344	0.148		2.330	0.020	
Satisfaction	0.401	0.028	0.381	14.127	0.000	
Loyalty	0.540	0.029	0.498	18.425	0.000	
Income	-0.013	0.010	-0.022	-1.266	0.206	
Model w/ Moderation Effect		F	Sig.	Adjusted R2		
		463.360	0.000	0.686		
Unstandardized		Standardized				
	B	Std. Error	Beta	t	Sig.	
(Constant)	0.300	0.149		2.013	0.044	
Satisfaction	0.403	0.028	0.383	14.196	0.000	
Loyalty	0.540	0.029	0.498	18.455	0.000	
Income	-0.010	0.010	-0.017	-0.953	0.341	
Interaction Income + Satisfaction	-0.056	0.024	-0.066	-2.382	0.017	
Interaction Income + Loyalty	0.052	0.024	0.060	2.170	0.030	

Table 7 reflects the level of support for all the hypotheses mentioned in this paper. If Indian consumers are satisfied with mobile wallet applications, they continue to use them, thus manifesting loyalty towards a mobile wallet application product. Studies have shown that consumers over the age of 30 tend not to switch because it is challenging to learn about new products, so they will continue to use the same products even though if they are more dissatisfied. This may be why age plays a moderating role between loyalty and continuance intention. Nanda (2019) discovered that the age group significantly impacts the intention to utilize mobile wallet applications. Nanda further identified that age and gender significantly influence the consumer’s intention to use mobile wallets, as moderator variables. Income acts as a positive variable when we talk about the satisfaction and loyalty of consumers to continue to use mobile wallet applications. Chee et al. (2018) found that the level of income affords consumers the ability to use mobile wallet applications more and makes it easier to adopt newer technologies.

Our findings show that when the Indian consumers are satisfied with mobile wallet applications, they tend to use them more often (H1a, p=0.000). Satisfaction of Indian consumers is directly and significantly related to continuance intention. The studies of Gupta et al. (2020), Chea & Luo (2006), Kim et al. (2013), Shiau & Luo (2013) all show that consumer satisfaction affects their continuance intention, especially Gupta et al. (2020), pointed out that consumer satisfaction has a positive impact on the continued use of mobile wallets.

Table 7. Hypotheses support

Hypothesis	Beta	p=value	Support
H1a: Satisfaction is positively related to Continuance Intention	0.381	0.000	Yes
H1b: Age moderates the relationship between Satisfaction and Continuance Intention	-0.012	0.613	No
H1c: Education moderates the relationship between Satisfaction and Continuance Intention	-0.083	0.005	Yes
H1d: Income moderates the relationship between Satisfaction and Continuance Intention	-0.066	0.017	Yes
H2a: Loyalty is positively related to Continuance Intention	0.499	0.000	Yes
H2b: Age moderates the relationship between Loyalty and Continuance Intention	0.024	0.312	No
H2c: Education moderates the relationship between Loyalty and Continuance Intention	0.081	0.007	Yes
H2d: Income moderates the relationship between Loyalty and Continuance Intention	0.060	0.030	Yes

Among the moderator variables, age (H1b,  $p=0.613$ ) was not statistically significant between satisfaction and continuance intention. Education (H1c,  $p=0.005$ ), as a moderator variable, was statistically significant between consumer satisfaction and continuance intention. Research by Sharma et al. (2019) and Leong, et al. (2020) also found how education plays a vital role in influencing the use of digital wallets. Sharma (2018) found that mobile wallet continuance intention was moderated by education. Income (H1d,  $p=0.017$ ), as a moderator variable, was found to have a positive relationship between consumer satisfaction and the consumers' continuance intention to use mobile wallet applications.

Indian consumers tend to continue using mobile wallet applications (H2a,  $p=0.000$ ) as loyalty is positively related to continuance intention. Chiu et al. (2012) and Pena-Garcia et al. (2018) also found that customer loyalty has a significant impact on repeat purchase intentions. We also found that age (H2b,  $p=0.312$ ) as a moderator variable is statistically insignificant with respect to the relationship between loyalty and continuance intention, education (H2c,  $p=0.007$ ) moderates the relationship between loyalty to continuance intention, and income (H2d,  $p=0.030$ ) moderates the relationship between consumer loyalty and continuance intention.

### Academic Contributions

Both satisfaction (H1a) and loyalty (H2a) have a positive correlation with continuance intention. In real terms, satisfaction and loyalty can be orthogonal, i.e., one might be dissatisfied with a product but intensely loyal to the brand and therefore continue to use; conversely, one may be indifferent to the brand, yet satisfied from experiences will continue use. Their pathways are generally positively correlated with an ongoing continuance with our model, which is supported by existing theory.

We do not claim that decision-making can be simply categorized according to income and education levels; it is many orders of magnitude more complex and is influenced by a consumers' affective and cognitive states pre- and post-decision making, anticipation, biases, and memories. Decision-making will also be affected by the nature of product; for affect-rich products, consumers value feelings over calculations, and for affect-poor products, calculations over feelings (Zhou et al., 2011). However, studies might support the notion that (e.g., Barth et al., 2017) links genetic scores to education and wealth. Such scores are also correlated with increased rationality in financial decision-making, whereas lower genetic scores correlate with lower educational attainment and wealth and more emotional, extreme decisions on financial instruments.

Our results show that wealthier and more educated consumers in India might seem less prone to emotions, and more cognitive and rational when making decisions. Two of the three satisfaction moderators (for H1d, income and H1e, education) have a significant and negative moderating effect on the relationship between satisfaction and continuance intention. Higher income and education levels are more prone to cognitive over emotional decision making, then satisfaction would encourage consumers to make more emotional choices. Satisfaction may be more of a sentimental and emotional response rather than cognition. Higher-income and more highly educated Indian consumers are statistically less emotional and more cognitive in their decision-making, in the case of mobile wallet use. In their study of mallgoers, Ha & Im (2012) suggested that satisfaction can stem from emotional triggers to the mall, rather than disconfirmations about expectations about the mall (cognitive). Akgün et al. (2017) also found that negative and positive emotions are significantly related to satisfaction.

The same moderators (H2c income / H2d education) now have a significant and positive moderating effect on the relationship between loyalty and continuance intention. Given that loyalty has heavier components of cognition over emotion, higher income and higher educated consumers may opt to continue using a mobile wallet product. Lewis and Soureli (2006) establish that loyalty is an outcome of cognitive rather than affective factors, at least for retail banking customers if not all customers; mobile wallet is like banking as a financial product. In contrast to satisfaction, loyalty may have heavier cognitive components than others. In short, our moderator evidence suggests that

for Indian mobile wallet consumers, satisfaction seems to be a more heavily emotional factor towards mobile wallet continuance use, and loyalty seems to be a more cognitive act.

## Managerial Contributions

Interestingly, two of the three moderator variables, income, and education levels, display opposite and significant moderating effects on our main drivers of loyalty and satisfaction. These results might point to possible decision-making strategies about mobile wallet applications and services; for example, mobile wallet decisions, at least in the Indian context, seem to be more emotional in content, while loyalty seems more cognitive. This could determine various campaigns when cultivating straight new product pitches versus loyalty campaigns,

What is not determined in this study are the positions within the customer life cycle phases of our Indian respondents. Following the seminal work of Davidson et al. (2002) the four life stages of a customer might be defined as introduction, introduction, growth, maturity, and decline. Satisfaction and loyalty may work in dramatically different ways, for customers in the introduction phase, versus the same customer in the maturity phase. For customer relationship management (CRM) departments, who must determine customer lifetime values (CLV) of different segments of customers by life stage: to avoid the churn of a mature customer, who may be more service-sensitive than product-sensitive. A study of Greek customer revealed that human interaction was more important in early stages to preserve customer loyalty (Santouridis & Tsachtani, 2015). Since loyalty is the objective, CRM might entail more than just satisfaction and loyalty plays, to more active customer partnering and referral (Schrage 2017)

## LIMITATIONS

We specifically present our insights for the Indian mobile wallet context, and not generally for other country contexts or other non-mobile wallet smartphone apps, even consumer products. The study was also conducted during the pre-COVID pandemic. After April 2021, when India (as did many other countries) imposed physical lockdowns, there might have been a radical shift in attitudes about mobile wallets. Mobile wallets might have experienced a dramatic increase in use versus physical options, thus making its use imperative and necessary, and not dependent on satisfaction or loyalty.

Our study focused on satisfaction and loyalty, and the moderating effects of age, income, and education. In studying consumer loyalty and satisfaction with products, one might consider measuring other consumer effects. For example, switching costs are complex; this might comprise the time and pain of switching software and hardware and relearning new processes. Switching costs might trump cognition and affect smartphone use, or even factor in extra cognition or extra emotional factors to satisfaction and loyalty. There are also network effects, the relative popularity of the app, which again may moderate cognitive or emotional resistance to a product; network popularity may be yet another type of switching cost. As previously stated, there could be effects of customer life cycle stage on loyalty and satisfaction. Finally, there is simple inertia, or “laziness” of a consumer to switch. Inertia or habit might be more an emotional rather than rational, cognitive factor, adding fuel to the emotional effects of loyalty. These constructs could be included in repeat studies of the Indian market.

We rationalized that these factors might be randomized away from our large sample and assumed that Indian mobile wallet apps are commoditized and homogeneous. Indian consumers might be highly likely to switch without effort because of mobile wallet homogeneity, interoperability, and truly “democratic” network effects. However, we might not make the same assumptions about more heterogeneous, branded products in India.

## FUTURE RESEARCH

We suggest that this same study be replicated in other heavy mobile wallet-using countries, and where there are numerous competitive choices available. It would be interesting to see if the results hold in countries like Japan (LINE, Rakuten, Apple) or the U.S. (Paypal, Venmo, Zelle, Amazon, Apple Pay, Samsung Pay, etc.). Our results may be irrelevant for Kenya, which has one dominant mobile wallet (MPesa, which comprises about 96% of the market share). For monopolized mobile wallets, satisfaction and loyalty may be moot. Previous research has also shown “opposite” effects if countries are compared. For example, satisfaction and consumer loyalty were strong and weak mediators, respectively in China for online purchasing, but the effects were reversed for the Philippines (Amoroso & Lim 2020). One might find the same opposition in the cognitive and emotional content of satisfaction and loyalty among countries. Our study points to possible new extensions and research; for example, is mobile wallet an affect-rich or cognitive-rich product? To establish this context, we might set up experiments to investigate the differences between a mobile wallet app and a more hedonistic or utilitarian mobile app. Also, we might extend our study to answer: Do education and income display the same moderating properties in non-Indian locations?

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