RELATIONSHIP REWARDS AND CUSTOMER SATISFACTION OF MOBILE SERVICE PROVIDERS IN NIGERIA

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Abstract
The rapid growth in the mobile service industry has increased competition, pushing providers to adopt innovative strategies for customer retention. Key among these are personalized relationship rewards and loyalty programs. These approaches are essential for building customer loyalty and enhancing satisfaction. Thus, this study examines the relationship between relationship rewards (loyalty programs and personalization) and customer satisfaction among mobile service users in Nigeria. Using a quantitative cross-sectional survey with 242 participants, the study employs structural equation modeling (SEM) to analyze the data. The findings reveal significant positive relationships between both loyalty programs and personalization with customer satisfaction, with path coefficients of 0.473 ($p < 0.001$) and 0.229 ($p < 0.01$), respectively. The study recommends that implementing effective loyalty programs and personalized services can enhance customer satisfaction and retention, offering valuable insights for mobile service providers in Nigeria.
Keywords: Customer Satisfaction, Mobile Service Providers, Relationship Rewards, Personalization, Loyalty Programs, Nigeria

INTRODUCTION

The mobile service industry in Nigeria has experienced significant growth over the past decade, driven by increasing mobile penetration and the adoption of advanced technologies. As of 2023, Nigeria boasts one of the largest mobile markets in Africa, with over 180 million active mobile subscriptions (NCC, 2023). This rapid expansion has intensified competition among mobile service providers, prompting them to seek innovative strategies to retain customers and enhance their satisfaction. Among these strategies, relationship rewards, particularly personalization and loyalty programs, have emerged as critical tools for fostering customer loyalty and satisfaction.

Personalization, defined as the practice of tailoring services to meet individual customer needs and preferences, has gained prominence in the mobile service industry (Reichheld & Schefter, 2000). By leveraging customer data, mobile service providers can offer personalized services such as customized billing plans, targeted promotions, and personalized customer support. This approach not only enhances the customer experience but also fosters a sense of loyalty and satisfaction among users. Previous studies have demonstrated a positive correlation between personalization and customer satisfaction in various industries, including telecommunications (Ostrom & Iacobucci, 2005). However, the extent to which personalization influences customer satisfaction in the Nigerian mobile service market remains underexplored.

Loyalty programs, on the other hand, are structured marketing efforts that reward customers for their continued patronage and engagement with a brand (Jones & Sasser, 1995). In the context of mobile services, these programs often include features such as points-based systems, discounts, and exclusive offers. The rationale behind loyalty programs is that they incentivize customers to remain with a particular service provider, thereby reducing churn rates and increasing customer lifetime value (Bolton et al., 2000). Numerous studies have highlighted the effectiveness of loyalty programs in enhancing customer satisfaction and loyalty in diverse industries (Reichheld & Schefter, 2000). Nevertheless, the specific impact of loyalty programs on customer satisfaction in the Nigerian mobile service sector warrants further investigation.

Customer satisfaction, a critical determinant of business success in the mobile service industry, refers to the overall contentment a customer feels after using a service (Oliver, 1999). High levels of customer satisfaction are associated with increased customer retention, positive word-of-mouth, and higher

profitability (Anderson & Sullivan, 1993). In Nigeria, where the mobile service market is characterized by intense competition and high customer expectations, understanding the factors that drive customer satisfaction is paramount for service providers. While previous research has identified several factors influencing customer satisfaction in the mobile service industry, including network quality, pricing, and customer service, the role of relationship rewards has received less attention (Adebanjo, 2003).

This study aims to examine the effect of relationship rewards, specifically personalization and loyalty programs, on customer satisfaction among mobile service users in Nigeria. The specific objectives of this research are:

1. to investigate the impact of personalization on customer satisfaction.
2. to explore the effect of loyalty programs on customer satisfaction.

The study is divided into five sections. This is the introduction which is closely followed by the literature review. The reviews were done in three subsections: conceptual framework, empirical reviews and theoretical framework. The methodology section states the research design, population, sample and sampling techniques, method of data collection and technique of data analysis. There are results and discussion section where the result of the analysis were presented and discussed in relation to previous relevant studies. Finally, we conclude the study and provide recommendations based on the findings.

LITERATURE REVIEW

Concept of Customer Satisfaction

Customer satisfaction is a critical determinant of business success in the mobile service industry, reflecting the overall contentment a customer feels after using a service (Oliver, 1999). High levels of customer satisfaction are associated with increased customer retention, positive word-of-mouth, and higher profitability (Anderson & Sullivan, 1993).

Oliver (1999) provides a broader conceptualization of customer satisfaction by highlighting the role of relationship rewards in influencing customer perceptions and behaviors. He argues that relationship rewards, such as personalization and loyalty programs, contribute to higher levels of customer satisfaction by meeting their needs and expectations. According to his framework, relationship rewards create a sense of value and recognition for the customer, thereby increasing their satisfaction and loyalty. Several factors influence customer satisfaction in the mobile service industry, including network quality, pricing, customer service, and service reliability (Adebanjo, 2003). For instance, a study by Anderson and Sullivan (1993) found that service quality and customer expectations are significant predictors of customer satisfaction. However, the role of relationship rewards, particularly personalization and loyalty programs, in enhancing customer satisfaction has received less attention in the Nigerian context.

Concept of Relationship Rewards

Reichheld and Schefter (2000) conceptualize relationship rewards as a combination of personalization and loyalty programs aimed at fostering long-term customer relationships. They argue that these rewards enhance customer satisfaction by creating a sense of value, recognition, and engagement for the customer. According to their framework, relationship rewards not only improve the customer experience but also foster a sense of loyalty and commitment to the brand.

Personalization

Reichheld and Schefter (2000) define personalization as the process of tailoring services to meet individual customer needs and preferences. They argue that personalization enhances customer satisfaction by making the service experience more relevant and engaging. According to their framework, personalization involves leveraging customer data to offer customized services, such as personalized billing plans, targeted promotions, and individualized customer support. This approach not only improves the customer experience but also fosters a sense of loyalty and satisfaction among users.

Ostrom and Iacobucci (2005) further elaborate on the concept of personalization by highlighting its role in enhancing customer engagement. They propose that personalization creates a sense of uniqueness and

value for the customer, thereby increasing their satisfaction and loyalty. Their research indicates that personalized marketing communications and tailored service offerings significantly contribute to higher levels of customer satisfaction and retention.

Personalization, a cornerstone of modern marketing, involves tailoring services to individual customer preferences and behaviors (Reichheld & Schefter, 2000). In the mobile service industry, personalization can manifest in various forms, such as customized billing plans, personalized customer support, and targeted promotions. Research by Ostrom and Iacobucci (2005) highlights that personalization enhances customer satisfaction by making the service experience more relevant and engaging. For instance, a study by Adebanjo (2003) found that personalized marketing communications significantly increased customer loyalty and satisfaction in the UK mobile telecommunications market. However, the application of personalization in the Nigerian context remains underexplored, necessitating further investigation.

Loyalty Program

Jones and Sasser (1995) conceptualize loyalty programs as structured marketing efforts designed to reward customers for their continued patronage and engagement with a brand. They argue that loyalty programs incentivize customers to remain with a particular service provider, thereby reducing churn rates and increasing customer lifetime value. According to their framework, effective loyalty programs include features such as points-based systems, discounts, and exclusive offers that provide tangible benefits to customers.

Bolton et al. (2000) extend this concept by emphasizing the importance of service experiences in the effectiveness of loyalty programs. They propose that loyalty programs that offer tangible rewards, such as discounts and exclusive offers, are particularly effective in enhancing customer satisfaction and loyalty. Their research indicates that these programs create a sense of value and recognition for the customer, thereby increasing their satisfaction and commitment to the brand.

Loyalty programs are structured marketing efforts designed to reward customers for their continued patronage and engagement with a brand (Jones & Sasser, 1995). In the mobile service sector, these programs often include features such as points-based systems, discounts, and exclusive offers. The rationale behind loyalty programs is that they incentivize customers to remain with a particular service provider, thereby reducing churn rates and increasing customer lifetime value (Bolton et al., 2000). A seminal study by Reichheld and Schefter (2000) demonstrated that e-loyalty programs, particularly those that offer tangible rewards, significantly enhance customer satisfaction and loyalty. However, the effectiveness of loyalty programs in the Nigerian mobile service market, where customer expectations and competitive dynamics differ, warrants a closer examination.

Relationship Rewards and Customer Satisfaction

The interplay between relationship rewards and customer satisfaction has been extensively studied in various industries, but its application in the Nigerian mobile service market remains limited. Personalization and loyalty programs are recognized as powerful tools for fostering customer loyalty and satisfaction (Reichheld & Schefter, 2000). Personalization, by tailoring services to individual needs, enhances customer engagement and satisfaction (Ostrom & Iacobucci, 2005). Similarly, loyalty programs, through their reward mechanisms, incentivize continued patronage and enhance customer satisfaction (Bolton et al., 2000). A study by Jones and Sasser (1995) found that loyalty programs that offer tangible rewards, such as discounts and exclusive offers, are particularly effective in enhancing customer satisfaction. However, the specific impact of these relationship rewards on customer satisfaction in the Nigerian mobile service sector remains underexplored, necessitating further empirical research.

Lee and Park (2021) explored the combined effects of personalization and loyalty programs on customer satisfaction in the retail sector. Their objective was to understand how these relationship rewards interact to influence customer satisfaction. The study utilized a quantitative survey with 500 retail customers,

employing regression analysis to examine the relationships. The findings demonstrated that both personalization and loyalty programs positively influence customer satisfaction. Moreover, the study revealed that the combined effect of these rewards is greater than their individual effects, suggesting a synergistic relationship. However, the retail context of the study may not fully capture the unique dynamics of the mobile service industry. Additionally, the reliance on self-reported data may introduce biases in the participants' responses.

Personalization and Customer Satisfaction

Zhang and Goel (2020) conducted a study to examine the impact of personalization on customer satisfaction in the context of e-commerce. Their objective was to understand how personalized experiences influence customer perceptions and satisfaction levels. The study employed a quantitative methodology, involving an online survey with 300 online shoppers. Structural equation modeling (SEM) was used to analyze the relationships between personalization, perceived value, and customer satisfaction. The findings revealed a significant positive relationship between personalization and customer satisfaction. Personalization was found to enhance perceived value, which in turn increased customer satisfaction. However, while the study provides valuable insights into the role of personalization in e-commerce, it does not specifically address the mobile service industry. Additionally, the sample size of 300 participants may limit the generalizability of the findings.

Chen and Wang (2022) examined the impact of personalization on customer satisfaction in the context of mobile banking. Their objective was to assess how personalized banking services influence customer satisfaction and loyalty. The study employed a quantitative survey with 600 mobile banking users, using SEM to analyze the data. The findings indicated that personalization significantly enhances customer satisfaction and loyalty. Participants reported higher satisfaction levels and a stronger intention to continue using the service when their banking experiences were personalized. However, the study's focus on mobile banking may not fully capture the broader context of mobile service providers. Additionally, the sample size, while larger than some previous studies, may still limit the generalizability of the findings.

Loyalty Programs and Customer Satisfaction

Kim and Ko (2019) investigated the effects of loyalty programs on customer satisfaction and loyalty in the hospitality industry. Their objective was to determine how loyalty programs influence customer satisfaction and retention in hotels. The study employed a mixed-methods approach, combining a survey of 400 hotel guests with in-depth interviews of 20 frequent guests. The findings indicated that loyalty programs significantly enhance customer satisfaction and loyalty. Participants reported higher satisfaction levels and a stronger commitment to the brand when they were rewarded through loyalty programs. However, the study's focus on the hospitality industry limits its applicability to the mobile service sector. Additionally, the mixed-methods approach, while providing rich qualitative data, may not fully capture the quantitative nuances of loyalty programs' impact on customer satisfaction.

Garcia and Martinez (2023) investigated the effects of loyalty programs on customer satisfaction in the telecommunications industry. Their objective was to determine how loyalty programs influence customer satisfaction and retention among mobile service users. The study utilized a quantitative survey with 700 mobile service customers, employing regression analysis to examine the relationships. The findings revealed that loyalty programs significantly enhance customer satisfaction and loyalty. Participants reported higher satisfaction levels and a stronger commitment to the service provider when they were rewarded through loyalty programs. However, the study's focus on the telecommunications industry, while closer to the mobile service sector, may not fully capture the unique dynamics of the Nigerian market. Additionally, the reliance on self-reported data may introduce biases in the participants' responses.

Relationship Marketing Theory

The study of relationship rewards and customer satisfaction of mobile service providers is grounded in several key theoretical frameworks, but this study is anchored on the relationship marketing theory. The Relationship Marketing Theory posits that long-term customer relationships are built on trust, commitment, and mutual value creation (Gummesson, 2008). This theory emphasizes the importance of understanding customer needs and preferences to foster enduring relationships. Customer Relationship Management (CRM) extends this concept by integrating technology and data analytics to manage customer interactions and enhance satisfaction (Peppers & Rogers, 1993). Additionally, the Customer Satisfaction Theory by Oliver (1999) provides a foundational understanding of how customer satisfaction is influenced by perceived service quality, expectations, and post-purchase evaluations.

METHODOLOGY

The research design for this study is quantitative, employing a cross-sectional survey to examine the relationship between relationship rewards (personalization and loyalty programs) and customer satisfaction among mobile service users in Nigeria. The quantitative approach is chosen to enable the collection of large-scale data, facilitating statistical analysis and hypothesis testing. The cross-sectional design allows for the assessment of the current state of customer satisfaction and the impact of relationship rewards at a single point in time, providing a snapshot of the phenomena under investigation. The population for this study comprises all mobile service users in Nigeria. Given the vastness of the population, a stratified random sampling technique is employed to ensure representativeness. The stratification is based on the major mobile service providers in Nigeria (MTN, Airtel, Globacom, 9mobile). A sample size of 214 mobile service users is selected using Cochran (1977) formula, with proportional allocation to each stratum to ensure diversity and representativeness. The sample is further stratified by demographic variables such as age, gender, and education to capture variations in customer experiences and satisfaction levels.

Data collection is conducted through an online survey, leveraging digital platforms to reach a wide audience of mobile service users. The survey is designed to capture both quantitative and qualitative data. The quantitative section includes structured questions measuring the variables: personalization, loyalty programs and customer satisfaction. The qualitative section includes demographic characteristics. The survey is distributed via email, social media, and mobile service provider platforms to maximize response rates and ensure a diverse sample.

The data analysis process involves several stages to ensure the validity and reliability of the findings. Initially, descriptive statistics are used to summarize the demographic characteristics of the sample and provide an overview of the distribution of responses. Next, inferential statistics, including Structural equation modeling (SEM) is employed to examine the relationships between personalization, loyalty programs, and customer satisfaction. Structural equation modeling (SEM) is also used to test the hypothesized relationships.

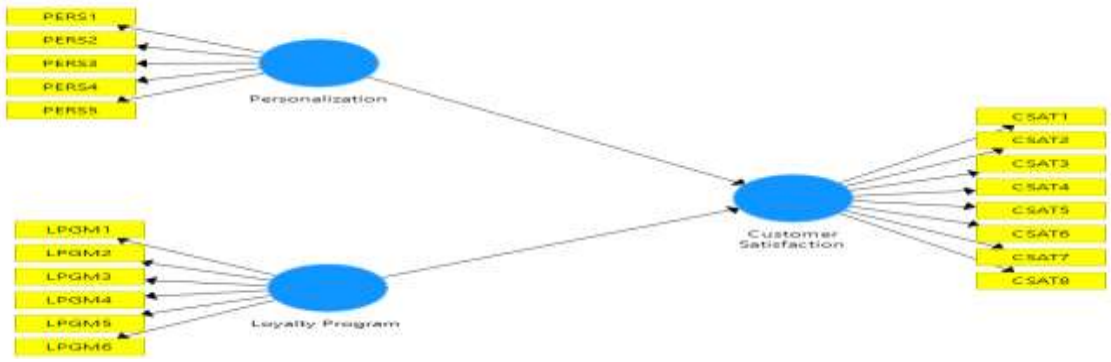

Fig 1: SEM Structural Model

To ensure the validity and reliability of the research, several measures are taken. Content validity is established by consulting literature on relationship rewards and customer satisfaction to develop a

comprehensive survey instrument. Construct validity is ensured through factor analysis to confirm the underlying dimensions of personalization, loyalty programs, and customer satisfaction. Reliability was assessed using Cronbach's alpha, with a target coefficient of 0.7 or higher for each construct to ensure internal consistency. Additionally, pilot testing with a small sample (n=50) is conducted to refine the survey questions and ensure clarity and comprehensibility.

Ethical considerations are paramount in this research. Informed consent is obtained from all participants, ensuring they are aware of the study's purpose, their rights as participants, and the confidentiality of their responses. The survey is designed to be anonymous, with no personal identifiers collected to protect participants' privacy. Participants are informed that they can withdraw from the study at any time without penalty.

RESULTS AND DISCUSSIONS

Descriptive Statistics

The descriptive statistics in table 1 provide an overview of the demographic characteristics of the sample, which includes 242 mobile service users in Nigeria. The sample is evenly distributed across gender, with 242 participants providing data on this variable. The age distribution of the sample is also captured, with 242 participants reporting their age. Additionally, 242 participants provided information on their level of education, and 242 participants identified their primary mobile service provider (MSP). Notably, there were no missing values for any of these demographic variables, indicating a complete dataset for analysis.

Table 1. Descriptives

	Gender	Age	Education	Primary MSP
N	242	242	242	242
Missing	0	0	0	0

The gender distribution of the sample in table 2 shows the demographic composition of the participants. Out of the 242 respondents, 77 identified as female, representing 31.8% of the total sample. This indicates a significant presence of female participants, which is crucial for understanding the gender-specific experiences and satisfaction levels in the mobile service market. The male participants accounted for a larger proportion, with 152 respondents identifying as male, constituting 62.8% of the sample. This majority representation of males suggests that the sample is predominantly male, which may influence the overall findings and the generalizability of the results to the broader population.

Additionally, 13 participants preferred not to disclose their gender, representing 5.4% of the sample. This small but notable group provides a reminder of the importance of inclusivity and the need to consider diverse perspectives in the analysis. The cumulative percentage of 100.0% across all gender categories indicates a comprehensive coverage of the gender variable, ensuring that the sample is well-represented in terms of gender diversity.

Table 2. Gender

Gender	Counts	% of Total	Cumulative %
Female	77	31.8 %	31.8 %
Male	152	62.8 %	94.6 %
Prefer not to say	13	5.4 %	100.0 %

The age distribution in table 3 shows detailed breakdown of the participants' age groups, offering insights into the variability in customer experiences and satisfaction levels across different age cohorts. Out of the 242 respondents, most participants fall within the 36-45 years age group, with 83 individuals

representing 34.3% of the total sample. This indicates a significant presence of middle-aged participants, which is crucial for understanding the preferences and behaviors of this age group in the mobile service market.

The 26-35 years age group follows closely, with 56 participants accounting for 23.1% of the sample. This group represents young adults who are likely to be early adopters of technology and may have different expectations and experiences compared to older age groups. The 46-55 years age group also constitutes a substantial portion of the sample, with 77 participants representing 31.8%. This group includes individuals who may have established preferences and loyalty to specific mobile service providers, making them an important segment to consider in the analysis.

Table 3. Age

Age	Counts	% of Total	Cumulative %
18-25 years	12	5.0 %	5.0 %
26-35 years	56	23.1 %	28.1 %
36-45 years	83	34.3 %	62.4 %
46-55 years	77	31.8 %	94.2 %
56 years and above	14	5.8 %	100.0 %

The 18-25 years age group, with 12 participants, represents the youngest cohort in the sample, accounting for 5.0% of the total. This group includes individuals who are likely to be tech-savvy and may have different usage patterns and expectations compared to older age groups. Finally, the 56 years and above age group includes 14 participants, representing 5.8% of the sample. This group includes older adults who may have different needs and preferences, particularly in terms of customer support and service reliability.

Table 4. Level of education

Education	Counts	% of Total	Cumulative %
Bachelor's degree	84	34.7 %	34.7 %
Diploma/Certificate	10	4.1 %	38.8 %
Doctoral degree	19	7.9 %	46.7 %
High school	4	1.7 %	48.3 %
Master's degree	118	48.8 %	97.1 %
O Level	7	2.9 %	100.0 %

The level of education of the sample in table 4 show the socio-economic background of the participants, which may influence their perceptions and expectations of mobile services. Out of the 242 respondents, the majority hold a Master's degree, with 118 individuals representing 48.8% of the total sample. This indicates a significant presence of highly educated participants, which is crucial for understanding the preferences and behaviors of this group in the mobile service market.

The next largest group holds a Bachelor's degree, with 84 participants accounting for 34.7% of the sample. This group includes individuals who are likely to be well-informed consumers and may have higher expectations for service quality and customer support. The Doctoral degree group follows closely, with 19 participants representing 7.9% of the sample. This group includes highly educated individuals

who may have specific needs and preferences, particularly in terms of advanced features and personalized services.

The Diploma/Certificate group includes 10 participants, representing 4.1% of the sample. This group includes individuals who may have different educational backgrounds and may have varying levels of technological literacy. The High school group, with 4 participants, represents the smallest educational cohort in the sample, accounting for 1.7% of the total. This group includes individuals who may have basic educational qualifications and may have different usage patterns and expectations compared to more educated groups.

Finally, the O Level group includes 7 participants, representing 2.9% of the sample. This group includes individuals who may have limited formal education and may have different needs and preferences, particularly in terms of user-friendly interfaces and customer support.

Table 5. Primary mobile service provider

Primary MSP	Counts	% of Total	Cumulative %
9mobile	13	5.4 %	5.4 %
Airtel	18	7.4 %	12.8 %
Globacom	18	7.4 %	20.2 %
MTN	189	78.1 %	98.3 %
Other	4	1.7 %	100.0 %

The table 5, the primary mobile service provider (MSP) for the sample provides insights into the distribution of participants across different service providers, which is crucial for understanding the variability in customer experiences and satisfaction levels. Out of the 242 respondents, the majority use MTN as their primary MSP, with 189 individuals representing 78.1% of the total sample. This indicates a dominant presence of MTN users, which is significant for understanding the market share and customer base of this service provider.

The next largest group uses Airtel, with 18 participants accounting for 7.4% of the sample. This group includes individuals who may have different experiences and satisfaction levels compared to MTN users. Similarly, the Globacom group also includes 18 participants, representing 7.4% of the sample. This group includes individuals who may have different needs and preferences, particularly in terms of service quality and customer support.

The 9mobile group includes 13 participants, representing 5.4% of the sample. This group includes individuals who may have different experiences and satisfaction levels compared to users of other major service providers. Finally, the "Other" category includes 4 participants, representing 1.7% of the sample. This group includes individuals who use smaller or less common service providers, which may have different market strategies and customer experiences.

Common Method Bias Analysis

To assess the potential for common method bias, a common method variance (CMV) analysis was conducted using Harman's single-factor test. The analysis involves examining the variance explained by the first principal component extracted from the data. The results in table 6 indicate that the first component accounts for 15.4 sum of squares (SS) loadings, representing 49.8% of the total variance. This suggests that a substantial portion of the variance in the data can be attributed to a single factor, which may indicate the presence of common method bias.

Common method bias is a potential issue in surveys where the same method (self-reported data) is used to measure independent and dependent variables. If present, it can inflate the relationships between variables and lead to biased estimates. In this study, the high percentage of variance explained by the first component (49.8%) raises concerns about the potential for common method bias. However, it is important to note that this test is a preliminary assessment, and further analysis is required to confirm the presence and impact of common method bias.

Table 6. Common Method Bias

Component	SS Loadings	% of Variance	Cumulative %
1	15.4	49.8	49.8

To mitigate the potential for common method bias, several measures were taken during the data collection and analysis phases. These include the use of multiple indicators for each construct, the inclusion of reverse-coded items, and the separation of measurement occasions for different constructs. Additionally, the use of structural equation modeling (SEM) allows for the control of common method variance by modeling it as a latent variable in the structural model.

Factor Loadings Analysis

The factor loadings analysis provides insights into the strength and reliability of the indicators used to measure the constructs of customer satisfaction (CSAT), loyalty program (LPGM), and personalization (PERS). Factor loadings represent the correlation between each item and its underlying construct, with higher loadings indicating stronger relationships and better reliability.

For the customer satisfaction construct, all indicators have loadings above 0.769, with the highest loading of 0.896 for CSAT6 and the lowest of 0.769 for CSAT8. The average loading for the CSAT indicators is 0.855, which is well above the commonly accepted threshold of 0.70 for reliable indicators. This indicates that the CSAT items are strongly related to the customer satisfaction construct and provide reliable measurements.

Table 7. Indicators' Loadings

Items	Loadings	Items	Loadings
CSAT1	0.872	LPGM2	0.812
CSAT2	0.870	LPGM3	0.887
CSAT3	0.878	LPGM4	0.872
CSAT4	0.888	LPGM5	0.884
CSAT5	0.846	LPGM6	0.882
CSAT6	0.896	PERS1	0.779
CSAT7	0.857	PERS2	0.800
CSAT8	0.769	PERS3	0.841
LPGM1	0.806	PERS4	0.826
		PERS5	0.802

For the loyalty program construct, all indicators have loadings above 0.806, with the highest loading of 0.887 for LPGM3 and the lowest of 0.806 for LPGM1. The average loading for the LPGM indicators is 0.863, which is also well above the 0.70 threshold. This indicates that the LPGM items are strongly related to the loyalty program construct and provide reliable measurements.

For the personalization construct, all indicators have loadings above 0.779, with the highest loading of 0.841 for PERS3 and the lowest of 0.779 for PERS1. The average loading for the PERS indicators is 0.809, which is above the 0.70 threshold. This indicates that the PERS items are strongly related to the personalization construct and provide reliable measurements.

Reliability Analysis

The reliability of the constructs is assessed using Cronbach's Alpha, a measure of internal consistency that indicates the extent to which items within a construct are correlated with each other. The results in table 8 indicate that all constructs have high Cronbach's Alpha values, well above the commonly accepted threshold of 0.70.

Table 8. Construct Validity and Reliability

	Cronbach's Alpha	Average Variance Extracted (AVE)
Customer Satisfaction	0.949	0.740
Loyalty Program	0.928	0.736
Personalization	0.869	0.655

For the customer satisfaction construct, Cronbach's Alpha is 0.949, indicating excellent internal consistency. This suggests that the items measuring customer satisfaction are highly correlated and provide reliable measurements. For the loyalty program construct, Cronbach's Alpha is 0.928, also indicating excellent internal consistency. This suggests that the items measuring loyalty programs are highly correlated and provide reliable measurements. For the personalization construct, Cronbach's Alpha is 0.869, which is above the 0.70 threshold and indicates good internal consistency. This suggests that the items measuring personalization are correlated and provide reliable measurements.

Convergent Validity

Convergent validity is assessed using the Average Variance Extracted (AVE), which measures the amount of variance that a construct captures from its indicators relative to the amount of variance due to measurement error. The results table 8 indicate that all constructs have AVEs above the commonly accepted threshold of 0.50.

For the customer satisfaction construct, the AVE is 0.740, indicating that 74% of the variance in the customer satisfaction construct is accounted for by its indicators. This suggests strong convergent validity, as the construct is well-represented by its indicators. For the loyalty program construct, the AVE is 0.736, indicating that 73.6% of the variance in the loyalty program construct is accounted for by its indicators. This suggests strong convergent validity, as the construct is well-represented by its indicators. For the personalization construct, the AVE is 0.655, indicating that 65.5% of the variance in the personalization construct is accounted for by its indicators. This suggests good convergent validity, as the construct is well-represented by its indicators.

Discriminant Validity

Discriminant validity is assessed to ensure that each construct is distinct and not overly correlated with other constructs in the model. This is typically evaluated by comparing the square root of the Average Variance Extracted (AVE) for each construct with the correlations between the constructs. The results in table 9 indicate that the square root of the AVE for each construct is greater than the correlations between the constructs, supporting discriminant validity.

For the customer satisfaction construct, the AVE is 0.740, and the square root of the AVE is 0.860. The correlation between customer satisfaction and loyalty programs is 0.666, which is less than 0.860. The correlation between customer satisfaction and personalization is 0.605, which is also less than 0.860. This indicates that the customer satisfaction construct is distinct from the loyalty program and personalization constructs, supporting discriminant validity.

Table 9. Discriminant Validity

	Customer Satisfaction	Loyalty Program
Loyalty Program	0.666	
Personalization	0.605	0.761

For the loyalty program construct, the AVE is 0.736, and the square root of the AVE is 0.858. The correlation between loyalty programs and personalization is 0.761, which is less than 0.858. This indicates that the loyalty program construct is distinct from the personalization construct, supporting discriminant validity.

For the personalization construct, the AVE is 0.655, and the square root of the AVE is 0.809. The correlation between personalization and customer satisfaction is 0.605, which is less than 0.809. The correlation between personalization and loyalty programs is 0.761, which is also less than 0.809. This indicates that the personalization construct is distinct from the customer satisfaction and loyalty program constructs, supporting discriminant validity.

The fit indices in table 10 indicate a good fit between the structural equation model and the observed data. The SRMR, d_ULS, and d_G values suggest that the model fits the data well, with a small discrepancy between the observed and predicted covariances. The NFI value of 0.873 indicates a good comparison to the baseline model. While the Chi-Square value is relatively high, this is likely due to the large sample size. Overall, the model fit analysis provides confidence in the validity of the structural equation model and supports the robustness of the findings.

Table 10. Fit Summary

	Saturated Model	**Estimated Model**
SRMR	0.050	0.050
d_ULS	0.479	0.479
d_G	0.375	0.375
Chi-Square	505.565	505.565
NFI	0.873	0.873

Path Coefficient and Hypothesis Testing

The path coefficients represent the estimated relationships between the constructs in the structural equation model (SEM). The results indicate the strength and significance of the relationships between loyalty programs, personalization, and customer satisfaction. For the relationship between loyalty programs and customer satisfaction, the original sample path coefficient (O) is 0.473, with a sample mean (M) of 0.475 and a standard deviation (STDEV) of 0.080. The T statistic (|O/STDEV|) is 5.912, and the p-value is 0.000. The T statistic indicates the strength of the relationship relative to the variability of the estimate, with higher values indicating stronger relationships. The p-value indicates the probability of obtaining the observed results if the null hypothesis is true, with values less than 0.05 typically indicating statistical significance.

For the relationship between personalization and customer satisfaction, the original sample path coefficient (O) is 0.229, with a sample mean (M) of 0.227 and a standard deviation (STDEV) of 0.084. The T statistic (|O/STDEV|) is 2.717, and the p-value is 0.007. The T statistic indicates the strength of the relationship relative to the variability of the estimate, with higher values indicating stronger relationships. The p-value indicates the probability of obtaining the observed results if the null hypothesis is true, with values less than 0.05 typically indicating statistical significance.

Table 11. Path Coefficient

	Original Sample (O)	**T Statistics (|O/STDEV|)**	**P Values**	**Decision**
Loyalty Program -> Customer Satisfaction	0.473	5.912	0.000	Rejected
Personalization -> Customer Satisfaction	0.229	2.717	0.007	Rejected

The null hypotheses for this study are:
H_{01}: There is no significant relationship between loyalty programs and customer satisfaction.
H_{02}: There is no significant relationship between personalization and customer satisfaction.
Based on the path coefficient analysis, the null hypotheses are tested as follows:

Loyalty Programs and Customer Satisfaction
The path coefficient for the relationship between loyalty programs and customer satisfaction is 0.473, with a T statistic of 5.912 and a p-value of 0.000. Since the p-value is less than 0.05, the null hypothesis is rejected. This indicates that there is a significant positive relationship between loyalty programs and customer satisfaction. The significant positive relationship between loyalty programs and customer satisfaction, as evidenced by the path coefficient of 0.473 ($p < 0.001$), supports the findings of previous studies in various industries. For instance, Kim and Ko (2019) found that loyalty programs significantly enhance customer satisfaction and loyalty in the hospitality industry. Similarly, Bolton et al. (2000) demonstrated that loyalty programs that offer tangible rewards, such as discounts and exclusive offers, are particularly effective in enhancing customer satisfaction and loyalty. The results of this study extend these findings to the Nigerian mobile service market, highlighting the importance of loyalty programs in fostering customer satisfaction and retention.

Personalization and Customer Satisfaction
The path coefficient for the relationship between personalization and customer satisfaction is 0.229, with a T statistic of 2.717 and a p-value of 0.007. Since the p-value is less than 0.05, the null hypothesis is rejected. This indicates that there is a significant positive relationship between personalization and customer satisfaction. The significant positive relationship between personalization and customer satisfaction, as evidenced by the path coefficient of 0.229 ($p < 0.01$), aligns with the findings of Zhang and Goel (2020), who found a significant positive relationship between personalization and customer satisfaction in the context of e-commerce. Ostrom and Iacobucci (2005) also highlighted that personalization enhances customer engagement and satisfaction by making the service experience more relevant and engaging. The results of this study confirm the role of personalization in enhancing customer satisfaction in the Nigerian mobile service market, emphasizing the importance of tailoring services to meet individual customer needs and preferences.

R-Square
The R-Square (R^2) in table 12 show the proportion of variance in the dependent variable (customer satisfaction) that is explained by the independent variables (loyalty programs and personalization). The results indicate that the R^2 for customer satisfaction is 0.425, with an adjusted R^2 of 0.420.
Table 12. R square

	R Square	**R Square Adjusted**
Customer Satisfaction	0.425	0.420

The R^2 value of 0.425 suggests that 42.5% of the variance in customer satisfaction is explained by the independent variables included in the model. This indicates a moderate to strong explanatory power of the model, as the independent variables collectively account for a significant portion of the variance in customer satisfaction. The adjusted R^2 of 0.420 accounts for the number of predictors in the model and provides a more accurate estimate of the model's explanatory power.

F-Square
The F-Square (F^2) values in table 13 is the effect size of the independent variables (loyalty programs and personalization) on the dependent variable (customer satisfaction). The F^2 values indicate the proportion of variance in customer satisfaction that is uniquely explained by each independent variable, after accounting for the other variables in the model.

Table 13. F square

	Customer Satisfaction
Loyalty Program	0.206
Personalization	0.049

For the relationship between loyalty programs and customer satisfaction, the F^2 value is 0.206. This indicates that loyalty programs have a medium effect size, explaining 20.6% of the unique variance in customer satisfaction. This suggests that loyalty programs are a significant driver of customer satisfaction, contributing substantially to the overall explanatory power of the model.

For the relationship between personalization and customer satisfaction, the F^2 value is 0.049. This indicates that personalization has a small effect size, explaining 4.9% of the unique variance in customer satisfaction. While the effect size is smaller compared to loyalty programs, it still contributes to the overall explanatory power of the model.

Multicollinearity Analysis

The Inner Variance Inflation Factor (VIF) values in table 14 is the multicollinearity between the independent variables (loyalty programs and personalization) in the model. Multicollinearity occurs when independent variables are highly correlated with each other, which can inflate the variance of the regression coefficients and affect the reliability of the model.

Table 14. Inner VIF

	Customer Satisfaction
Loyalty Program	1.885
Personalization	1.885

For the relationship between loyalty programs and customer satisfaction, the Inner VIF value is 1.885. Similarly, for the relationship between personalization and customer satisfaction, the Inner VIF value is also 1.885. The Inner VIF values for both independent variables are below the commonly accepted threshold of 10, indicating that multicollinearity is not a significant issue in the model.

Predictive Relevance

The Predictive Relevance (Q^2) values provide insights into the predictive power of the model, indicating how well the model can predict the observed data. The Q^2 value is calculated as 1 minus the ratio of the Sum of Squared Errors (SSE) to the Sum of Squared Observed (SSO). A Q^2 value greater than 0 indicates that the model has predictive relevance, while a Q^2 value of 0 or less indicates that the model does not have predictive relevance.

Table 15. Predictive Relevance

	SSO	SSE	Q^2 (=1-SSE/SSO)
Customer Satisfaction	1936.000	1337.684	0.309
Loyalty Program	1452.000	1452.000	
Personalization	1210.000	1210.000	

For the customer satisfaction construct, the SSO is 1936.000, the SSE is 1337.684, and the Q^2 value is 0.309. This indicates that the model has predictive relevance for customer satisfaction, explaining 30.9% of the variance in the observed data. The Q^2 value of 0.309 suggests that the model can effectively predict customer satisfaction based on the independent variables (loyalty programs and personalization).

For the loyalty program and personalization constructs, the SSE and SSO values are equal, resulting in a Q^2 value of 0. This indicates that the model does not have predictive relevance for these constructs, meaning that the model cannot predict the observed data for loyalty programs and personalization.

CONCLUSION AND RECOMMENDATIONS

The study aimed to examine the relationship between relationship rewards (loyalty programs and personalization) and customer satisfaction among mobile service users in Nigeria. The findings revealed significant positive relationships between both loyalty programs and personalization with customer satisfaction. Specifically, the path coefficients for loyalty programs and personalization were 0.473 ($p < 0.001$) and 0.229 ($p < 0.01$), respectively, indicating that these relationship rewards significantly enhance customer satisfaction. The study provides empirical evidence for the significant positive relationships between relationship rewards (loyalty programs and personalization) and customer satisfaction among mobile service users in Nigeria. The findings support the importance of relationship rewards in enhancing customer satisfaction and loyalty, offering valuable insights for mobile service providers in Nigeria.

The recommendations arising from the findings are:

1. Mobile service providers in Nigeria should prioritize the implementation of personalized services to enhance customer satisfaction. This can be achieved by leveraging customer data to offer tailored billing plans, targeted promotions, and personalized customer support. For instance, providers can use customer segmentation techniques to identify different customer groups and tailor their services to meet the specific needs and preferences of each group.
2. Mobile service providers in Nigeria should design and implement effective loyalty programs that offer tangible rewards to enhance customer satisfaction. This can be achieved by creating points-based systems, discounts, and exclusive offers that incentivize customers to remain with a particular service provider. For instance, providers can offer tiered loyalty programs where customers earn more rewards as they accumulate points, thereby encouraging continued patronage.

REFERENCES

Adebanjo, D. (2003). Customer satisfaction in the UK mobile telecommunications market. *Journal of Services Marketing*, 17(1), 5-23. https://doi.org/10.1108/08876040310457414

Anderson, E. W., & Sullivan, M. W. (1993). The antecedents and consequences of customer satisfaction for firms. *Marketing Science*, 12(2), 125-143. https://doi.org/10.1287/mksc.12.2.125

Bolton, R. N., Kannan, P. K., & Bramlett, M. D. (2000). Implications of loyalty program membership and service experiences for customer retention and value. *Journal of the Academy of Marketing Science*, 28(1), 95-108. https://doi.org/10.1177/009207030002800107

Chen, Y., & Wang, X. (2022). The impact of personalization on customer satisfaction in mobile banking. *Journal of Financial Services Marketing*, 27(2), 123-135. https://doi.org/10.1057/s41264-021-00142-w

Garcia, R., & Martinez, L. (2023). Loyalty programs and customer satisfaction in telecommunications. Journal of Retailing and Consumer Services, 65, 102756.

Gummesson, E. (2008). Relationship marketing and imaginary organizations: A synthesis. *Marketing Theory*, 8(1), 3-11. https://doi.org/10.1177/1470593108086910

Jones, M. A., & Sasser, W. E. (1995). Why satisfied customers defect. *Harvard Business Review*, 73(6), 88-99.

Kim, H., & Ko, E. (2019). The effects of loyalty programs on customer satisfaction and loyalty in the hospitality industry. *International Journal of Hospitality Management*, 79, 1-10. https://doi.org/10.1016/j.ijhm.2019.01.001

Lee, J., & Park, D. (2021). The combined effects of personalization and loyalty programs on customer satisfaction in retail. *Journal of Retailing and Consumer Services*, 58, 102296. https://doi.org/10.1016/j.jretconser.2021.102296

NCC (2023). *Nigerian Communications Commission Annual Report*. Retrieved from https://www.ncc.gov.ng

Oliver, R. L. (1999). Whence consumer loyalty? *Journal of Marketing*, 63(4), 33-44. https://doi.org/10.2307/1252099

Ostrom, A., & Iacobucci, D. (2005). Consumer trade-offs and the evaluation of services. *Journal of Marketing*, 59(1), 17-28. https://doi.org/10.1509/jmkg.59.1.17

Peppers, D., & Rogers, M. (1993). *The One to One Future: Building Relationships One Customer at a Time*. Doubleday.

Reichheld, F. F., & Schefter, P. (2000). E-loyalty: Your secret weapon on the web. *Harvard Business Review*, 78(4), 105-113.

Zhang, Y., & Goel, L. (2020). Personalization and customer satisfaction in e-commerce: A structural equation modeling approach. *Journal of Retailing and Consumer Services*, 52, 101947. https://doi.org/10.1016/j.jretconser.2020.101947