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Impact of E-Banking on Students Spending Behaviour: Evidence from Kaduna State University

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Abstract

All facets of society, including students, have seen a transformation in their purchasing habits and financial transactions since the introduction of electronic banking. This study looks at how Kaduna State University students' spending habits are affected by electronic banking. It specifically looks into how students' spending habits are impacted by electronic banking proxied by Automated Teller Machines (ATM), Point of Sale (POS) terminals, Mobile Banking, Internet Banking and Digital payment platforms. A structured questionnaire was used to gather data from 150 students using a quantitative study methodology. Partial Least Squares Structural Equation Modeling (PLS-SEM) was used for analysis. With average variance extracted (AVE) values over 0.50 and composite reliability (CR) values above 0.70, the measurement model showed acceptable validity and reliability. None of the electronic banking channels had a statistically significant impact on students' spending behaviour, according to the structural model results ($p > 0.05$) which can be linked to the low or no income nature of students. The R2 value of 0.24 indicates that 24% of the variation in spending behaviour can be explained by electronic banking channels taken together. The results suggest that although students make use of electronic banking services often, it does not always result in notable changes in their purchasing behaviour. The study suggests that financial organisations should create financial literacy initiatives to enhance students' saving and budgeting practices in the context of online banking.

Keywords: Electronic Banking, spending behaviour, ATM, electronic banking, automated teller machines (ATM), point of sale (POS) terminals, mobile banking, internet banking.

1. Introduction

The rapid technological evolution of the banking sector has dramatically changed how consumers access, manage, and spend money. Digital alternatives that have replaced traditional cash-based systems as the main way of performing financial activities globally include Automated Teller Machines (ATM), Internet Banking, Mobile Banking, Point of Sale (POS) terminals, and Digital Payment Platforms. In Nigeria, these advancements are now crucial tools for promoting convenience, effectiveness, and financial inclusion (Central Bank of Nigeria [CBN], 2022; World Bank, 2022).

The acceptability of electronic banking among younger people, particularly college students, has accelerated due to the growing usage of smartphones and mobile applications. These tools have made financial services more accessible by enabling students to do banking activities, make purchases, and transfer money without physically visiting a bank office

(Ozili, 2018; Wang et al., 2021). In addition to making financial services easier, e-banking has influenced consumers' spending, saving, and money management behaviours.

Given that electronic banking improves transaction efficiency, its impact on consumer spending behavior, especially among students remains debatable. Malini (2025) asserts that the ease of use and reduced handling of currency associated with digital or electronic banking systems promote impulsive expenditure and undermine self-control. Others argue that by providing users with better financial monitoring tools and instant access to account information, e-banking promotes more restrained spending (Oti & Eke, 2020; Ojong et al., 2022). These contradictory findings imply that a number of variables, such as financial literacy, income level, and personal discipline, may have an impact on financial behavior, hence the the reason for the study with the population as student in other to ascertain which stand to take.

Students in Nigeria make up a significant portion of the country's future economic actors, yet they frequently deal with particular financial difficulties and have little access to formal financial education (Ojong et al., 2022). Therefore, there are important considerations raised by students' growing reliance on digital payment systems: Does electronic banking promote prudent money management, or does it result in increased consumption and impulsive spending? Designing focused financial literacy initiatives and responsible banking innovations for young people requires an understanding of this interplay.

By offering actual data from a student population in Northern Nigeria being a group that is frequently under-represented in studies on digital finance, this study adds to the body of literature. It supports the idea that in order to achieve significant results in consumer finance, behavioural and educational interventions must go hand in hand with digital financial inclusion programs.

Despite the fact that Nigerian university students are using electronic banking channels more frequently, there is a dearth of empirical data regarding the impact of these technologies on their purchase behaviours. Most studies on e-banking in Nigeria have focused on financial inclusion, operational efficiency, or consumer satisfaction (Ozili, 2018; Abdi et al, 2022). However, there hasn't been enough focus on behavioural outcomes like purchasing patterns, particularly when it comes to student populations. The studies that have been conducted on the student population have different findings, such that Ezisi and Chine (2023), Malini (2025) found e-banking to be significantly related to the spending behavior while Widiyanti et al (2023) also found it to be insignificantly related to student behavior. This differences in results necessitates the conduct of this study.

According to firsthand experience from Kaduna State University, many students regularly make everyday expenditures using mobile applications, ATMs, POS terminals, and digital payment systems. It's unclear, though, if increased digital engagement has encouraged more prudent money management or, conversely, encouraged extravagant spending due to the ease of electronic access.

Consequently, this data or empirical gap necessitates this timely investigation. In the absence of empirical evaluation, stakeholders, including university administrators, management, legislators, and financial institutions, lack the information required to promote responsible financial activity through digital channels. Five channels of electronic banking which includes, mobile banking, online banking, automated teller machines, point of sale, and digital

payment platforms, are the variables of the independent variable of this study. The purpose of this study is to look into how Kaduna State University students' purchasing behaviour is impacted by electronic banking.

This study's primary objective is to evaluate how electronic banking affects Kaduna State University students' spending behaviors. The following hypothesis which is written in Null form guides the conduct of this study:

H01: Mobile banking has no significant effect on the spending behavior of students in Kaduna State University.

H02: Internet banking has no significant effect on the spending behavior of students in Kaduna State University.

H03: Automated Teller Machines (ATM) have no significant effect on the spending behavior of students in Kaduna State University.

H04: Point of Sale has no significant effect on the spending behavior of students in Kaduna State University.

H05: Digital Banking Platforms has no significant effect on the spending behavior of students in Kaduna State University.

2. Literature Review

Electronic banking, or e-banking, is the provision of banking services through electronic channels that allow customers to obtain financial commodities and execute transactions at any time and from any location (Ozili, 2018). Common e-banking solutions include Point of Sale (POS) terminals, automated teller machines (ATM), Internet banking, mobile banking, and digital payment platforms like Quickteller, Paystack, and Flutterwave. These advancements have improved service delivery, reduced transaction costs, and made the unbanked population more accessible (Central Bank of Nigeria [CBN], 2022).

Spending behaviour, on the other hand, illustrates how individuals allocate and spend their money. It shows how social influence, financial literacy, income level, and the availability of credit or electronic payment methods affect spending patterns (Kurniawan et al., 2025). University students' purchasing patterns are greatly influenced by convenience, peer pressure, and perceived financial autonomy.

The ways that technology alters financial access and decision-making are the foundation of the relationship between e-banking and spending habits. Digital banking channels may promote impulsive spending by making transactions quick and simple, or they may promote financial discipline with budgeting tools, transaction tracking, and expenditure analytics (Hussain et al., 2021).

Empirical Literature Review

Few Empirical studies have examined how various electronic banking tools affect spending behaviour, with mixed findings.

Mensah et al (2021) examined how e-money usage affects consumer spending behaviour through discrete choice analysis considering demographic characteristics. It used both qualitative and quantitative research methods and conducted ANOVA for the study. The analyses indicated that e-money significantly impacts consumer spending behaviour, by proxy, consumers' expenditures. Gender, age, and employment status also affected consumers' spending behaviour. However, the length of e-money usage had no effect. The study concluded that the challenges of the respondents' associated with using e-money had no significant effect on the frequency of e-money usage. On the contrary, the derived benefits of using e-money had significant effects.

Widiyanti et Al (2023) examined the effect of Financial Literacy, Electronic Money, Self Control, and Lifestyle on undergraduate Student Consumptive Behavior of Faculty Economics and Business, University of Warmadewa. From a population 5394, sample size of 98

respondents using Solvin formula was employed. Descriptive analysis and multiple linear regression was used to test the hypothesis with the result indicating that, Financial Literacy, Electronic Money, Lifestyle, and Self Control, simultaneously have a significant effect on Student Consumptive Behavior. Partially, electronic money has a positive and insignificant effect on consumptive behavior in students of the Faculty of Economics and Business, Warmadewa University.

Mobile banking offers flexibility and convenience through real-time account access and instant payments. Malini (2025) examined the influence of mobile banking on spending habits. Utilizing a qualitative approach with an exploratory case study design, data were collected through in-depth interviews, focus group discussions, and document analysis to explore the interplay between mobile banking features and behavioral tendencies such as spending. The findings reveal a two sided impact of mobile banking on financial behavior. The findings revealed that although mobile banking enhances financial awareness and discipline by providing tools such as real-time transaction monitoring, automated savings mechanisms, and budgeting features, which enables users to make informed decisions and maintain better control over their finances. However, the convenience and ease of mobile banking also present challenges, particularly the ease of completing transactions, which can encourage impulsive spending and reduce traditional psychological barriers to overspending. The study recommended the need for creating technologies that will help in making good financial decisions.

Cobla and Osie-Assibey (2018) examined the effect of mobile money technology on the spending behavior of students in university of Ghana. The study employed Random sampling Technique using 506 students as its population size. Ordinary Least Squares Regression Technique was used for data analysis to ascertain the relationship between online banking and spending behavior. The results of the finding indicate that Mobile Money Services proxied by Online (internet) Banking and ATM has significant effect on the spending behavior and a negative effect on Savings of students in University of Ghana. It concluded that given that although advance of technology shouldn't be restrained but should be monitored when it comes to spending patterns. Internet banking enables users to manage accounts, pay bills, and transfer money online. Ozili (2018) argued that while internet banking promotes financial inclusion, it may also reduce the perceived value of money, encouraging higher spending frequency.

ATMs are among the oldest electronic banking tools in Nigeria. Adetunji and Adejumo (2018) reported that ATMs significantly influence students' financial habits by providing immediate access to cash, which may foster impulsive withdrawals. However, their role in promoting savings or spending discipline depends on individual financial goals and self-control as seen in the study conducted by Ezisi and Chine (2023). The study assessed the relationship between financial prudence, ATM card use and compulsive buying behavior, from two departments in the faculty of social sciences (Psychology and Mass communication) in Nnamdi Azikiwe University, Awka. Random sampling technique was utilized and pick157 participants as the sample size. Pearson correlation statistics was employed to test hypothesis. The findings indicate that university students who are exposed to excessive use of ATM card and who are low on financial prudence exhibits compulsive buying behavior that is detrimental to their future endeavor. The study recommended that academic

institutions should educate students' specifically on ATM card use and help students develop strategies to become financial managers to avoid compulsive buying behavior which will eventually lead them to debt.

Oyelami et al (2020) investigated the determinants of electronic payment adoption and the role of electronic payment on consumers' purchase decisions as well as its effects on consumers' spending growth in Lagos, Nigeria. Both primary and secondary data was used for this study. The primary data was collected through a cross-sectional survey of banks' customers with a sample size of 384. The results revealed that there is a positive significant relationship between electronic payment systems determinants (convenience, security and safety, trust, social influence) and e-payment adoption in Nigeria. The results from the estimations show that factors such as educational attainment, financial inclusion, income level, internet service availability and other financial infrastructures such as point-of-sale machines and mobile banking services are critical determinants of e-payment adoption in Nigeria. The results also indicate that electronic payment influences consumers' purchase decisions and thus increasing consumers' spending growth in Nigeria. The study recommended that the Nigerian government should leverage on electronic payment to increase consumers' spending and thus improve aggregate demand which will consequently stimulate investment and economic growth in the country.

POS terminals are increasingly used for everyday transactions in Nigeria. Ojong et al. (2022) observed that POS use reduces the need for cash and supports financial inclusion. Yet, frequent POS spending may affect spending restraint, as digital payments often feel less real than cash

Digital payment platforms such as Paystack, Opay, and Flutterwave represent the frontier of Nigeria's cashless economy. Ozili (2018) emphasized their role in driving digital financial inclusion, while the CBN (2022) reported that their adoption among youths has grown sharply. However, Cobla and Osie-Assibey (2021) cautioned that these tools, while empowering, can promote consumption-oriented financial behaviour unless complemented by strong financial education.

Thida (2025) examined the factors influencing spending habits among employees, with a particular focus on digital financial literacy, ease of digital payments, and financial attitudes. The study adopted a quantitative research method with a sample size of 151 employees who are working at KBZ (Kanbawza Bank, Head Office). Using simple random sampling method, the respondents were selected. The results revealed that all three variables have a statistically significant influence on spending behaviour. Among them, digital financial literacy has the most statistically significant influence on employee spending habits, followed by financial attitudes, and ease of digital payment. Therefore, digital financial literacy, financial attitudes, and ease of digital payment led to improve the spending habits of employees working at KBZ Bank (head office). The study recommended that the bank should develop and implement financial education programs, enhance the functionality and accessibility of digital payment platforms, and promote a culture of financial responsibility among employees.

Kurniawan et al (2025) investigated the influence of digital banking on student's impulsive buying behavior on the Island of Java. The research used purposive sampling technique via questionnaires issued through Google form to collect data from 150 respondents within the ages of 18–25 years who live on the island of Java.

Data analysis was carried out using descriptive statistics and regression analysis on SPSS and the results established a positive and significant influence of digital banking on impulsive buying behavior

Theoretically, The Technology Acceptance Model (TAM) and the Behavioural Finance Theory (BFT) are the two primary theories that underpin this study and explain user behaviour in technology-driven financial environments. The Technology Acceptance Model, created by Davis in 1989, asserts that two perceptions or views which are perceived utility and perceived ease of use, are the main factors influencing users' acceptance of technology. Students are more likely to use mobile or digital payment systems in the context of e-banking if they think these platforms facilitate quicker, simpler, and more convenient financial transactions. However, as accessibility reduces the psychological hurdles related to handling actual currency, greater adoption may unintentionally result in higher expenditure (Rogers, 2003; Wang & Kim, 2021).

The way that psychological, emotional, and cognitive biases affect financial decisions is explained by behavioural finance theory. This theory asserts that people frequently make spending or investment decisions based on impulse, emotions, and social factors, in contrast to traditional economic theory, which presumes the use of logic in decision-making (Barberis, 2018). When money is widely accessible through electronic banking platforms, students may overspend due to behavioural biases including present bias or overconfidence (Ojong et al., 2022). This idea contributes to the explanation of why financial prudence is not always correlated with the ease of digital transactions.

3. Methodology

The study employed a quantitative cross-sectional survey design to investigate the effect of electronic banking channels on the spending behaviour of students at Kaduna State University. The gathering of primary data appropriate for statistical analysis and hypothesis testing is made easier by this design. All Kaduna State University undergraduate students within the main campus, during the 2024–2025 academic years made up the population. To guarantee representativeness, a sample of 150 students was chosen using a convenient sampling technique and the rule of thumb which implies that at least 10 percent of the population should be used as the sample size. The undergraduate comprises of about 19206 students while 14400 is within the main campus. The 150 sample size exceeds the number for the rule of thumb, which makes it a good sample size to run the analysis. According to Hair et al. (2022), the sample size meets the minimal criteria for PLS-SEM analysis. A systematic questionnaire was used to collect the data. A 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree) was used to score each construct using a variety of indications that were modified from validated scales in earlier research. Cronbach's Alpha was used to measure reliability; all constructs above the minimum criterion of 0.70, indicating acceptable internal consistency (Nunnally, 1978). The constructs where measured reflectively as the latent variable which is electronic banking was measured using observable indicators (mobile banking, Internet Banking, ATM, POS and Digital Payment Platforms)

The Data was analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) via SmartPLS 4. The measurement model assessed indicator reliability, internal consistency, convergent validity, and discriminant validity. The structural model evaluated

the hypothesized relationships using path coefficients (β), t-statistics, and p-values, with a significance level of 5% (Hair et al., 2022)

4. Findings and Discussion

Using PLSSEM, the structural and the measurement model analysis was conducted. The measurement model was assessed for reliability, internal consistency reliability, and convergent validity.

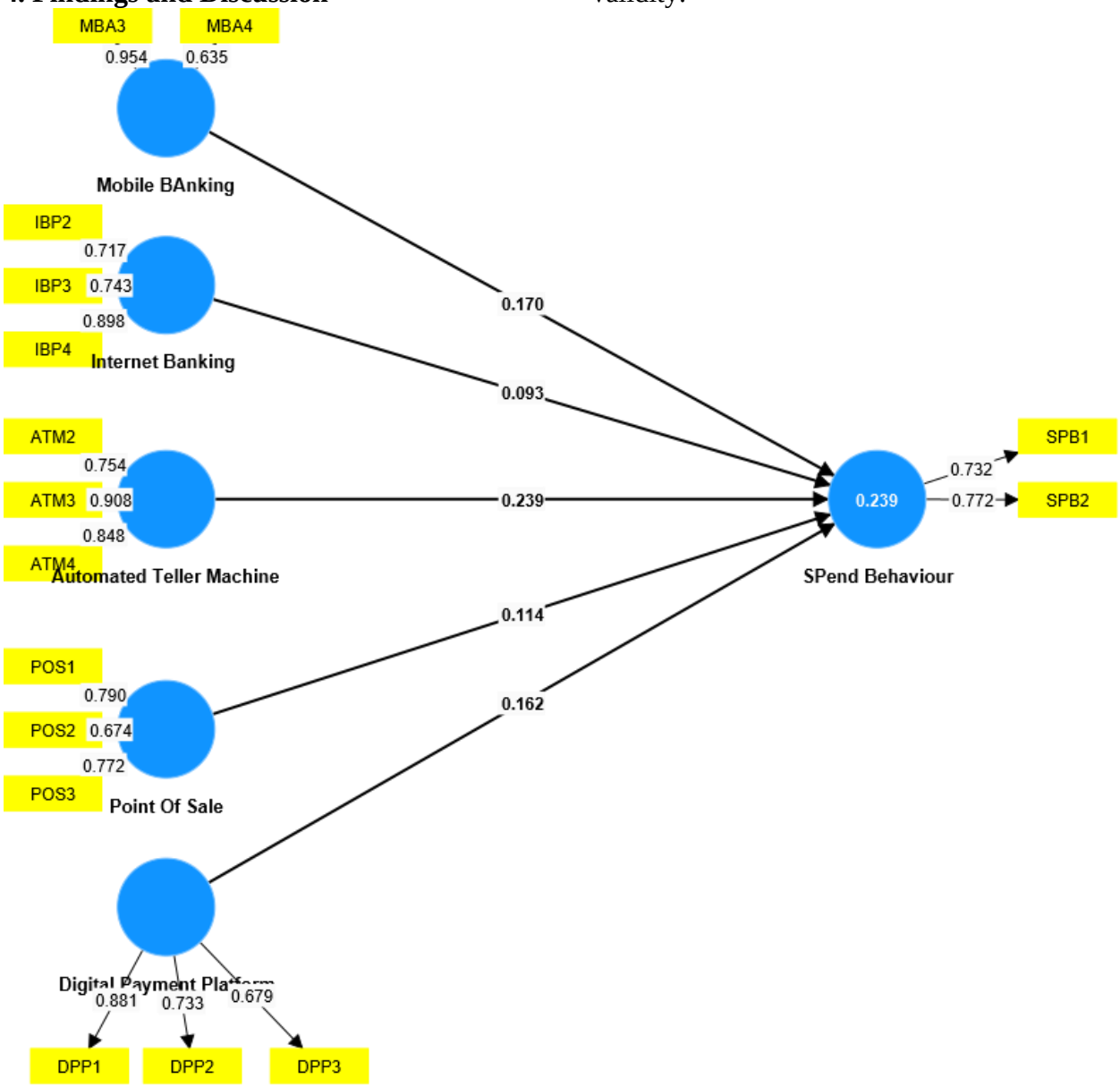

Fig 1: Measurement Model

Item Loadings, VIF, Composite Reliability (CR), and Average Variance Extracted (AVE)

Items loadings were carried out in line with the guidelins of PLSSEM. Although the Normal threshold is 0.70, Hair et al., 2019; Hair et al., 2022, suggest that loadings between 0.60 and 0.70 are considered as acceptable threshold provided it strengthens the AVE and CR of other constructs or the AVE and composite Reliability remain above the acceptable thresholds. Also Chin (1998) and Hulland (1999) suggest that 0.60 could be used as acceptable thresholds provided the indicators contribute to the theoretical

domains of the constructs of the study. Therefore, items loadings of 0.60 and above was retained as they don't compromise the validity and reliability of the measurement model.

Some items loading were less than the threshold for acceptability, and was therefore deleted. The deleted constructs includes MBA 1, MBA 2, IBP 1, ATM 1, POS 4, DPP 4 and SPB 2. This is in line with the Assertion of Hair et all 2022, which implies that constructs that doesn't load up tp the threshold of items loadings should be deleted provided it strengthens the AVE and CR of other constructs. All other items loadings ranged from 0.635 to 0.954, meeting the recommended minimum threshold of 0.60 (Hair et al., 2022). Which shows that all the observed variables adequately meets their corresponding latent constructs. In other to check or ascertain the internal consistencies of the construct, the composite reliability was assessed. The Composite Reliability (CR) values for all constructs were greater than 0.70 with the acceptable threshold of 0.70 (Nunnally, 1978). The Average Variance Extracted (AVE) values of all the constructs ranged between 0.559 and 0.704, exceeding the 0.50 threshold for AVE's (Fornell & Larcker, 1981). This indicates that more than 50% of the variance in the indicators is explained by their latent construct which generally confirms the convergent validity of the construct.

The Variance Inflation Factor (VIF) values ranged between 1.018 and 2.048, which are well below the threshold of 5.0, confirming that there is the absence of multicollinearity in the model (Hair et al., 2022). Table 1 below presents the figures from the measurement model, which entails the item loadings, variance inflation factor (VIF), composite reliability (CR), and average variance extracted (AVE) values.

Measurement Model assessment

Table 1: items Loading, VIF and constructs Reliability

Constructs	items	items loading	VIF	CR	AVE
automated Teller Machine	ATM2	0.754	1.453	0.877	0.704
	ATM3	0.908	2.048		
	ATM4	0.848	1.849		
Digital Payment Platform	DPP1	0.881	1.504	0.811	0.592
	DPP2	0.733	1.480		
	DPP3	0.679	1.150		
Internet Banking	IBP2	0.717	1.373	0.831	0.624
	IBP3	0.743	1.528		
	IBP4	0.898	1.405		
Mobile Banking	MBA3	0.954	1.163	0.786	0.657
	MBA4	0.635	1.163		
point of Sale	POS1	0.790	1.199	0.791	0.559
	POS2	0.674	1.366		
	POS3	0.772	1.247		
Spending Behaviour	SPB1	0.732	1.018	0.722	0.565
	SPB2	0.772	1.018		

Source: Smartpls 4

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

Construct	ATM	BPP	IBP	MBA	POS	SPB
ATM						
DPP	0.224					
IBP	0.291	0.406				
MBA	0.261	0.485	0.716			
POS	0.410	0.246	0.349	0.782		
SPB	0.739	0.653	0.611	1.000	0.654	

Source: Smartpls 4

In order to assess the Discriminant validity of the constructs, The HTMT matrix is assessed. Kline 2011 suggests that the figures in the HTMT matrix should not be greater than 0.85 and from table 2 above, the constructs in the study satisfied the required measurement thresholds, therefore discriminant Validity is confirmed, giving room for further evaluation of the structural model.

Structural Model Evaluation

The structural model was evaluated via bootstrapping procedure using PLSSEM to determine the level of significance of the hypothesis stated in the introduction.

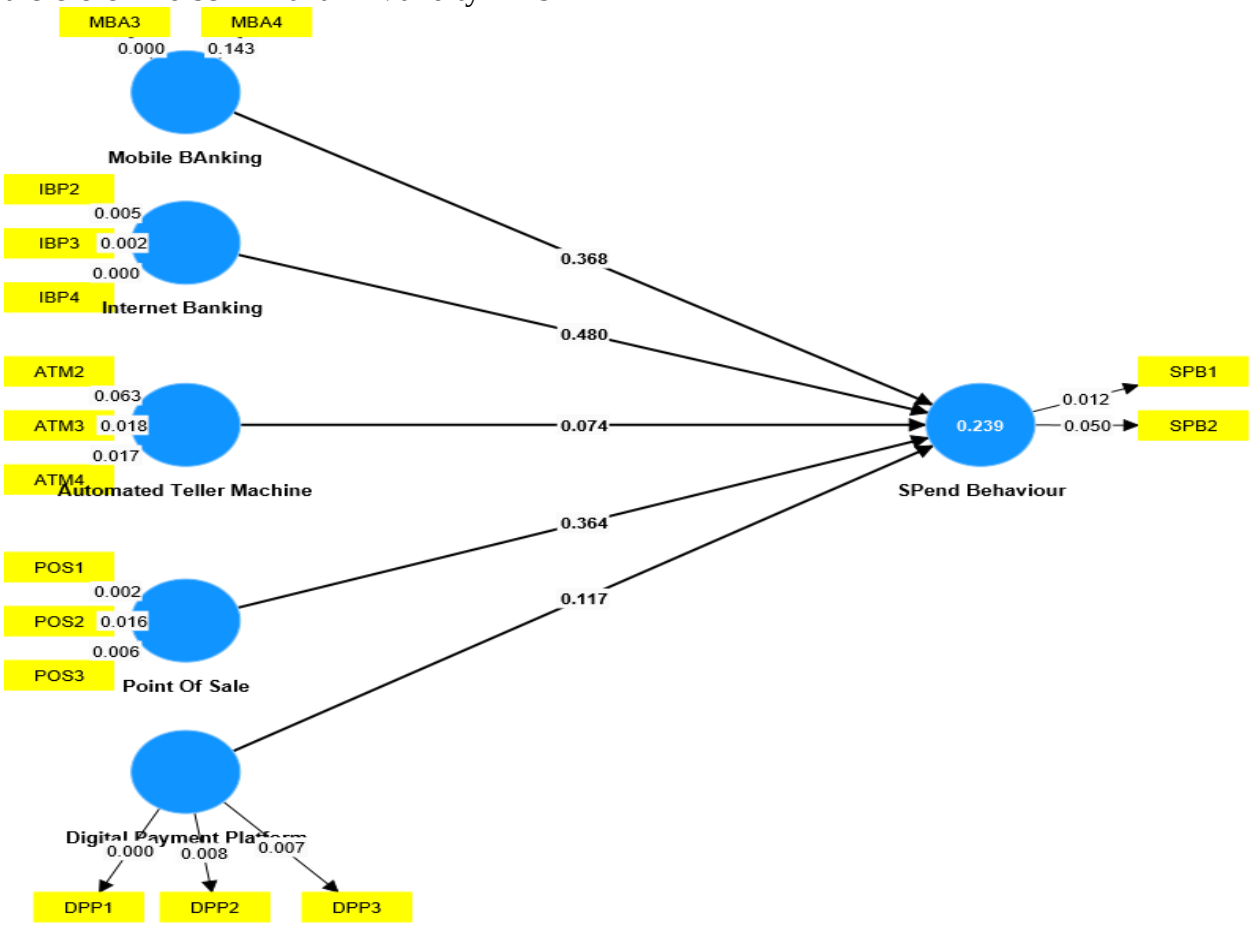

Fig 2: structural model.

Table 3: Structural model assessment

	Hypothesis	Beta Value	Mean	STDEV	T stat	P values	Decision
H01	ATM -> SPB	0.239	0.222	0.134	1.785	0.074	Rejected
H02	DPP -> SPB	0.162	0.165	0.103	1.569	0.117	Rejected
H03	IBP -> SPB	0.093	0.097	0.132	0.706	0.480	Rejected
H04	MBA-> SPB	0.170	0.220	0.188	0.901	0.368	Rejected
H05	POS-> SPB	0.114	0.143	0.125	0.908	0.364	Rejected
R2		0.239					

Source: Smartpls 4

The coefficient of determination (R^2 = 0.24) from table 3 indicates that the five predictors proxied by Automated Teller Machine (ATM), Digital Payment Platforms (DPP), Internet Banking (IBP), Mobile Banking (MBA), and Point of Sale (POS) all jointly explain 24% of the variance in the spending behaviour of students at Kaduna State University. According to Chin (1998), an R^2 value above 0.20 is considered acceptable in behavioural research, suggesting a moderate explanatory power for the model.

4. Results and Discussion

The results from table 3 reveal that none of the hypothesized relationships were statistically significant at the 0.05 (5%) level of significance; although all path coefficients were positive which indicates that digital banking channels have a positive but insignificant influence on students' spending behaviour. The positive coefficients suggest that increased use of digital banking tools may encourage easier access to funds and greater transactional flexibility. However, the lack of statistical significance implies that such accessibility does not necessarily translate to altered spending habits among students.

The findings suggest that Students often adopt digital banking primarily for ease and convenience, rather than as tools for managing expenditure. This aligns with findings from Adjei and Arun (2021), Widiyanti Et Al (2023) who observed that digital financial inclusion alone does not necessarily foster responsible spending and with an insignificant result. The findings that the Electronic Banking is not significantly related with Spending Habits of students could be as a result of students' lack of adequate financial management knowledge, which may in the long run limit their ability to make prudent financial decisions despite access to digital platforms (Ojong et al., 2022). Furthermore, the majority of students operate within fixed or limited income levels, making their spending patterns relatively stable and little regardless of the digital channels used.

Finally, Cultural and habitual tendencies toward cash transactions remain strong among Nigerian youths, especially for low-value daily purchases, which may weaken the behavioural impact of digital alternatives.

5. Conclusion and Recommendations

This study examined the effect of electronic banking on the spending behaviour of students in Kaduna State University, using Partial Least Squares Structural Equation Modeling (PLS-SEM). Specifically, it explored the influence of Automated Teller Machines (ATM), Digital Payment Platforms (DPP), Internet Banking (IBP), Mobile Banking (MBA), and Point of Sale (POS) terminals on students' financial spending patterns.

The results revealed that although all electronic banking channels had positive path coefficients, none exerted a statistically significant effect on students' spending behaviour. The model explained

24% of the variance ($R^2 = 0.24$), indicating a moderate predictive ability. These findings imply that while digital banking has enhanced accessibility and convenience for students, it has not significantly altered their financial habits. These non-significant findings do not indicate failure rather it reveals that students' spending behaviour is driven more by economic and behavioural constraints than by electronic banking channels. This is to say that spending is shaped or directed more by income levels, Financial Literacy, personal budgeting among others rather than by payment technology alone.

Collectively, the findings suggest that electronic banking does not significantly influence the spending behaviour of students in Kaduna State University. This implies that while digital banking enhances convenience and financial access, it does not necessarily promote excessive or altered spending among students. The result challenges assumptions that digital financial tools automatically lead to higher consumption and instead highlights the role of structural and behavioural constraints, particularly among youth and student populations.

Based on the findings of the weak behavioural impact of electronic banking channels and their implications, the following recommendations are proposed that Banks should redesign digital banking platforms to include features that help shape behaviour such as spending alerts, expenses tagging, budget limits and financial insights tailored for students. These features may be more effective in influencing spending behaviour rather than basic functions of transaction.

Kaduna State University, in collaboration with financial institutions, should introduce financial literacy workshops to sensitize students on prudent spending, savings, and digital money management. Policymakers and regulators like the Central Bank of Nigeria (CBN) should design digital inclusion programs that incorporate behavioural nudges, focusing on awareness, goal-setting, and responsible consumption patterns among youth.

Future studies could extend this model by including mediating or moderating variables such as financial literacy, income level, or peer influence, to better understand the dynamics/link between electronic banking and spending behaviour.

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