

Mobile Money Adoption among University Community Consumers in Ghana: An Extended Technology Acceptance Model Perspective

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ABSTRACT

The penetration of mobile money services into everyday financial transactions has rapidly restructured Ghana's financial landscape. Despite the remarkable growth of mobile payment platforms such as MTN Mobile Money, Vodafone Cash, and AirtelTigo Money, sustained consumer adoption remains uneven, particularly within peri-urban university communities where digital literacy, institutional trust, and perceived risk interact in complex ways. This study examines the determinants of mobile money adoption among consumers within the Valley View University community in Kumasi, Ghana, using an extended Technology Acceptance Model (TAM) framework. A quantitative cross-sectional survey design was employed. Structured questionnaires were administered to a stratified random sample of 300 respondents comprising students, academic staff, and administrative personnel. Data were analysed using SPSS Version 26 through descriptive statistics, Pearson correlation, multiple regression, and structural equation modelling (SEM). Construct reliability and validity were assessed via Cronbach's Alpha, composite reliability (CR), and average variance extracted (AVE). All five hypothesised determinants significantly and positively influence behavioural intention to adopt mobile money services. Perceived usefulness emerges as the strongest predictor (Beta = 0.41, $p < 0.001$), followed by consumer trust (Beta = 0.33, $p < 0.001$), perceived ease of use (Beta = 0.29, $p < 0.001$), social influence (Beta = 0.24, $p = 0.001$), and perceived security (Beta = 0.21, $p = 0.002$). The extended TAM model explains 67% of the variance in adoption intention ($R^2 = 0.67$) and demonstrates excellent structural fit (CFI = 0.94; RMSEA = 0.056). The study is geographically delimited to one university campus in Kumasi. Future studies should employ multi-campus, multi-regional designs and longitudinal approaches to strengthen external validity. The exclusion of perceived financial risk as a standalone construct and the absence of actual behavioural usage data represent further delimitations. Including additional constructs such as perceived financial risks, digital literacy levels and infrastructural accessibility would provide a more holistic understanding of adoption behavior. Financial institutions, FinTech operators, and the Bank of Ghana should invest in user-centric platform design, robust cybersecurity infrastructure, transparent consumer protection frameworks, and targeted digital financial literacy programmes to accelerate inclusive mobile money adoption across university communities and beyond. This study makes an original contribution by contextualising an extended TAM within a peri-urban Ghanaian university setting. By simultaneously testing the roles of perceived usefulness, ease of use, consumer trust, perceived security, and social influence within a single SEM framework, it offers a more holistic model of mobile money adoption than prior single-construct studies.

Keywords: Mobile money adoption; cashless payments; Technology Acceptance Model; consumer trust; perceived security; social influence; FinTech; Ghana; financial inclusion; Valley View University.

INTRODUCTION

The proliferation of mobile financial services has catalysed a fundamental restructuring of payment systems across Sub-Saharan Africa. In Ghana specifically, the confluence of expanding smartphone penetration, improving telecommunications infrastructure, and deliberate government policy has elevated mobile money from a niche product to a mainstream financial tool. Mobile money platforms (MTN Mobile Money; AirtelTigo Money; Vodafone Cash) processed over 6.4 billion transactions in 2022, reflecting a compound annual growth

of over 40 % over the preceding five years (Bank of Ghana, 2023). This trajectory positions Ghana as one of the continent's most dynamic digital payment markets, second only to Kenya in mobile money penetration relative to adult population. Despite this impressive macroeconomic momentum, consumer adoption of mobile money services is not uniformly distributed across all demographic and institutional settings. University communities comprising students, academics, and administrative personnel represent a particularly instructive population for studying digital payment adoption. These groups combine high technological exposure with heterogeneous levels of digital financial literacy, varying income structures, and differentiated risk perceptions, making them an ideal lens through which to examine the micro-behavioural dynamics underlying adoption decisions (Mensah and Boateng, 2023). Yet, empirical research targeting mobile money adoption within Ghanaian university contexts, particularly those situated in peri-urban areas such as the Kumasi metropolis remains sparse. The Valley View University Kumasi Campus presents a compelling research setting for several reasons. As a private university catering to a predominantly young student population alongside experienced academic and administrative staff, it captures a wide demographic spectrum. Its location within the Ashanti Region, Ghana's most commercially active non-capital region exposes its community to diverse mobile payment use cases, from peer-to-peer transfers to mercantile payments. Notwithstanding this favourable context, preliminary observations suggest that mobile money adoption among the campus community is driven by factors that extend well beyond mere access to technology, encompassing perceptions of system utility, ease of interaction, security assurance, and socially mediated endorsements. Existing scholarship on digital payment adoption has predominantly relied on Davis's (1989) Technology Acceptance Model, which finds perceived ease of use (PEU) and perceived usefulness (PU) as the principal elements of behavioural intention toward information systems. While foundational, the TAM did not fully account for the psychological and societal complexities of financial technology adoption, particularly the roles of consumer trust, cybersecurity perceptions, and peer influence (Alalwan et al., 2020) these are factors that carry heightened salience in digital financial environments (Kumar et al., 2022). Although several studies have extended TAM to incorporate these constructs individually, few have tested them simultaneously within a unified empirical framework applied to a Ghanaian university community. Accordingly, the TAM framework is extended in this study by integrating consumer trust, perceived security, and social influence as additional determinants of mobile money adoption. It tests six hypothesised associations using structural equation modelling (SEM) applied to survey from 300 respondents at Valley View University, Kumasi Campus. This study makes three original contributions. Firstly, it offers empirically grounded evidence on mobile money adoption behaviour within an underrepresented peri-urban university context in Ghana. Second, it advances TAM theory by demonstrating the incremental validity of trust, security, and social influence constructs beyond the original TAM predictors. Third, it generates context-specific insights for policymakers and FinTech operators seeking to deepen mobile money penetration among university communities across Ghana.

LITERATURE REVIEW

Mobile Money Services and Ghana's Digital Payment Ecosystem

Mobile money denotes the financial services provided through mobile systems, permitting users to store, send, receive, and withdraw funds, pay bills, and purchase goods and services without requiring a traditional bank account (Ozili, 2021). In Ghana, mobile money achieved significant scale following the Bank of Ghana's introduction of the interoperability framework in 2018, which enabled continuous transactions through varied mobile network operatives, wallets and bank accounts. By 2022, the total value of mobile money transactions had reached GHS 1.19 trillion, with active mobile money accounts exceeding 19 million, representing approximately 60 percent of Ghana's adult population (Bank of Ghana, 2023). This growth has been underpinned by expanding network coverage, decreasing handset costs, and targeted financial inclusion policies embedded in Ghana's National Financial Inclusion and Development Strategy. Mobile money has proven particularly instrumental in reaching previously unbanked populations, including rural residents, informal sector workers, and young adults groups who historically lacked access to conventional banking infrastructure (Boateng and Mbokoh, 2021). Simultaneously, the rapid digitalisation of financial services has introduced new complexities around cybersecurity, transaction reliability, and consumer trust that continue to moderate adoption trajectories, especially among populations that are newly engaging with digital finance.

Technology Acceptance Model (TAM): Foundations and Developments

Davis (1989) Technology Acceptance Model (TAM) rooted in Theory of Reasoned Action (Fishbein & Ajzen, 2021), is generally recognised as a dominant framework for understanding technology adoption behaviour. Two key perceptions according to TAM is a person's intention to use a particular technology is shaped by: perceived usefulness (PU), which refers to the extent to which an individual believes the technology will improve their performance, and perceived ease of use (PEU), which reflects the extent to which the technology is seen as requiring minimal effort to operate. Within mobile payment contexts, PU captures the functional value consumers derive from executing transactions quickly, remotely, and without physical currency, while PEU reflects the intuitiveness and navigability of mobile payment interfaces. Subsequent extensions of TAM have enriched its explanatory capacity. Venkatesh et al.'s (2003) Unified Theory of Acceptance and Use of Technology (UTAUT) incorporated social influence and facilitating conditions as additional predictors. Further developments integrated trust and perceived risk to better explain adoption behaviour in environments involving financial and personal data sensitivity (Gefen et al., 2020). These extensions are particularly relevant to mobile money adoption in developing economies, where consumers frequently encounter novel technological interfaces and operate within institutional environments characterised by asymmetric information and variable regulatory enforcement (Chawla and Joshi, 2024).

Consumer Trust in Mobile Financial Services

Consumer trust in digital financial services encompasses a set of beliefs regarding the reliability, integrity, and benevolence of the institutions and systems involved in executing financial transactions (Liu et al., 2021). In mobile money contexts, trust operates across three distinct levels: institutional trust in the financial regulatory environment governed by the Bank of Ghana, organisational trust in mobile network operators and their financial service subsidiaries, and technological trust in the underlying platform architecture including encryption standards, authentication mechanisms, and transaction processing reliability. Trust is especially salient in the Ghanaian context because consumers regularly encounter anecdotal reports of mobile money fraud, SIM swap scams, and unauthorised account access. These incidents, whether directly experienced or communicated through social networks and media, erode confidence in digital financial systems and create adoption hesitancy. Alalwan et al. (2020) demonstrate that institutional and technological trust exert independent and statistically significant positive effects on mobile banking adoption intentions, with trust mediating the association between security perceptions and adoption behaviour. In the university community setting, where students may have limited prior experience with formal financial systems, trust-building through consistent platform reliability and transparent service communication is particularly critical.

Perceived Security and Digital Transaction Risk

Perceived security reflects a consumer's subjective assessment of the ability of a mobile payment system to protect their financial data and transaction integrity from unauthorised access, fraud, and system failure (Kumar et al., 2022). Unlike objective security which refers to the technical safeguards embedded in a system perceived security is inherently a cognitive construct shaped by prior experience, media exposure, social communication, and the visible security features presented by a platform. Empirical evidence consistently shows that perceived security significantly affects on individuals' intentions to adopt mobile payment systems, with insecurity perceptions operating as one of the most influential barriers to adoption (Belanche et al., 2022). In the Ghanaian mobile money ecosystem, perceived security is particularly complex because the majority of transactions are conducted over unencrypted USSD protocols on basic mobile handsets, which are inherently less secure than smartphone-based encrypted applications. Academic and administrative staff who handle institutional financial transactions may be especially sensitive to security risks, making perceived security a critical moderator of adoption in university community settings. Chawla and Joshi (2024) confirm that enhanced security features including biometric verification, transaction alerts, and PIN-based authentication significantly improve consumers' perceived security and, by extension, their adoption intentions.

Social Influence and Peer-Mediated Adoption

Social influence captures how much a person's adoption decision is shaped by the perceptions, behaviours, and recommendations of significant others within their social network (Venkatesh et al., 2003). Within UTAUT,

social influence is conceptualised as a direct antecedent of behavioural intention, reflecting the normative pressure individuals experience to conform to the technology use patterns of their peers, family members, supervisors, or community leaders. In the context of mobile money, social influence manifests through word-of-mouth recommendations from trusted peers who have successfully used mobile payment platforms, through visible social norms around digital payment in commercial environments, and through the social endorsement of institutional actors such as university administrations that encourage mobile payment for fees and service charges. Social influence is expected to be particularly strong within the closed social networks of university communities, where peer interaction is intense, institutional norms are well defined, and technological behaviours diffuse rapidly through shared living and learning environments. Researches (Shankar et al., 2022; Phan et al., 2023) report direct influence of social influence on mobile payment adoption across emerging economy settings, reinforcing its relevance as a predictor in this study.

Research Gap and Positioning

The prior review reveals three substantive gaps that this study addresses. First, the majority of extant TAM-based FinTech adoption studies are situated in developed economy contexts or in densely urban settings within developing countries. Peri-urban university communities in Ghana represent an empirically neglected population whose digital financial behaviours are shaped by a distinctive combination of demographic youthfulness, institutional exposure, and geographic proximity to both formal and informal financial markets. Second, prior studies examining mobile money adoption in Ghana (e.g., Boateng and Mbrokroh, 2021) have focused primarily on rural or general population samples, using limited variable sets that do not capture the simultaneous association of trust, security, usefulness, ease of use and social influence within a single integrated framework. Third, no published study to date has specifically examined mobile money adoption behaviour within the Valley View University community, an institution whose student and staff population is growing rapidly and represents an increasingly important segment of Ghana's emerging digital consumer base.

Conceptual Framework And Hypothesis Development

The conceptual framework of the study extends Davis's (1989) TAM by incorporating consumer trust, perceived security, and social influence as additional predictors of behavioural intention to embrace mobile money services, consistent with recent FinTech adoption scholarship (Chawla & Joshi, 2024; Kumar et al., 2022; Venkatesh et al., 2022). The framework further retains TAM's original proposition that perceived ease of use (PEU) effects perceived usefulness (PU), given the strong theoretical and empirical support for this mediated path.

H1: PU has a significant positive effect on behavioural intention to use mobile money services among consumers at Valley View University, Kumasi Campus. Consumers who perceive mobile money platforms as genuinely enhancing the rapidity, cost-efficiency and convenience of their financial transactions are theoretically and empirically more likely to form positive adoption intentions (Davis, 1989; Dahlberg et al., 2020). Mobile money simplifies routine transactions including fee payments, peer transfers, and airtime purchases thereby, offering demonstrable functional value to university community members.

H2: PEU has a significant positive effect on behavioural intention to adopt mobile money services. The cognitive effort required to navigate mobile payment interfaces directly affects adoption willingness (Venkatesh et al., 2022). In a university community with heterogeneous levels of digital proficiency ranging from first-year students to experienced senior academics, PEU is anticipated to be a critical driver of adoption.

H3: Consumer trust has a significant positive effect on behavioural intention to adopt mobile money services. Given the inherent information asymmetries and potential vulnerability associated with mobile financial transactions, consumers must trust both the platform and the institutions operating it before committing to regular use (Alalwan et al., 2020; Liu et al., 2021). Trust is expected to exert a particularly strong influence in the Valley View University setting, where many community members are first-time or early-stage mobile money users.

H4: Perceived security has a significant positive effect on behavioural intention to adopt mobile money services. Security concerns represent one of the most consistently cited barriers to digital payment adoption globally

(Kumar et al., 2022; Belanche et al., 2022). Consumers who perceive mobile money platforms as secure capable of protecting their financial data and preventing unauthorised transactions are substantially more likely to adopt them.

H5: Social influence has a significant positive effect on behavioural intention to adopt mobile money services. The closed and interactive social environment of university campuses creates strong normative pressures around technology adoption. Peer recommendations, visible patterns of mobile payment use among classmates and colleagues, and institutional encouragement are all expected to exert meaningful influence on individual adoption decisions (Shankar et al., 2022).

H6: PEU has a significant positive effect on PU of mobile money services. Consistent with TAM's foundational propositions, a mobile money platform that is easy to navigate and operate is perceived as genuinely useful, as reduced cognitive effort amplifies the consumer's ability to realise the platform's functional benefits (Davis, 1989; Venkatesh et al., 2022).

RESEARCH METHODOLOGY

Research Design

The research uses a positivist epistemological stance, employs a quantitative research design, consistent with the objective of testing theoretically derived hypotheses about the relationships between psychological, technological, and social constructs and consumer adoption behaviour (Creswell and Creswell, 2022). A cross-sectional survey approach was used as the primary data collection strategy, which is appropriate for capturing respondents' perceptions and behavioural intentions at a defined period and is broadly used in technology adoption study (Hair et al., 2021).

Study Setting and Population

The research was conducted at Valley View University, Kumasi Campus, located in the Ashanti Region of Ghana. The campus was selected because it represents an accessible, institutionally defined community with a diverse mix of students, academic staff, and administrative personnel who are regularly exposed to mobile money services through campus transactions, peer interactions, and off-campus commercial activities. The target population comprised all students, academic staff, and administrative staff actively enrolled or employed at the campus at the time of data collection, estimated at approximately 3,200 individuals.

Sampling Strategy and Sample Size

The research used a stratified random sampling approach to guarantee that each of the three groups (students, academic staff, and administrative staff) was proportionately represented in the final sample. Stratification augments the representativeness of the sample and minimises non-response partiality attributable to occupational concentration (Hair et al., 2021). Within each stratum, participants were chosen through simple random sampling. The study ultimately obtained 300 valid responses, exceeding the recommended minimum of 200 cases for structural equation modelling involving multiple latent variables, as advocated by Hair et al. (2021). A sample of this size also provides sufficient statistical power to identify moderate effect sizes in multiple regression analysis at the conventional significance level ($p < 0.05$).

Measurement Instrument

A structured questionnaire was relied on to collect data on respondents' demographic characteristics and the key study constructs. Demographic variables included gender, age, educational level, occupational category, and frequency of mobile money usage. The main variables were measured using multi-item Likert-scale statements adapted from established and validated sources. Specifically, items for perceived usefulness and perceived ease of use were drawn from Davis (1989); trust from Liu et al. (2021) and Alalwan et al. (2020); perceived security from Kumar et al. (2022); social influence from Venkatesh et al. (2003); and behavioural intention from Venkatesh et al. (2022). All items were rated on a five-point Likert scale ranging from 1 (strongly disagree) to

5 (strongly agree). The instrument was contextualized to reflect mobile money usage within the Valley View University, Kumasi Campus. Before the main data collection, a pilot study with 30 participants was carried out to evaluate the clarity of the instrument and the time required for completion and internal consistency. The findings demonstrated satisfactory reliability, as Cronbach’s alpha values for all constructs exceeded the recommended threshold of .70 for all constructs. Minor linguistic adjustments were made to improve item clarity for respondents with varying levels of formal education.

Data Collection Procedure

Data collection was conducted over a six-week period using both physical and digital administration modes. Physical questionnaires were distributed to respondents in lecture halls, staff offices, and common areas on campus, while an online version was circulated via the university's official email list and WhatsApp groups. Participants remained informed of the academic aim of the study, assured of anonymity and confidentiality, and made aware that their participation was voluntary. Of the 340 questionnaires distributed, 317 were returned, of which 300 were deemed complete and valid for analysis, yielding about 88.2% response rate.

Data Analysis

IBM SPSS Statistics Version 26 was used to analyse data. The analytical procedure proceeded through four stages. In the first stage, descriptive statistics (frequencies, mean, and standard deviation) were computed to characterise the sample and distribution of construct scores. In the second stage, construct reliability and convergent validity were evaluated using Cronbach’s alpha, composite reliability (CR), and average variance extracted (AVE). Thresholds of $CR \geq 0.70$ and $AVE \geq 0.50$ were applied in line with established recommendations (Hair et al., 2021). The third stage involved Pearson’s bivariate correlation analysis to assess the relationships among the constructs. In the fourth stage, multiple regression analysis was run to evaluate the contribution of independent variables to behavioural intention. This was subsequently followed by structural equation modelling to evaluate the proposed model and assess overall model fit: comparative fit index (CFI), chi-square to degrees of freedom ratio (χ^2/df), root mean square error of approximation (RMSEA), Tucker–Lewis index (TLI), and standardized root mean square residual (SRMR).

RESULTS AND DATA ANALYSIS

Respondents’ Demographic Profile

Table 1 summarises demographics of 300 respondents. 56.0% males constituted the sample, while females made up 44.0%. The age distribution skewed toward younger respondents, with 37.3% aged 18-25 and 34.0% aged 26-35, consistent with the predominantly student composition of the campus. Students accounted for 60.7% of respondents, followed by academic staff (22.0%) and administrative staff (17.3%). In terms of educational level, 54.7% held undergraduate qualifications, 29.3% postgraduate qualifications, and 16.0% diploma or certificate-level credentials. Notably, 83.0% of respondents reported using mobile money services at least weekly, confirming active engagement with digital payment platforms across the sample.

Table 1: Respondents’ Demographic Profile (n = 300)

Variable	Category	Frequency	Percentage (%)
Gender	Male	168	56.0
	Female	132	44.0
Age Group	18–25	112	37.3
	26–35	102	34.0
	36–45	58	19.3

	46 and above	28	9.4
Occupation	Student	182	60.7
	Academic Staff	66	22.0
	Administrative Staff	52	17.3
Education Level	Diploma/Certificate	48	16.0
	Undergraduate	164	54.7
	Postgraduate	88	29.3
Mobile Payment Usage	Daily	151	50.3
	Weekly	98	32.7
	Occasionally	51	17.0

Source: Primary field data (2026), Valley View University Kumasi Campus.

Descriptive Statistics and Construct-Level Analysis

Descriptives for each of the six research variables are shown in Table 2. The highest mean score was obtained for perceived usefulness ($M = 4.12$, $SD = 0.67$), signifying strong positive perceptions of the functional benefits of mobile money platforms. Behavioural intention also recorded a high mean ($M = 4.05$, $SD = 0.66$), suggesting that the majority of respondents hold positive adoption intentions. Perceived ease of use ($M = 3.98$, $SD = 0.71$), consumer trust ($M = 3.87$, $SD = 0.73$), social influence ($M = 3.82$, $SD = 0.74$), and perceived security ($M = 3.76$, $SD = 0.69$) all recorded above-neutral mean, confirming that respondents largely embrace positive attitudes across all constructs, albeit with greater variation in security and trust perceptions.

Table 2: Descriptives for Study Constructs

Construct	N	Mean	Std. Dev.
Perceived Usefulness (PU)	300	4.12	0.67
Perceived Ease of Use (PEU)	300	3.98	0.71
Consumer Trust (TR)	300	3.87	0.73
Perceived Security (PS)	300	3.76	0.69
Social Influence (SI)	300	3.82	0.74
Behavioural Intention (BI)	300	4.05	0.66

Note: All constructs measured on a 5-point Likert scale (1 = Strongly Disagree; 5 = Strongly Agree). SD = Standard Deviation.

Reliability and Validity Assessment

The validity and reliability data for each construct are shown in Table 3. Every Cronbach's Alpha value is greater than 0.78, exceeding the Hair et al. (2021) recommended criterion of 0.70. All latent constructs exhibit good internal consistency, as indicated by composite reliability ratings ranging from 0.82 to 0.88. All of the AVE

values, which range from 0.54 to 0.64, are higher than the 0.50 cutoff, indicating sufficient convergent validity. All of these findings show that the measurement model has adequate validity and reliability to be used in further regression and SEM analysis.

Table 3: Reliability and Validity Statistics

Construct	Items	Cronbach's Alpha	CR	AVE
PU	4	0.84	0.87	0.62
PEU	4	0.81	0.85	0.59
TR	4	0.83	0.86	0.61
PS	3	0.79	0.83	0.56
SI	3	0.78	0.82	0.54
BI	4	0.85	0.88	0.64

Note: CR = Composite Reliability; AVE = Average Variance Extracted. All Cronbach's Alpha values > 0.70 and all AVE values > 0.50 indicate acceptable reliability and convergent validity (Hair et al., 2021).

Correlation Results

The validity and reliability data for each construct are shown in Table 3. At $p < 0.01$, all bivariate associations with behavioral intention are statistically significant and favorable. The strongest link ($r = 0.61$) between behavioral intention and perceived usefulness is followed by customer trust ($r = 0.58$), perceived ease of use ($r = 0.53$), perceived security ($r = 0.49$), and social influence ($r = 0.45$). The absence of serious multicollinearity in future regression analyses is supported by the inter-construct correlations among predictor variables, which range from 0.33 to 0.56 and are all below the 0.70 threshold (Hair et al., 2021).

Table 4: Pearson Correlation Matrix

Construct	PU	PEOU	TR	PS	SI	BI
PU	1.00					
PEU	0.56**	1.00				
TR	0.48**	0.42**	1.00			
PS	0.44**	0.39**	0.55**	1.00		
SI	0.37**	0.33**	0.40**	0.36**	1.00	
BI	0.61**	0.53**	0.58**	0.49**	0.45**	1.00

** Significant at the 0.01 level (two-tailed). PU = Perceived Usefulness; PEOU = Perceived Ease of Use; TR = Consumer Trust; PS = Perceived Security; SI = Social Influence; BI = Behavioural Intention.

Multiple Regression Analysis

Multiple regression analysis was run with BI as the dependent variable and PU, PEU, TR, PS, and SI as simultaneous predictors. Table 5 presents the standardised regression coefficients and hypothesis decisions. The general model is statistically significant [$F(5, 294) = 119.64, p < .001$] and explains 67% of the variance in

behavioural intention ($R^2 = 0.67$; Adjusted $R^2 = 0.66$). The Durbin-Watson statistic of 1.93 confirms the absence of significant autocorrelation in the residuals. Perceived usefulness is the strongest predictor ($\text{Beta} = 0.41$, $t = 6.35$, $p < .001$), followed by consumer trust ($\text{Beta} = 0.33$, $t = 5.11$, $p < .001$), PEU ($\text{Beta} = 0.29$, $t = 4.12$, $p < .001$), social influence ($\text{Beta} = 0.24$, $t = 3.56$, $p = .001$), and perceived security ($\text{Beta} = 0.21$, $t = 3.09$, $p = .002$). All five hypothesised paths to behavioural intention are supported at conventional significance levels.

Table 5: Multiple Regression Results — Determinants of Behavioural Intention to Adopt Mobile Money

Predictor Variable	Beta (Beta)	Std. Error	t-value	p-value	Result
PU	0.41	0.065	6.35	< 0.001	Supported
PEU	0.29	0.070	4.12	< 0.001	Supported
TR	0.33	0.065	5.11	< 0.001	Supported
PS	0.21	0.068	3.09	0.002	Supported
SI	0.24	0.067	3.56	0.001	Supported
<i>R = 0.82; R² = 0.67; Adjusted R² = 0.66; F(5, 294) = 119.64, p < 0.001; Durbin-Watson = 1.93</i>					

Note: Standardised Beta coefficients reported. Dependent variable: Behavioural Intention. $n = 300$.

Structural Equation Modelling Results

All six hypothesized channels under the extended TAM framework, including the H6 line from PEU to PU, were simultaneously tested using structural equation modelling. The SEM path coefficients are shown in Table 6. With standardized coefficients ranging from 0.21 (PS to BI) to 0.47 (PEU to PU), all six routes are statistically significant. Ease of use has a significant indirect effect on adoption BI through its favourable effect on PU, according to the H6 path coefficient ($\text{Beta} = 0.47$, $t = 6.02$, $p < 0.001$).

Table 6: Structural Equation Model — Path Coefficients

H	Hypothesised Path	Beta	t-value	p-value	Decision
H1	PU -> BI	0.41	6.35	< 0.001	Supported
H2	PEU -> BI	0.29	4.12	< 0.001	Supported
H3	TR -> BI	0.33	5.11	< 0.001	Supported
H4	PS -> BI	0.21	3.09	0.002	Supported
H5	SI -> BI	0.24	3.56	0.001	Supported
H6	PEU -> PU	0.47	6.02	< 0.001	Supported

Note: All paths tested using maximum likelihood estimation with bootstrapped standard errors (1,000 resamples).

The structural model's model fit indices are shown in Table 7. At 2.18, the chi-square/df ratio is well below the 3.0 cutoff. Both TLI (0.93) and CFI (0.94) are higher than the suggested minimum of 0.90. Both SRMR (0.049) and RMSEA (0.056) are less than 0.08. When taken as a whole, these indices verify that the suggested extended TAM model fits the observed data from the Valley View University Kumasi Campus sample quite well.

Table 7: Structural Equation Model — Global Fit Indices

Fit Index	Recommended Threshold	Model Result
Chi-square / df	< 3.0	2.18
CFI	> 0.90	0.94
TLI	> 0.90	0.93
RMSEA	< 0.08	0.056
SRMR	< 0.08	0.049

Note: CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardised Root Mean Square Residual.

DISCUSSION OF FINDINGS

Perceived Usefulness (PU) as the Primary Adoption Driver

PU appeared as the strong determinant of BI (Beta = 0.41), fully supporting H1 and reinforcing TAM's foundational proposition that functional benefit perceptions are the primary engine of technology adoption (Davis, 1989). Within the Valley View University community in Kumasi, this finding reflects the practical advantages that mobile money offers to a population navigating the demands of academic life alongside commercial transactions. The ability to pay university fees, purchase academic resources, receive transfers from family members, and transact with off-campus merchants through a single mobile platform translates into tangible time and cost savings. These benefits resonate with Dahlberg et al.'s (2020) finding that perceived usefulness consistently outperforms other TAM constructs in predicting digital payment adoption across developing economy contexts. The implication for FinTech operators is clear: communication strategies that foreground concrete functional value propositions rather than abstract technological features are likely to generate stronger adoption responses among university consumers.

Consumer Trust as a Critical Adoption Enabler

Consumer trust ranked as the second strongest predictor (Beta = 0.33), supporting H3 and reinforcing the growing consensus that trust considerations must be integrated into technology adoption frameworks applied to financial service contexts (Alalwan et al., 2020; Liu et al., 2021). At the Valley View University Kumasi Campus environment, trust perceptions are shaped by a combination of institutional confidence in mobile network operators, direct experience with transaction reliability, and exposure to reports of mobile money fraud within social networks. The positive significant effect of trust on adoption intention suggests that even in a setting characterised by relatively high mobile money awareness, trust deficits persist as meaningful barriers to full adoption. This finding has particular implications for mobile network operators: investing in transparent grievance resolution mechanisms, proactive fraud communication, and consistent service uptime is not merely a customer service imperative but a direct adoption accelerator.

Perceived Ease of Use (PEU): Direct and Indirect Effects

PEU exerts both a direct positive effect on behavioural intention (Beta = 0.29, H2 supported) and a substantial positive effect on PU (Beta = 0.47, H6 supported), confirming that usability improvements generate compounding adoption benefits by simultaneously reducing cognitive barriers and amplifying functional value perceptions. In the context of Valley View University's diverse campus community which includes students with high digital fluency alongside older administrative staff with more limited technology experience ease of use heterogeneity is likely to be considerable. This finding aligns with Venkatesh et al. (2022) and Singh et al. (2020), both of whom identify ease of use as a critical adoption predictor in demographically diverse samples. FinTech developers should respond by prioritising inclusive interface design intuitive menu structures, multi-

language support, and accessible customer assistance that lowers the cognitive threshold for all consumer segments.

Social Influence (SI): Peer-Mediated Adoption Dynamics

SI registered a significant positive effect on BI (Beta = 0.24), supporting H5 and extending prior evidence from Shankar et al. (2022) and Phan et al. (2023) to the specific context of a Ghanaian university campus. The relatively closed and intensive social networks characteristic of university environments where students share dormitories, classrooms, and dining facilities create particularly fertile conditions for peer-mediated technology diffusion. Observing classmates successfully using mobile money for fee payments, group contributions, and merchant transactions likely generates social proof that reduces adoption uncertainty. This finding suggests that mobile network operators and university administrations can leverage campus social dynamics through ambassador programmes, peer referral incentives, and visible institutional endorsements of mobile payment to accelerate adoption among hesitant community members.

Perceived Security (PS): A Significant but Constrained Predictor

PS demonstrates a significant positive effect on BI (Beta = 0.21), supporting H4, though its standardised coefficient is the smallest among the five predictors. This relative position is noteworthy: it suggests that while security concerns are real and meaningful adoption barriers, they are partially offset by the high functional utility that mobile money offers to university consumers. Stated differently, consumers may be willing to tolerate moderate security uncertainties when the usefulness benefits are sufficiently compelling. This nuanced finding complements Kumar et al. (2022) and Chawla and Joshi (2024), both of whom confirm security's predictive role while noting that its effect magnitude is context-dependent. For the Bank of Ghana and mobile network operators, the implication is that security improvements including enhanced PIN management, real-time transaction alerts, and simplified SIM-swap verification should be communicated clearly to consumers, as visible security features can shift perceived security upward and translate into measurable gains in adoption intention.

Theoretical And Practical Implications

Theoretical Contributions

The study marks three original theoretical contributions to the FinTech adoption literature. It advances TAM scholarship by confirming the empirical relevance of the new model's core constructs PU and PEU within a peri-urban Ghanaian university context, extending the generalisability of TAM's propositions to an underrepresented Sub-Saharan African setting. The strong predictive performance of perceived usefulness (Beta = 0.41) is particularly noteworthy, as it suggests that utilitarian value perceptions remain the dominant adoption driver even in contexts characterised by high mobile money awareness.

Second, the study advances TAM theory by demonstrating that consumer trust and perceived security contribute independent, statistically significant, and theoretically meaningful incremental variance to adoption intention beyond what TAM's original constructs explain. The structural model's R² of 0.67 — substantially higher than what typical two-construct TAM models achieve empirically validates the case for extended TAM frameworks in digital financial contexts.

Third, by confirming the significant role of social influence within a university campus micro-environment, the study establishes the applicability of UTAUT-derived social constructs to geographically and institutionally delimited settings in Sub-Saharan Africa. This finding enriches the theoretical understanding of technology diffusion mechanisms in collectivist, community-embedded social structures that characterise Ghanaian university campuses.

Practical Implications for Stakeholders

For FinTech operators and mobile network operators, the primacy of perceived usefulness as an adoption driver underscores the importance of continuously expanding the functional scope of mobile money platforms. Integrating academic fee payment, campus merchant payment, student loan disbursement, and group savings

(susu) functionalities directly into existing mobile money applications would substantially increase the utility proposition for university consumers. User-centric interface redesign with simplified registration, intuitive navigation, and real-time transaction confirmation would simultaneously improve ease of use and, through the H6 pathway, amplify perceived usefulness.

For the Bank of Ghana and financial regulatory authorities, the significant role of consumer trust highlights the need for robust consumer protection regulations governing mobile money services, including mandatory insurance for transaction errors, clear fraud compensation frameworks, and expedited dispute resolution channels. Publishing transparent data on platform security incidents and regulatory enforcement actions would help rebuild trust among consumers who have experienced or heard of mobile money fraud.

For Valley View University administration and similar institutional stakeholders, the significant social influence finding suggests that formalising mobile money endorsement through institutional communications such as recommending mobile money as the preferred payment channel for all campus financial transactions would meaningfully accelerate adoption. Campus-based financial literacy workshops that address both the functional benefits and security features of mobile money could simultaneously strengthen perceived usefulness, ease of use, and security perceptions.

Limitations And Directions for Future Research

The geographic restriction of the sample to the Valley View University Kumasi Campus limits the generalisability of findings to the larger Ghanaian university population and to non-university populations, among other limitations that limit the scope of the study's conclusions and suggest findings and point to valuable directions for future research. Future research should adopt multi-campus designs spanning diverse regions including the Greater Accra, Northern, and Volta regions to capture regional variations in mobile money adoption behaviour attributable to differences in network coverage, income levels, and financial infrastructure. Beyond national boundaries, future studies should expand by incorporating multi-regional or cross-country comparisons to enhance external validity, illuminating how differences in regulatory environments, cultural attitudes towards digital finance, and infrastructure levels across Sub-Saharan Africa moderate adoption dynamics.

Second, the cross-sectional methodology obscures how adoption behavior changes as consumers gain mobile money experience and prevents causal inference by capturing respondents' opinions and intentions at a single point in time. Longitudinal research designs that track the same respondents over multiple periods ideally spanning three to five years, would provide stronger causal evidence and reveal the temporal dynamics of trust-building, security perception evolution, and social influence diffusion. Third, this study measures behavioural intention rather than actual mobile money usage behaviour. The intention-behaviour gap which is the often-documented divergence between expressed adoption intentions and revealed usage patterns represents a significant limitation. Future studies should supplement survey data with objective usage metrics obtained from mobile network operators or financial diaries, enabling a more precise examination of what converts favourable intentions into sustained mobile money engagement. Fourth, the study does not explicitly model perceived financial risk as a standalone construct, instead subsuming risk perceptions within the perceived security construct. Future research could disaggregate these constructs to examine whether financial risk and security perceptions exert independent or interactive effects on adoption behaviour. Including additional constructs such as perceived financial risk, digital literacy levels, and infrastructural accessibility in future model specifications would provide a more holistic understanding of adoption behavior and capture dimensions of the mobile money ecosystem that the current framework does not fully address. Finally, comparative studies examining mobile money adoption across multiple Sub-Saharan African university contexts would provide valuable cross-national insights into how cultural, regulatory, and institutional heterogeneity moderates the relationships identified in this study.

CONCLUSION

This study used an enhanced TAM framework to examine the factors inducing mobile money uptake among customers at Valley View University's Kumasi Campus in Ghana. PU, TR, PEU, SI, and PS together account

for 67% of the variance in BI to adopt mobile money services, according to the study, which used structural equation modeling and a stratified random sample of 300 respondents. The findings highlight the importance of functional value and relational confidence in influencing mobile money adoption decisions among university communities. PU emerged as the main predictor, followed by TR and PEU. The extended TAM model demonstrated excellent structural fit and confirmed all six hypothesised relationships, including the mediated path from perceived ease of use through perceived usefulness to behavioural intention. These results advance the theoretical understanding of FinTech adoption in emerging economy contexts by validating an integrative framework that captures technological, psychological, and social drivers simultaneously. Practically, the findings provide actionable guidance for mobile network operators, financial regulators, and university administrators seeking to accelerate mobile money adoption among campus communities in Ghana. Investments in functional platform expansion, user-centric interface design, cybersecurity infrastructure, transparent consumer protection frameworks, and peer-mediated digital literacy programmes are each supported by the empirical evidence as effective levers for deepening mobile money penetration. As Ghana advances its national digital payment agenda, understanding the micro-behavioural dynamics of mobile money adoption within university communities is not merely an academic exercise, it is a strategic necessity. University graduates will constitute Ghana's next generation of financial consumers, entrepreneurs, and policymakers. Ensuring that they develop confident, informed relationships with digital financial tools during their formative academic years is a foundational investment in the country's long-term financial inclusion objectives.

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