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Impact of Gamification Features in Fintech Applications on the Saving Behaviour Among Consumers in Kerala

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Abstract:
Financial services apps have been the arena for mass disruptions by FinTech. By integrating technology with financial services, they have significantly changed the behaviour of individuals in India. Mobile banking apps, investing apps, saving apps and payments apps are widely used by most people across different demographics. In the recent years, many such fintech apps have started to adopt gamification features in their apps in order to enhance user engagement and satisfaction. This study aims to understand and investigate how such FinTech application's gamification features affect the saving behaviour of young digital users. This study uses descriptive research design. A structured questionnaire will be used to gather primary data from the users of such apps. The main independent variables of this study are reward-based incentives, goal-setting and progress monitoring, social competition and peer influence, and user engagement using gamified features. The dependent variable is the saving behaviour of FinTech users, which helps in understanding how much people utilize FinTech applications to establish consistent saving practices, financial discipline and goal oriented financial planning.

Keywords: Financial discipline, FinTech applications, Gamification, Reward-based incentives, Saving behaviour, User engagement.

Introduction

Over the past decade the world has seen digitalisation happening at a very rapid pace in various sectors. In particular, the finance sector is the one with most disruptions, changing the manner as to how people normally interact with money. Advanced internet connectivity, smart phone penetration, and digital technologies have enabled financial services to move from traditional branch based-system to digital and mobile based platforms. This led to the emergence of FinTech, which is the integration of technology with financial services. FinTech services have now enabled more innovations to provide faster and more user-friendly solutions. Providing various services like fund transfer, bill payment, investing and saving money without ever having to step into a physical bank. Due to the smartphone penetrating the even most rural parts of many countries, fintech apps have become an important part of daily financial behaviour, particularly among students and young adults who value convenience over traditional banking systems.

Regular saving of money has become one of the most fundamental aspects of personal financial health. Saving money early and wisely helps in acting as a cushion against potential future perils and also provides long term security for fulfilling ones' own life goal such as higher education, travel, or future investments. However, developing and maintaining the habit of prudent saving for young adults, who lack the motivation, awareness or financial discipline. Fintech applications have come up with the new concept of gamification in order to address this problem.

To make engagement more effective and promote positive saving habits, fin techs have come up with a new strategy called gamification. Gamification refers to the use of game design elements and game principles in non-game contexts. Gamification plays of human psychology by making mundane tasks more exciting by introducing competition and achievements. As noted by **Marbun et al. (2022)**, game-like elements such as rewards and challenges can make saving money more engaging and encourage users to develop better financial habits. Similarly, **Odozor et al. (2023)** highlight that gamification mechanisms such as leaderboards and progress tracking can positively influence users' saving and investment behaviour by making financial activities more interactive and motivating.

Despite the increasing use of gamification in FinTech, there is a lack of specific research on its effect on the saving behaviour of users, particularly the younger generation or emerging markets such as India. Although research has shown that gamification increases user engagement, financial literacy, and motivation in general fintech settings, there is a lack of studies that explore whether the game-like elements actually translate to long-term changes in saving behaviour. For example, **Catalán et al. (2021)** found that gamification can increase engagement by satisfying psychological needs such as competence and autonomy, while **Rochim et al. (2022)** highlight that gamified features can enhance user interaction and satisfaction with digital banking platforms. However, it remains unclear whether such engagement translates into consistent long-term saving behaviour. Moreover, there seems to be a lack of any significant study comparing the various demographics, such as the young versus older generation, or gamified versus non-gamified financial services in the Indian fintech space.

The main objective of the current study is to investigate the impact of gamification in FinTech applications on saving behaviour. This study aims to explore whether the use of gamification features, such as rewards, streaks, and progress tracking, can encourage users to save money more frequently and intentionally, and to what extent. This study can provide important information to app developers, financial educators, and policymakers to design applications and strategies that promote positive saving behaviour. Finally, the result if this study can assist FinTech companies to refine gamification features in their applications in order to achieve the highest engagement and positive financial results.

Literature Review.

Odozor, L. A. et al. (2023): This research examined the introduction of gamification in savings and investment products within digital banking. The study mainly emphasises how certain gamification tactics such as rewards, progress tracking and leadership boards can motivate the users into saving and investing more prudently. It is also cited in the paper that such gamification elements really push the saving mentality and improves financial literacy by making user engagement more interactive. However, the authors also highlight the possible data privacy concerns and manipulative designs. The study concludes that when implemented transparently, gamification can influence the financial behaviour among users in a very positive manner and strengthen customer engagement in digital financial services.

Jhonny Marbun et al. (2022): This study examines the role of gamification in encouraging saving behaviour in digital banking. The study found that incorporating game-like elements such as rewards, challenges, and progress tracking can make saving money more engaging and enjoyable for users. These features motivate users to interact more frequently with digital banking applications and develop better saving habits. The research suggests that gamification can transform the saving process into a more interactive experience, thereby increasing user motivation to save regularly.

Sara Catalán et al. (2021): This particular study undertaken delved deep into how gamification of many features of fintech applications can positively influence the propensity to save and invest wisely among the future generations. However, it was highlighted in the study that the knowledge of using such apps is important and required in order to have a positive experience. Therefore, while gamification of apps is contributing positively towards increasing the financial literacy, these benefits can only be reaped by people who are well versed with these apps. A study of 276 users of a gamified mobile app analysed using Partial Least Square Regression found that gamification increases user engagement by satisfying psychological needs like competence, relatedness and autonomy.

Yun Zhang et al. (2021): Studied how gamification can be explored as a strategy to promote the adoption of digital financial technologies among the elderly population. This study studies the influence of the adoption of mobile payment systems among the older "silver generation" in China. By adopting a Technology Acceptance Model and Prospect Theory, a study examined the growing influence of cultural gamification, especially with an idea of digital red packet gifting. Moreover, it was also discovered through harnessing Structural Equation Modelling, that perceived enjoyment and perceived usefulness of such gamified features can positively influence the mobile payment adoption, while perceived threats pose as a deterrent to such adoption.

Malik and Singh (2022) this study examines the factors influencing the pervasive usage of mobile payments drew upon the Unified Theory of Acceptance and Use of Technology and Informed System Success Model. The study took data from 898 students and by adopting Structural Equation Modelling, found that gamified features significantly influence behavioural intention and usage of mobile payments and partially mediate continuous usage.

Martinelli et al. (2021) examined the role of gamification in increasing consumer engagement with mobile shopping applications. This study examined the role of intrinsic motivations such as shopping gamification, focused attention and social influence in users to make purchases online. With data being collected from 893 consumers and with further Structural Equation Modelling, the findings revealed that such intrinsic motivations play a role in indirectly affecting the purchase intention through mediating role of shopping engagement.

Karaca et al. (2023) examined how gamified mobile applications influence consumer purchase intentions and word-of-mouth engagement. These factors positively influence consumers' behavioural outcomes, including their intention to purchase products and share recommendations with others. Moreover, that from 351 users of gamified mobile apps also showed that the positive user experience significantly influences perceived value and satisfaction. The research also highlights that satisfaction acts as a mediating factor between gamified app experience and marketing outcomes.

Jaya Lakshmi (2025) examined the behavioural influence gamification tactics such as rewards, badges, challenges had on the users of fintech apps. It was found out that by incorporating such interactive features in investing apps and saving apps, the users were inclined to a more positive experience overall. In this

way, it was found out that such apps have the influence of enhancing the financial literacy and saving propensity of most of the population.

Sethu and Nathan-Roberts (2021) this study examined the role of gamification in e banking facilities and its effect on the overall customer engagement and satisfaction. Their study strongly suggests that gamified features such as progress indicators, reward points and challenges can motivate users to interact more frequently with e-banking services, since it makes the overall banking experience more engaging and enjoyable, thereby increasing the digital penetration of such apps.

Putri et al. (2019) explored the key driving factor or the motivation that drives users to engage with such gamified apps in mobile payments systems. Drawing upon the Uses and Gratification Theory, the study took platforms such as Go pay as an example to further the understanding. The key findings revealed to be the three main forms of gratifications that influence such continuous usage: hedonic gratification (enjoyment and entertainment), utilitarian gratification (ease of use, quality of information, and financial rewards), and social gratification (social value and interaction). The study concluded that these were the main features that enhance user motivation and promote continuous usage.

Lompoliu (2020) this study delves into the EdTech industry and how gamification in education can make learning and teaching so much easier and engaging. The study developed the CREB1T Android Application, a gamified learning platform designed to teach complex double entry accounting system by making it more engaging by incorporating game elements into a mobile learning environment. The application allows students to learn and understand concepts such as debit and credit transactions interactively. The findings emphasises that gamification can make traditionally difficult financial concepts more engaging and enhance user's understanding and motivation in financial education.

Rochim et al. (2022) The study integrates Cognitive Evaluation Theory with gamification strategies to enhance user experience in mobile banking applications. It explores how specific gamification features are tied to the psychological needs of autonomy, competence, and relatedness with user engagement and satisfaction. With a survey of 451 mobile banking users, the finds highlight that tailored gamification features significantly improve user interaction and loyalty toward banking applications. In conclusion, the study highlights that incorporating psychological principles into digital banking design can significantly enhance user engagement, strengthen relationships between users and banking platforms.

Syahbudi et al. (2025) examined user perceptions of gamification in digital Sharia savings applications. The study investigated how gamified features such as daily missions, challenges, and progress bars influence user engagement with digital Islamic banking services. Using the Technology Acceptance Model (TAM), the research found that perceived enjoyment, usefulness, and intention to use were rated highly by users, indicating that gamification positively affects engagement and satisfaction with digital savings platforms. The findings suggest that integrating gamified and Sharia-compliant features can increase user motivation, loyalty, and participation in digital savings services.

Sethu and Nathan-Roberts (2021) examined the role of gamification in e-banking and its influence on user engagement with digital financial services. The findings emphasised that incorporating game like elements such as rewards, challenges and social features can significantly boost customer engagement and satisfaction. Technology Acceptance Model has been drawn upon wherein the research highlights that factors such as ease of use, perceived usefulness and enjoyment positively influence the customers drive to adopt gamified e-banking facilities. The study concluded that the greater use of such features can significantly improve the penetration of more such products and make financial activities more appealing and interactive.

Mao et al. (2022) this study explored how gamification in branded mobile applications can encourage sustainable consumer behaviour. By using Starbucks as the main case study, the study explores the influence of gamified features such as rewards, achievements and challenges affect customer engagement and perceived playfulness, attitudes and behavioural intentions. These research frameworks have been majorly based on the Technology Acceptance Model and the Mechanics-Dynamics-Emotions Framework with perceived playfulness considered as an intrinsic motivational factor. 581 user data had been collected as primary data, with most of them having experience using the application. These studies revealed that such features significantly enhance customer engagement and increase consumer playfulness which strengthens the positive attitude towards the applications.

Research Methodology

This study adopts a descriptive research design to examine the impact of gamification features in FinTech applications on saving behaviour. Primary data was collected with a structured questionnaire being distributed among respondents residing in the Ernakulam district. The questionnaire consisted of two sections: the first section captured the demographic details of respondents such as age, gender, marital status, occupation, and monthly income, while the second section measured respondents' perceptions regarding gamification features and saving behaviour using Likert scale statements. A total of 174 valid responses were collected for the analysis. The study adopted convenience sampling technique, where respondents were selected on the basis of accessibility and willingness to participate in the survey. They key independent variables of the study include reward condition, challenge level, goal setting and progress tracking, while saving behaviour was held as the dependent variable. The collected data was analysed using descriptive statistics and multiple regression analysis to examine the relationship between gamification features and saving behaviour and to determine the significance of their impact.

Data Interpretation.

Table 1.1 Demographic Profile of Respondents

Demographic Variable	Category	Frequency	Percentage (%)
Marital Status	Single	52	29.9
	Married	122	70.1
Age	18–24	60	34.5
	25–34	54	31.0
	35–44	46	26.4
	45+	14	8.0
Gender	Female	122	70.1
	Male	51	29.3
	Other	1	0.6
Occupation	Student	36	20.7
	Government Employee	44	25.3
	Self-Employed	48	27.6
	Private Employee	44	25.3

	Housewife	2	1.1
Monthly Income	Below ₹25,000	46	26.4
	₹25,000–₹50,000	42	24.1
	₹50,000–₹1,00,000	68	39.1
	Above ₹1,00,000	18	10.3

The distribution of the respondents based on marital status shows that a majority with 122 respondents (70.1%) are married, while 52 respondents (29.9%) are single. This shows that the majority of the participants in the study are married individuals. Secondly, the age distribution of the respondents shows that 60 respondents (34.5%) belong to the 18–24 age group, which makes it the largest group in the sample. This is followed by 54 respondents (31.0%) in the 25–34 age group, 46 respondents (26.4%) in the 35–44 age group, and 14 respondents (8.0%) who are aged 45 years and above. The results denotes that the majority of the participants fall in the age bracket of 18-24. Thirdly, the gender distribution of the respondents reveals that 122 respondents (70.1%) are female, 51 respondents (29.3%) are male, and 1 respondent (0.6%) identified as other. This indicates that female respondents constitute the majority of the sample. Fourthly, the occupational distribution of respondents shows a relatively balanced representation across several professional categories. 48 respondents (27.6%) are self-employed, making it the largest occupational group in the sample. This is followed by 44 respondents (25.3%) who are government employees and 44 respondents (25.3%) who are private sector employees. Additionally, 36 respondents (20.7%) are students, while 2 respondents (1.1%) are housewives. Lastly, the distribution of respondents based on monthly income shows that 68 respondents (39.1%) earn between ₹50,000 and ₹1,00,000, making it the largest income group in the sample. This is followed by 46 respondents (26.4%) earning below ₹25,000, and 42 respondents (24.1%) earning between ₹25,000 and ₹50,000. A smaller proportion of respondents, 18 individuals (10.3%), earn above ₹1,00,000 per month. These results indicate that a significant proportion of respondents fall within the middle-income category.

2. Reliability Analysis

Reliability Analysis: Table 2.1

Variables	Number of Items	Cronbach's Alpha
Reward Components	4	0.836
Challenges / Competition	4	0.878
Goal Setting	4	0.816
Progress Tracking	4	0.824
Saving Behaviour	8	0.931

Reliability analysis was conducted to test the internal consistency of the measurement scales used in the study. Cronbach's Alpha was used as the reliability coefficient. The results indicate that all the variables have Cronbach's Alpha values greater than 0.70, which is the acceptable limit to test the reliability. As seen in the above table, saving behaviour shows the highest reliability with a Cronbach's Alpha of 0.931, indicating excellent internal consistency Similarly, the gamification elements such as rewards as components (0.836), challenges/competition (0.878), goal setting (0.816), and progress tracking (0.824) also demonstrates good reliability. Therefore, it can be concluded that the measurement scale used in the study are very much reliable and suitable for further statistical analysis.

3. Descriptive Statistics

Descriptive Statistics Analysis: Table 3.1

Variables	Mean	Std.Deviation
Reward Components	3.81	0.88
Challenges & Competition	3.85	0.92
Goal Setting Features	4.14	0.80
ProgressTracking Features	4.09	0.74
Saving Behaviour	4.14	0.84

Descriptive Statistics were used to summarise the central tendency and variability of the variables included in the study.

The results show that the mean value of reward components is 3.81 indicating that respondents moderately agree that rewards-based gamification features are present in fintech applications. Similarly, the mean score for challenges/competition feature is 3.85, suggesting that the overall perception among the respondents for this feature is overall positive. Among the gamification elements, goal setting features recorded a relatively higher mean value of 4.14, indicating that respondents strongly agree that this feature contributes very positively towards encouraging saving behaviour. Likewise, progress tracking feature have a mean value of 4.09, which suggests that respondents find progress tracking tool helpful in monitoring their savings. Similar to the goal setting feature, saving behaviour also records a high mean value with 4.14, indicating that respondents generally exhibit positive saving behaviour while using fintech applications. Overall, the descriptive statistics suggests that gamification features in fintech applications are positively perceived across the demographics and is recorded to yield positive results with regards to pushing saving behaviour among people.

4. Regression Analysis

Summary Table: Table 4.1

Model	R	R Square	Adjusted R Square	Durbin–Watson
1	0.705	0.497	0.485	1.857

Variable	B	Std. Error	Beta	t	Sig.
Constant	1.656	0.223	—	7.432	0.000
Total Reward Condition	0.152	0.054	0.197	2.805	0.006
Total Challenge Level	0.174	0.078	0.167	2.230	0.027
Goal Setting	0.212	0.061	0.277	3.480	0.001

Progress Total	0.140	0.052	0.206	2.690	0.008

The correlation coefficient (R) is 0.705, which indicates a strong positive relationship between the independent variables (reward condition, challenge level, goal setting, and progress tracking) and the dependent variable (savings behaviour). This suggests that changes in these gamification factors are strongly associated with changes in savings behaviour.

The coefficient of determination (R Square) is 0.497, which implies that 49.7% of the variation in savings behaviour is explained by the four independent variables included in the model. This indicates that nearly half of the variation in individuals' saving behaviour can be attributed to the gamification features examined in this study. The adjusted R square value of 0.485 indicates that 48.5% of the variation in saving behaviour can be attributed to these variables, while the remaining variation may be due to other factors which may be due to other factors not included in the study. The Durbin-Watson statistic is 1.857, which is close to the ideal value of 2, indicating that the regression assumption of independence of errors is satisfied and that there is no auto correlation among the residuals.

ANNOVA analysis Table 4.2

Model	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Regression	22.478	4	5.619	41.797	0.000
Residual	22.721	169	0.134		
Total	45.199	173			

Above table is the ANOVA table is used to determine whether the regression model as a whole is statistically significant. The F-statistic value is 41.797 with a significance value of 0.000, which is less than the threshold value of 0.05. This denotes that the regression model is statistically significant which means that there is a significant influence of the independent variables on the savings behaviour. The regression sum of squares is 22.478, while the residual sum of squares is 22.721, resulting in a total sum of squares of 45.199. These values represent the variation explained by the model and the variation that remains unexplained. Since the p-value is less than 0.05, the null hypothesis that the independent variables do not influence savings behaviour can be rejected. In conclusion, reward condition, challenge level, goal setting and progress tracking together significantly predicts saving behaviour.

Coefficient Table 4.3

The coefficient table shows the individual impact of each independent variable on the savings behaviour. The constant value of 1.656 represents the predicted value of savings behaviour when all independent variables are equal to zero. The regression equation derived from the table is:

Savings total = 1.656 + 0.152 Total Reward Condition + 0.174 Total_CL) + 0.212(Goal Setting) + 0.140(ProgressTotal)

This equation indicates that savings behaviour increases as each of the independent variables increases, holding the other variables constant. The coefficient value for reward condition is 0.152, with a t-value of 2.805 and a significant value of 0.006, which is less than the 0.05 significance level. This indicates that

reward condition has a positive and a statistically significant impact on savings behaviour. This means that when fintech applications provide rewards, points or bonuses, users are more likely to engage in saving activities. Rewards may act as a motivating factor to be more financially prudent. The coefficient for challenge level is 0.174, with a t-value of 2.230 and a significance value of 0.027, which also indicates statistical significance. These results suggest that introducing challenges within fintech applications can positively contribute towards savings amount the customers since they evoke a sense of competition which encourages users to achieve savings targets and participate in financial activities. Goal setting has a coefficient value of 0.212 and a significance value of 0.001, which indicates a highly significant positive relationship with savings behaviour. Moreover, it can be notes that goal setting feature has the highest standardised beta coefficient (0.277) among all the other potential features, indicating that is the most influential factor affecting savings behaviour in the model. The finding emphasises the importance of allowing users to set specific financial goals within applications. This is because when individuals establish clear and measurable financial objectives, they are more likely to stay on track. The coefficient for progress tracking is 0.140, with a t-value of 2.690 and a significance value of 0.008, indicating a statistically significant positive relationship with savings behaviour. This suggest that features such as progress bars, milestone notification can provide users with a sense of achievements and acts as a positive reinforcement.

Suggestions

Based on the findings of the study, FinTech companies must actively try to include more gamification features such as rewards, saving challenges, progress bars, and achievement badges to encourage more savings regularly. Moreover, it is the responsibility of the companies to improve the financial literacy of the customers by providing simple tools that can help customers track their spending and savings patterns. Additionally, such features should also make the gamification features more transparent and user-friendly, so that all users among the demographics can use them freely without any difficulties or confusions. Finally, future research can explore a larger and more diverse sample to better understand the long-term impact of gamification on saving behaviour.

Conclusion

Gamification has emerged as a very important strategy used by FinTech applications to promote and encourage prudent spending and saving habits among people. By incorporating game-like elements such as rewards, challenges, progress tracking and achievement badges, financial application apps become more engaging and fun to use by simplifying saving and investing processes. The present study examined the impact of gamification features in FinTech applications on the savings behaviour of users. Based on the structures survey conducted, it can be concluded that gamified features used by fintech apps such as rewards, challenges, progress tracking and achievement badges positively influence user's motivation to save. These features can make saving activities more engaging rather than something that can quickly shun people or make them more nervous or confused about the prospects. Overall, the study indicates that gamification can play an important role in promoting better saving habits, particularly among young adults who actively use digital financial platforms.

Citations

1. Adepeju, A. S., Ojuade, S., Eneh, F. I., Olisa, A. O., & Odozor, L. A. (2023). Gamification of savings

and investment products in digital banking. Research Journal in Business and Economics, 1(1), 88–100.

2. 2. Rimenda, T., Aulia, M. R., Listiawati, R., & Marbun, J. (2022). The role of gamification in encouraging saving behavior in digital banking. International Journal of Economics and Financial Issues, 12(4), 45–52.
3. 3. Bitrián, P., Buil, I., & Catalán, S. (2021). Enhancing user engagement: The role of gamification in mobile apps. Journal of Business Research, 132, 170–185.
4. 4. Wong, D., Liu, H., Meng-Lewis, Y., Sun, Y., & Zhang, Y. (2021). Gamification and the adoption of mobile payment systems among the elderly in China. Journal of Retailing and Consumer Services, 62, 102116
5. 5. Malik, A., & Singh, R. (2022). Factors influencing the continuous usage of mobile payment systems: The role of gamification. Journal of Financial Services Marketing, 27(2), 120–134.
6. 6. De Canio, F., Fuentes-Blasco, M., & Martinelli, E. (2021). Engaging consumers through gamified mobile shopping applications. Journal of Retailing and Consumer Services, 61, 102115.
7. 7. Doğan-Südaş, D., Kara, A., & Karaca, Y. (2023). The effect of gamified mobile applications on consumer purchase intentions and word-of-mouth engagement. Journal of Marketing Communications, 29(5), 601–620.
8. 8. Lakshmi, J. (2025). Gamification strategies and their influence on fintech user behaviour. International Journal of Financial Technology Studies, 4(1), 55–68.
9. Sethu, S., & Nathan-Roberts, D. (2021). Gamification in e-banking: Impact on customer engagement and satisfaction. International Journal of Human–Computer Interaction, 37(15), 1425–1437.
10. Putri, N. T., Hidayanto, A. N., Sandhyaduhita, P. I., & Phusavat, K. (2019). Understanding user engagement with mobile payment systems using uses and gratifications theory. Information Technology & People, 32(6), 1616–1639.
11. Lompoliu, S. (2020). Gamified mobile learning for accounting education: Development of the CREB1T Android application. International Journal of Interactive Mobile Technologies, 14(12), 150–162.
12. Prasetyaningrum, I., Purwanto, A., & Rochim, A. F. (2022). Integrating cognitive evaluation theory and gamification in mobile banking applications. Journal of Theoretical and Applied Electronic Commerce Research, 17(4), 1590–1605.
13. Sembiring, M., Ramadhani, F., & Syahbudi, M. (2025). User perceptions of gamification in digital Sharia savings applications. Journal of Islamic Financial Technology, 3(2), 77–92.
14. Sethu, S., & Nathan-Roberts, D. (2021). Gamification and technology acceptance in digital banking services. Behaviour & Information Technology, 40(13), 1403–1417.
15. Lin, C., Chien, S., Yang, C., & Mao, Z. (2022). Gamification in branded mobile applications and sustainable consumer behaviour: Evidence from the Starbucks app. Sustainability, 14(9), 5321.