



Gamification in mobile banking apps to enhance customer experience and engagement

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Abstract

This research paper comprehensively examines the impact of gamification within mobile banking applications on customer experience and engagement. Drawing insights from a thorough literature review, a quantitative methodology was employed, involving a Likert-scale based questionnaire administered to 303 banking app users. The study substantiates the hypothesis that gamification significantly enhances both customer experience and engagement within mobile banking apps. Results indicate a consistent elevation in users' perceptions of overall experience, user-friendliness, enjoyment, and interactive engagement due to the incorporation of gamified elements. These findings underline the strategic importance of integrating gamification within mobile banking apps to fortify user engagement and elevate overall experiences. The study's implications extend to strategic implementations for banking institutions and pave the way for future research, emphasizing the need for deeper investigations into gamification's nuanced dynamics and its impact on diverse user segments.

Keywords: Gamification, Mobile Banking Apps, Customer Experience, Customer Engagement, User Perceptions

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Introduction

In the contemporary digital landscape, the convergence of finance and technology has led to an innovative paradigm shift within the banking sector. One of the pioneering methodologies that have garnered substantial attention and adoption is gamification. This transformative approach infuses elements of game mechanics and design into non-game contexts, altering the traditional banking experience within mobile applications. By harnessing the motivational aspects intrinsic to gaming, banking apps endeavor to augment customer engagement and enrich user experiences, thereby revolutionizing conventional banking practices. Gamification, as a concept, encapsulates the strategic integration of game-like features, such as challenges, rewards, and interactive elements, into non-game settings. It capitalizes on

fundamental psychological principles, leveraging intrinsic motivators like competition, achievement, and progress to incite user participation and sustained interaction. Within the realm of mobile banking applications, gamification manifests through the implementation of diverse mechanisms, ranging from point systems, leaderboards, and achievement badges to interactive simulations and personalized challenges. The integration of gamified elements within banking apps is multifaceted, aiming not only to enhance user experience but also to drive specific behavioral outcomes. Banking institutions deploy these strategies with a nuanced understanding of user preferences, aiming to incentivize desired actions such as increased savings, responsible spending, and regular engagement with financial services. For instance, the



incorporation of progress-tracking features in budgeting apps simulates game-like progress bars, showcasing users' financial milestones, fostering a sense of accomplishment, and encouraging continued financial prudence. Moreover, the evolution of mobile banking apps from static transactional platforms to dynamic, engaging ecosystems is profoundly influenced by gamification. Institutions leverage these techniques to personalize user experiences, tailoring offerings based on individual financial habits and objectives. Adaptive algorithms analyze spending patterns, subsequently providing personalized recommendations or challenges, effectively gamifying financial management and encouraging users to strive towards set goals. The impact of gamification on customer experience and engagement within mobile banking apps is multifaceted and profound. Firstly, it cultivates an immersive and interactive environment, transcending the mundane nature of financial transactions. By infusing elements of fun and challenge, it fosters a more enjoyable and engaging interaction, thereby retaining user interest and encouraging frequent usage of the application. Furthermore, gamification strategies act as potent catalysts in reshaping user behavior, promoting positive financial habits. By employing rewards, incentives, and progress tracking, these applications nudge users towards prudent financial decision-making, bolstering savings, and cultivating responsible spending behaviors. The interactive nature of gamification also stimulates curiosity and exploration, encouraging users to delve deeper into financial insights and avail themselves of the diverse services offered. In conclusion, the integration of gamification within mobile banking applications represents a significant paradigm shift, revolutionizing the traditional banking landscape. By amalgamating gaming principles with financial services, institutions aim to not only elevate user experiences but also drive transformative changes in customer behavior. The strategic fusion of gamified

Review of Literature

Çera, Pagria, Khan, and Muaremi (2020) explore the relationship between gamification, generational cohorts, and the extended Unified Theory of Acceptance and Use of Technology (UTAUT2) model in the context of mobile banking (m-banking) usage. Their research, carried out in Albania, combines different viewpoints to examine the factors that influence the usage of mobile banking and the moderating effect of generational cohorts, with a specific emphasis on generations Y and Z. The research highlights the importance of facilitation conditions, habit, and hedonic motivation as key factors that determine the effectiveness of gamification aspects within the UTAUT2 paradigm. Additionally, their research emphasizes a fascinating aspect: the age variable influences the connection between gamification and behavioral intention. Specifically, individuals from the generation Y, born before 1996, demonstrate a stronger correlation in comparison to generation Z. This study examines the complex relationship between gamification aspects, generational cohorts, and behavioral intents. It provides valuable insights into how gamification tactics can be used to improve consumer experience and engagement in mobile banking apps. The user's text is empty.

Jain, Shetty, Naik, Maddodi, Malarout, and Perule (2020) conducted a systematic research to explore the various uses of gamification in different contexts, with a specific focus on its impact on customer loyalty in the banking industry. The research thoroughly analyzes the available literature by conducting a comprehensive survey across multiple internet databases. Their findings highlight a direct relationship between motivation and the use of gamification elements in apps, regardless of the field. Significantly, meticulously planned and designed gamified applications demonstrate positive outcomes in various fields, indicating their potential to produce favorable results. Furthermore, a clear connection between gamification and client loyalty emerges in the cooperative banking sector. Nevertheless, the study highlights the necessity for additional

empirical investigation to statistically validate these associations, indicating a promising direction for future exploration in the field of gamification in the banking industry and its influence on customer loyalty. This systematic review not only confirms the perceived advantages of gamification but also emphasizes the promising correlation it has with client loyalty, suggesting its potential as a strategic instrument in improving consumer engagement within the banking sector.

De Canio, Fuentes-Blasco, and Martinelli (2021) investigate the inherent incentives that influence consumers' tendency to make purchases through mobile apps. Specifically, they examine the impact of shopping gamification, focused attention, shopping delight, and social interaction. This study explores the intricate function of shopping engagement as a mediator in the connection between these incentives and the desire to make purchases via mobile apps. The study focuses on examining the online shopping experience, which acts as a direct factor that influences the intention to make purchases through mobile applications. Additionally, it serves as a mediator in the relationship between shopping engagement and the desire to buy using mobile apps. The empirical investigation was carried out in China and involves the collection of 893 structured questionnaires from Chinese customers. The results confirm that internal incentives have an indirect effect on the intention to make a purchase through mobile apps by means of engaging in shopping activities. The study emphasizes the beneficial impact of the online shopping experience on the connection between shopping engagement and the intention to make purchases through mobile apps. This highlights the important role of these internal motivations and the online shopping experience in influencing consumer behavior within mobile app platforms.

Chauhan, Akhtar, and Gupta (2021) conduct a study to investigate and broaden the current body of knowledge on the use of gamification in the banking industry. Given the novelty of gamification, especially in the banking sector, the study carefully categorizes the little existing literature and identifies potential

areas for further research. The study seeks to consolidate the existing knowledge on gamification in banking by organizing studies according to theories, characteristics, context, and methodology. Additionally, it intends to identify untapped areas that are suitable for future research. The analysis of literature reveals a wide range of issues that define the future direction of gamification in the banking business. This highlights the necessity of incorporating social and psychological theories into banking, with a particular focus on the unexplored area of game elements in this field in comparison to other situations. The study recommends conducting additional empirical research to fully understand the influence of gamification on personality traits and customer behavior in the banking industry. From a pragmatic perspective, this study provides significant insights for bank management. This demonstrates the effectiveness of utilizing gamification, incorporating both pleasurable and practical aspects, to improve financial understanding, promote better saving practices, simplify banking offerings, and strengthen information sharing among bank staff. It is crucial for banks to have a thorough understanding of the key components and current research progress on how gamification affects the evolution of consumer behavior. This knowledge is essential for banks to gain strategic advantages in the digital banking industry.

Torres-Toukoumidis and Marín-Mateos (2017) examine the incorporation of game elements into mobile applications in the banking industry of Spain. Their research focuses on analyzing 38 mobile banking applications available on both iOS and Android platforms, specifically avoiding applications from non-banking businesses. The study classifies these applications according to purpose, audience, technology strategy, play experience, and game mechanics, using Raftopoulos, Walz, and Greuter's (2015) taxonomy of game elements. The findings indicate that these applications primarily seek to improve client loyalty through operational solutions and portfolio synchronizations. The intended demographic often consists of individuals

aged 26 to 35, who primarily prioritize the implementation of security and privacy technologies in their technical approach. Mobile banking institutions are increasingly incorporating entertaining experiences into their communication strategies, especially in the areas of sociability and individualized central panel designs. Furthermore, the frequently utilized game mechanics involve the accumulation of prizes and the implementation of progression elements in these banking applications. This study empirically examines the strategic integration of game components in mobile banking apps in Spain. It analyzes the objectives, target audience, technological techniques, fun experiences, and common game mechanics employed in these apps.

Bitrián, Buil, and Catalán (2021) conduct a thorough study that combines the Self-Determination Theory (SDT) and the Technology Acceptance Model (TAM) to examine the influence of gamification on user motivation and intention to use Personal Financial Management (PFM) apps, as well as its role in promoting their adoption. The study utilizes data from 208 Mint app users and applies Partial Least Squares Structural Equation Modeling for analysis. The results emphasize that the use of gamification in personal finance management (PFM) applications satisfies users' desires for proficiency and independence, consequently enhancing their self-driven incentive to interact with these applications. The increased motivation is associated with users considering the apps as more user-friendly and valuable, hence promoting more positive views towards them. Additionally, the study reveals a correlation between consumers' positive sentiments towards PFM apps and their intention to use them. Nevertheless, the study recognizes limits in terms of the capacity to apply the findings to a wider population, indicating the necessity for research incorporating a variety of PFM apps. Additionally, the study is constrained in its ability to establish cause-and-effect relationships due to its cross-sectional design. However, the consequences are substantial, as they firmly support the integration of

gamification in PFM apps and offer useful information for fintech companies and banks to promote user engagement with their applications.

The study conducted by Salimon, Aliyu, Yusr, and Perumal (2021) focuses on a significant area of technology adoption. It examines the unexplored potential of gamification in increasing the usage of smartphone banking. Additionally, the study considers the impact of cultural influences on consumers. The objective of the research is to determine the influence of gamification, hedonic motivation, and cultural factors on the adoption of smartphone banking. This will be achieved by experimentally testing a conceptual framework on a sample of 388 respondents from Nigeria. Utilizing the Partial Least Square (PLS) Structural Equation The study presents persuasive findings through the use of modeling for analysis. The statement clarifies that the usage of smartphone banking is highly influenced by gamification, hedonic incentive, cultural influences, and fundamental variables from the Technology Acceptance Model. The study's results have important practical implications for professionals, highlighting the need to incorporate gamification and hedonic strategies in the design of smartphone banking to enhance its effectiveness. This research examines the impact of certain techniques in the financial industry that are currently gaining popularity. It focuses on how these methods can generate significant value for consumers and provides insights into the key elements that drive the adoption of smartphone banking in Nigeria.

Bayuk and Altobello (2019) explore the potential benefits of integrating gamification principles into smartphone applications that are centered around money-saving and personal finance. The objective is to enhance financial well-being and increase incentive to save. Their initial investigation among university students examines the influence of gamification components inside these applications, with a focus on social aspects (such as leaderboards and sharing achievements) or economic aspects (such as earning actual currency or increased interest

rates). The second primary investigation entails Mechanical Turk participants that are exposed to descriptions of financial gaming applications that highlight these diverse characteristics. The results indicate that financial concern, proficiency in financial matters, personal understanding, and proficiency in using financial applications are predictors of financial well-being. Furthermore, users' inclinations towards particular attributes within financial gaming applications differ depending on their familiarity with financial applications. Experienced users of financial apps typically seek a combination of social and economic features, whilst inexperienced users are more inclined towards economic aspects. These observations provide direction for game designers and financial services marketers, indicating that the efficacy of gamified financial apps may differ based on users' previous proficiency with financial smartphone applications. The study underscores the potential advantages of prioritizing social aspects in financial applications, opening up avenues for additional exploration into their influence on consumer drive and financial welfare.

Rodrigues, Costa, and Oliveira (2013) investigate the use of gamification in e-banking, recognizing the difficulty of integrating gaming components with non-game characteristics, particularly in the heavily regulated financial industry. Their study seeks to examine the reception of a gamified business application in e-banking, utilizing the Technology Acceptance Model (TAM). The study reveals that the gamified application had a beneficial effect on its adoption in e-banking, based on an online survey of 183 clients. The results indicate that customers' intents and perceived usefulness are greatly influenced by their perception of how easy it is to use a product or service. Additional examination reveals that the perception of utility and enjoyment also has a favorable impact on the perception of ease-of-use. Moreover, the study reveals that users enthusiastically adopted and utilized the gamified application to effectively manage assets and purchase additional mutual funds,

thereby enhancing their prospects of achieving success inside the game. The results emphasize the favorable acceptance of gamification in e-banking, emphasizing its impact on consumer behavior and its ability to improve engagement and activities associated with financial management in the digital domain.

The literature analysis on gamification in the banking and finance sector demonstrates the capacity of this approach to transform client interaction in digital platforms. Although studies provide vital insights into the effects of gamification on customer behaviors and experiences in mobile banking apps and financial management, there are still significant gaps in research. Firstly, it is necessary to conduct more thorough empirical validation in various banking scenarios to verify the reported connections between gamification and user behaviors. Furthermore, conducting longitudinal research could provide insights into the enduring impacts of gamification on user engagement and loyalty. It is essential to do in-depth research to identify the gamification features that firmly appeal to distinct user segments in order to use them effectively. The impact of cultural elements on the reception and efficacy of gamification tactics is still a relatively unexplored field. Finally, examining the strategic incorporation of gamification into wider financial frameworks could provide thorough instructions for widespread implementation in the business. In summary, conducting empirical investigations and strategic analyses will enhance the comprehension and use of gamification tactics in the ever-changing digital banking industry, in addition to the valuable insights provided by previous studies.

Objectives of the study

1. To study the impact of gamification in mobile banking apps to enhance customer experience.
2. To study the impact of gamification in mobile banking apps to enhance customer engagement.

Hypotheses

- H1: Gamification of mobile banking apps has a positive impact on the customer experience.
- H2: Gamification of mobile banking apps has a positive impact on the customer engagement.

Research Methodology

The research methodology employed a quantitative approach to investigate the impact of gamification in mobile banking apps on customer experience and engagement. A structured questionnaire was designed based on established constructs related to gamification elements, customer experience, and engagement. A sample of 303 mobile

banking app users was selected using random sampling techniques. The survey, conducted over a specified period, collected responses regarding users' perceptions of gamification elements integrated into mobile banking apps and their subsequent impact on customer experience and engagement. Statistical analyses, including regression analysis and correlation tests, were applied to examine the relationships between gamification and customer experience as well as engagement. The data collected was analysed using statistical software to assess the significance and strength of these relationships.

Data Analysis

Table 1. Age

		Freq.	Percent
Valid	18-30 years	24	7.9
	30-40 years	195	64.4
	40-50 years	43	14.2
	50-60 years	28	9.2
	Above 60 years	13	4.3
	Total	303	100.0

The table illustrates the distribution of participants across different age groups. Among the 303 respondents, the majority fall within the age range of 30 to 40 years, constituting 64.4% of the total sample. The next most prevalent group comprises individuals between 40 and 50 years, representing 14.2% of the participants. Those aged between 18 and 30 years make up 7.9% of the respondents, followed by individuals

aged 50 to 60 years, accounting for 9.2% of the total. The smallest proportion consists of respondents above 60 years, comprising 4.3% of the sample. The distribution underscores a significant representation from the 30 to 40-year-old age bracket, suggesting a higher participation rate among individuals within this demographic compared to other age groups in the survey.

Table 2. Gender

		Freq.	Percent
Valid	Male	151	49.8
	Female	152	50.2
	Total	303	100.0

Table 2 displays the gender distribution among the 303 participants in this study. The data indicate a nearly equal representation of male and female respondents, with males constituting 49.8% and females comprising 50.2% of the total sample. This balanced gender distribution within the survey ensures a fair representation of both male and female perspectives in the study, enabling a comprehensive analysis of responses across genders.



Table 3. The inclusion of gamification features in mobile banking apps enhanced my overall banking experience.

		Freq.	Percent
Valid	Firmly Disagree	17	5.6
	Disagree	12	4.0
	Neutral	13	4.3
	Agree	50	16.5
	Firmly Agree	211	69.6
	Total	303	100.0

Table 3 presents respondents' perceptions regarding the impact of gamification features in mobile banking apps on their overall banking experience. The majority of participants, constituting 69.6%, firmly agreed that the inclusion of gamification features notably enhanced their overall banking experience. Additionally, 16.5% agreed, while smaller percentages expressed neutrality (4.3%), disagreement (4.0%), and strong

disagreement (5.6%) regarding the influence of these gamified elements on their banking experience. Overall, the substantial agreement and strong agreement responses suggest a prevalent positive perception among respondents regarding the enhancement of their banking experience through the integration of gamification features in mobile banking applications.

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Table 4. I found that gamified elements in mobile banking apps made the banking activities more enjoyable.

		Freq.	Percent
Valid	Firmly Disagree	25	8.3
	Disagree	21	6.9
	Neutral	8	2.6
	Agree	43	14.2
	Firmly Agree	206	68.0
	Total	303	100.0

Table 4 demonstrates participants' perspectives on the impact of gamified elements within mobile banking apps on the enjoyability of banking activities. A significant majority, comprising 68.0%, firmly agreed that these gamified elements significantly increased the enjoyability of their banking activities. Moreover, 14.2% agreed, while smaller proportions expressed neutrality (2.6%), disagreement (6.9%), and strong

disagreement (8.3%) regarding the influence of these gamified elements on the enjoyment of banking activities. Overall, the substantial agreement and strong agreement responses indicate a prevalent positive perception among respondents regarding the role of gamified elements in making banking activities more enjoyable within mobile banking applications.

Table 5. Gamification features in mobile banking apps improved my perception of the app's user-friendliness.

		Freq.	Percent
Valid	Firmly Disagree	26	8.6
	Disagree	21	6.9
	Neutral	6	2.0
	Agree	30	9.9
	Firmly Agree	220	72.6
	Total	303	100.0

Table 5 demonstrates respondents' perceptions regarding the influence of

gamification features on the user-friendliness of mobile banking apps. A substantial



majority, constituting 72.6%, firmly agreed that these gamification features significantly enhanced the app's user-friendliness. Additionally, 9.9% agreed with this perspective. A small proportion expressed neutrality (2.0%), while fewer respondents disagreed (6.9%) or firmly disagreed (8.6%) with the notion that gamification features

improved the user-friendliness of the app. Overall, the dominant agreement and strong agreement responses underscore a prevalent positive perception among participants concerning the role of gamification features in enhancing the user-friendliness of mobile banking applications.

Table 6. The gamified aspects of the app positively influenced my engagement while using the banking services.

		Freq.	Percent
Valid	Firmly Disagree	27	8.9
	Disagree	9	3.0
	Neutral	5	1.7
	Agree	53	17.5
	Firmly Agree	209	69.0
	Total	303	100.0

Table 6 illustrates respondents' perspectives regarding the influence of gamified aspects on their engagement while using banking services through the app. The data showcases a strong inclination towards agreement, with 69.0% firmly agreeing and 17.5% agreeing that these gamified elements significantly positively impacted their engagement during the use of banking services. A minor proportion expressed disagreement, as 3.0%

disagreed and 8.9% firmly disagreed with the notion that gamified aspects positively influenced their engagement. A small number remained neutral (1.7%) on this aspect. Overall, the dominant agreement responses emphasize the perceived positive influence of gamified features on user engagement within the context of banking services offered through the app.

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Table 7. Using gamified features in mobile banking apps made the overall experience more interactive and engaging.

		Freq.	Percent
Valid	Firmly Disagree	21	6.9
	Disagree	22	7.3
	Neutral	8	2.6
	Agree	30	9.9
	Firmly Agree	222	73.3

Total	303	100.0
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Table 7 presents respondents' perceptions regarding the impact of gamified features on the interactivity and engagement of the overall mobile banking experience. The data illustrates a substantial consensus towards agreement, with 73.3% firmly agreeing and 9.9% agreeing that the inclusion of gamified elements made the overall experience more interactive and engaging. A smaller subset

expressed disagreement, as 7.3% disagreed and 6.9% firmly disagreed with the notion that gamified features enhanced interactivity and engagement. A minor portion remained neutral (2.6%) on this aspect. Overall, the prevalent agreement responses emphasize the perceived positive influence of gamified features in making the overall mobile banking experience more interactive and engaging for users.



Table 8. I felt more engaged with the mobile banking app due to the incorporation of gamified elements.

		Freq.	Percent
Valid	Firmly Disagree	21	6.9
	Disagree	17	5.6
	Neutral	19	6.3
	Agree	61	20.1
	Firmly Agree	185	61.1
	Total	303	100.0

Table 8 portrays respondents' sentiments regarding their engagement with the mobile banking app attributed to the inclusion of gamified elements. The data showcases a dominant inclination towards agreement, with 61.1% firmly agreeing and 20.1% agreeing that the incorporation of gamified elements led to increased engagement with the app. A smaller proportion expressed

disagreement, as 5.6% disagreed and 6.9% firmly disagreed with the idea that gamified elements enhanced their engagement. Additionally, 6.3% of respondents remained neutral on this aspect. The prevailing agreement responses underscore the perceived positive impact of gamified elements in augmenting user engagement with the mobile banking application.

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Table 9. The gamification aspects in the app motivated me to explore different banking services and features.

		Freq.	Percent
Valid	Firmly Disagree	28	9.2
	Disagree	15	5.0
	Neutral	9	3.0
	Agree	35	11.6
	Firmly Agree	216	71.3
	Total	303	100.0

Table 9 reflects participants' viewpoints regarding the motivation to explore various banking services and features attributed to the gamification aspects within the app. The majority of respondents, comprising 71.3% firmly agreeing and 11.6% agreeing, acknowledged that the gamified elements significantly motivated them to explore different banking services and features. A

smaller fraction, comprising 5.0% disagreeing and 9.2% firmly disagreeing, expressed less inclination towards this notion. Additionally, 3.0% remained neutral regarding this aspect. The predominant agreement responses underscore the perceived motivational influence of gamification elements in encouraging users to explore diverse banking services and features within the app.

Table 10. The presence of gamified features in the mobile banking app increased my willingness to spend more time using the app.

		Freq.	Percent
Valid	Firmly Disagree	15	5.0
	Disagree	34	11.2
	Neutral	15	5.0
	Agree	74	24.4
	Firmly Agree	165	54.5
	Total	303	100.0

Table 10 depicts respondents' perspectives on the impact of gamified features in the mobile

banking app on their willingness to spend more time using it. The data shows that a



significant portion of participants, comprising 54.5% firmly agreeing and 24.4% agreeing, expressed that the inclusion of gamified elements notably increased their willingness to spend more time using the app. Conversely, 11.2% disagreed and 5.0% firmly disagreed with this statement, indicating a

less pronounced inclination. Additionally, 5.0% remained neutral regarding this aspect. The substantial agreement responses underscore the perceived influence of gamification in enhancing users' willingness to spend extended periods utilizing the mobile banking app.

Table 11. The gamification elements in the app encouraged me to interact more frequently with the offered banking functionalities.

		Freq.	Percent
Valid	Firmly Disagree	24	7.9
	Disagree	15	5.0
	Neutral	11	3.6
	Agree	52	17.2
	Firmly Agree	201	66.3
	Total	303	100.0

Table 11 illustrates respondents' perceptions regarding the impact of gamification elements in the app on their interaction frequency with offered banking functionalities. The data demonstrates a substantial positive response, with 66.3% firmly agreeing and 17.2% agreeing that gamified elements in the app encouraged them to interact more frequently with the provided banking features. Conversely, a smaller percentage, comprising

5.0% disagreeing and 7.9% firmly disagreeing, expressed less inclination toward increased interaction due to gamification elements. Additionally, 3.6% of respondents remained neutral on this aspect. The significant agreement responses highlight the perceived influence of gamification in fostering increased interaction with the banking functionalities offered within the app.

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Table 12. The gamified aspects of the app heightened my interest in learning about various banking products and services.

		Freq.	Percent
Valid	Firmly Disagree	17	5.6
	Disagree	22	7.3
	Neutral	17	5.6
	Agree	29	9.6
	Firmly Agree	218	71.9
	Total	303	100.0

Table 12 displays respondents' perspectives regarding the impact of gamified aspects in the app on their interest in learning about various banking products and services. The data showcases a notably positive inclination, with a substantial majority (71.9%) firmly agreeing and 9.6% agreeing that the gamified elements heightened their interest in learning about banking products and services. Conversely, a smaller proportion, consisting of

5.6% disagreeing and 7.3% firmly disagreeing, expressed less interest due to gamification elements. Additionally, 5.6% of respondents remained neutral on this aspect. The considerable agreement responses underscore the perceived influence of gamification in stimulating interest and curiosity among users regarding diverse banking offerings and services within the app.



H1: Gamification of mobile banking apps has a positive impact on the customer experience.

Table 13. One-Sample Test

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
The inclusion of gamification features in mobile banking apps enhanced my overall banking experience.	21.960	302	.000	1.40594	1.2800	1.5319
I found that gamified elements in mobile banking apps made the banking activities more enjoyable.	17.122	302	.000	1.26733	1.1217	1.4130
Gamification features in mobile banking apps improved my perception of the app's user-friendliness.	17.468	302	.000	1.31023	1.1626	1.4578
The gamified aspects of the app positively influenced my engagement while using the banking services.	19.062	302	.000	1.34653	1.2075	1.4855
Using gamified features in mobile banking apps made the overall experience more interactive and engaging.	18.896	302	.000	1.35314	1.2122	1.4940

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The conducted One-Sample Tests aimed to evaluate the impact of gamification in mobile banking apps on customer experience, aligned with Hypothesis 1. The results unveiled significant positive mean differences across all surveyed statements regarding the influence of gamification features. The respondents overwhelmingly supported the notion that gamification enhances their overall banking experience, as indicated by a mean difference of 1.406 (95% CI: 1.280, 1.532) and a t-value of 21.960 ($p < .001$). Furthermore, users expressed that gamified elements significantly contribute to making banking activities more enjoyable, with a mean difference of 1.267 (95% CI: 1.122, 1.413) and a t-value of 17.122 ($p < .001$). Moreover, participants perceived an enhancement in app user-friendliness due

to gamification, revealing a mean difference of 1.310 (95% CI: 1.163, 1.458) and a t-value of 17.468 ($p < .001$). The positive influence of gamified aspects on user engagement during banking services was notable, with a mean difference of 1.347 (95% CI: 1.207, 1.486) and a t-value of 19.062 ($p < .001$). Additionally, respondents firmly agreed that gamified features make the overall experience more interactive and engaging, showcasing a mean difference of 1.353 (95% CI: 1.212, 1.494) and a t-value of 18.896 ($p < .001$). These consistent and statistically significant findings affirm the hypothesis, suggesting a robust positive impact of gamification on enhancing customer experience within mobile banking applications.



H2: Gamification of mobile banking apps has a positive impact on the customer engagement.

Table 14. One-Sample Test

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
I felt more engaged with the mobile banking app due to the incorporation of gamified elements.	17.600	302	.000	1.22772	1.0904	1.3650
The gamification aspects in the app motivated me to explore different banking services and features.	17.533	302	.000	1.30693	1.1602	1.4536
The presence of gamified features in the mobile banking app increased my willingness to spend more time using the app.	16.064	302	.000	1.12211	.9847	1.2596
The gamification elements in the app encouraged me to interact more frequently with the offered banking functionalities.	18.152	302	.000	1.29043	1.1505	1.4303
The gamified aspects of the app heightened my interest in learning about various banking products and services.	19.490	302	.000	1.34983	1.2135	1.4861

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The One-Sample Tests conducted to ascertain the impact of gamification on customer engagement within mobile banking apps, linked to Hypothesis 2, revealed compelling insights. Across all surveyed statements, statistically significant mean differences were observed, affirming the positive impact of gamification on customer engagement. Users expressed a heightened sense of engagement with the mobile banking app due to the inclusion of gamified elements, showcasing a mean difference of 1.228 (95% CI: 1.090, 1.365) and a t-value of 17.600 ($p < .001$). Additionally, participants reported that gamified aspects motivated them to explore diverse banking services and features, revealing a mean difference of 1.307 (95% CI: 1.160, 1.454) and a t-value of 17.533 ($p < .001$). Furthermore, the presence of gamified features increased users' willingness to spend more time using the app, demonstrating a mean difference of 1.122 (95% CI: 0.985, 1.260) and a t-value of 16.064 ($p < .001$). Users also indicated that gamification

encouraged them to interact more frequently with offered banking functionalities, with a mean difference of 1.290 (95% CI: 1.151, 1.430) and a t-value of 18.152 ($p < .001$). Moreover, respondents expressed that gamified aspects heightened their interest in learning about various banking products and services, displaying a mean difference of 1.350 (95% CI: 1.214, 1.486) and a t-value of 19.490 ($p < .001$). These robust findings underscore the hypothesis, emphasizing the significant positive impact of gamification on enhancing customer engagement within mobile banking applications.

Findings

The study's findings illuminate a robust connection between the integration of gamification elements and the enhancement of both customer experience and engagement within mobile banking applications. Analysis of the collected data revealed statistically significant evidence supporting the hypothesis that gamification positively influences



customer experience. Participants consistently reported a markedly improved overall banking experience, heightened enjoyment in banking activities, enhanced user-friendliness perception of the app, amplified engagement during banking services usage, and a more interactive overall experience due to the inclusion of gamified elements. These findings collectively highlight the pivotal role played by gamification in augmenting the holistic experience of users engaging with mobile banking applications.

Moreover, the study uncovered compelling insights affirming the hypothesis regarding the positive impact of gamification on customer engagement within mobile banking apps. Users expressed increased engagement with the app owing to gamified elements, showcasing higher motivation to explore diverse banking services and features, a heightened willingness to spend more time using the app, elevated interaction frequency with banking functionalities, and a heightened interest in learning about a myriad of banking products and services. These consistent and significant findings across various aspects of user engagement underscore the potency of gamification in not just attracting users but also fostering sustained and enriched interactions, emphasizing its substantial role in shaping customer engagement within the mobile banking landscape.

Conclusion

The comprehensive exploration into the impact of gamification within mobile banking apps reveals multifaceted conclusions that bear significant implications for both industry and future research endeavors. Firstly, the unequivocal findings affirming the positive influence of gamification on customer experience and engagement underscore its strategic significance within the banking sector. The incorporation of gamified elements consistently elevated users' perceptions, rendering the overall banking experience more enjoyable, user-friendly, and interactive. Moreover, it significantly augmented engagement levels, fostering increased exploration of banking services, heightened app usage time, and a more

frequent and interactive interaction with various banking functionalities. These conclusive outcomes advocate for a strategic shift towards integrating gamification as a core element within mobile banking applications to fortify user engagement and experience.

The implications of these findings extend beyond immediate application, offering a roadmap for banking institutions and fintech companies seeking to redefine their user engagement strategies. Embracing gamification within mobile banking apps presents an opportunity to not only captivate users but also foster sustained, meaningful interactions. Banks can leverage these insights to refine app design, introduce gamified elements that resonate with diverse user segments, and personalize experiences to maximize engagement. Additionally, the study unveils avenues for future research, calling for deeper investigations into the nuanced dynamics of gamification elements, their impact on specific user demographics, and the potential to tailor experiences for diverse customer segments. Exploring the scalability and long-term effects of gamification, along with its influence on financial behavior and decision-making, emerges as an intriguing prospect for future inquiries in this domain.

As the financial landscape continues to evolve in the digital realm, the study's findings offer a prescient call for continual innovation and strategic alignment with user preferences. Banking institutions must embrace gamification not merely as a trend but as a strategic enabler to enhance user experiences, cultivate sustained engagement, and foster a deeper understanding of evolving customer behaviors in the dynamic digital banking landscape. This research lays a sturdy foundation for future explorations, emphasizing the imperative need for a more nuanced understanding of gamification's multifaceted impact on user behavior, with potential implications across various domains within the financial sector.

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