Journal of Accounting and Finance Review

Journal homepage: https://ww2.comsats.edu.pk/jafr/Default.aspx

Engagement through gamification: The role of fintech in enhancing user motivation for achieving financial goals

Sara Sarwar[1]. Ammara Mubashar[1*]

Accepted January 27, 2025, Published February 03, 2025

Abstract

This study investigates the impact of gamification on user behavior, focusing on behavioral intention, perceived usefulness, and enjoyment in FinTech applications. The concept of gamification by FinTech had one single thinking point: to make every basic financial transaction fun and enhance the user experience by incorporating fun in basic financial transactions. The research adopts a quantitative approach to explore how gamified features influence users' engagement with the platforms, their perceived utility of these features, and their enjoyment while using the applications. The findings reveal a significant positive relationship between gamified features and users' behavioral intentions to use gamified features to attain their financial goals, mediated by perceived usefulness and moderated by enjoyment. Game enjoyment further enhances this engagement, suggesting that FinTech applications should balance functionality with user enjoyment to maintain long-term engagement. This study provides valuable insights for FinTech developers, emphasizing the importance of continuous innovation in gamification strategies to help them achieve their financial goals.

Key Words: Financial Technology (FinTech), Gamification, User Engagement, Behavioral Intention, Financial Goals

1. Introduction

The provision of financial services has undergone a substantial transformation after the advancement of information technology, particularly in the financial sector.This development is most evident in the rise of Financial Technology (Fintech), a groundbreaking innovation that is transforming the way traditional financial services operate (Harsono & Suprapti, 2024).

*Correspondence: Ammara Mubashar

1- Department of Business Administration, Fatima Jinnah Women University, Rawalpindi, Pakistan, Email: ammara.mubashar@fjwu.edu.pk.

DOI: https://doi.org/*10.26652/jafr/24.02.002*. Journal of Accounting and Finance Review is published by Department of Management Sciences, COMSATS University Islamabad, Pakistan

FinTech solutions recently emerged and took the financial services market by storm due to their reliability, efficiency, and accessibility. The rapid evolution of financial technology (FinTech) has transformed how individuals manage their finances, with platforms like Easypaisa and JazzCash becoming prominent in Pakistan's digital financial ecosystem. In Pakistan, JazzCash, with over 11 million active users and an extensive network of 245,000 agents, and Easypaisa, processing 2.1 billion transactions annually, dominate the fintech landscape, highlighting their pivotal role in financial inclusion (FII, 2023). These platforms rely on the use of mobile technology to deliver several services to the under-banked population, which were previously unavailable to them. Thus, they contribute to the attainment of the general vision of financial inclusion and economic liberalization (Raza, 2021). Another rather unique strategy used in these platforms to enhance the level of engagement as well as improve interaction is the use of game-like elements (Rahman et al., 2024). Gamification is the use of game design such as points, badges, leaderboards, and challenges in non-gaming environments to motivate and capture the user's interest (Chauhan, et al, 2022). Introducing the gamifying elements may influence the users' behavioral intention; however, the behavioral intention is regarding the achievement of financial goals (Foroughi et al., 2023). For example, one can earn points on a particular amount saved in a week, or on a correctly answered financial literacies test. This will help the user enhance his/her financial literacy to achieve the set goals (Bayuk & Altobello 2019). Nevertheless, the current understanding of the impact of gamification within FinTech remains relatively limited, and, more importantly, the behavioral intentions of the users, with special reference to developing countries including Pakistan, are rather unknown. Previous researches mostly focus on the technological and operational aspects of FinTech services and, therefore, the psychological and behavioral impacts of gamifying aspects have not been well-discussed (Litvin et al., 2020; Weller & Schroeder, 2022).

According to the Technology Acceptance Model (TAM) pioneered by Davis (1989), attitudes toward and intention to use a particular technology is defined by two primary factors that include perceived usefulness and perceived ease of use. When studying the potential effects of gamification in FinTech applications for financial goals achievement, the Technology Acceptance Model (TAM) provides a strong theoretical basis to understand how users embrace and use gamifying elements. According to TAM, two factors: perceived usefulness (PU) and perceived ease of use affect the behavioral intention of an individual with regards to a particular technology and this in turn affects the usage behavior of an individual.

The objective of the study is to examine the impact of gamified features on the use of FinTech apps and how the features of apps ensure engagement and affect the intention of users towards achieving financial goals. It also intends to analyze the users' perceptions of gamified features towards enjoyment and usage of apps. Lastly, the intention of users is also analyzed in using app for achieving certain financial goals.

Using the UTAUT model, Samar and Mazuri, 2019 observed how features of game effect

users' intentions toward the fintech apps and also investigated perceived motivating factors in FinTech. Furthermore, Ramos de Luna et al. (2021) also analyzed how gamified feastures affects the utility of mobile banking applications, using the UTAUT model. The results revealed that while using gamified features of FinTech apps, the user experience improved and boosted hedonic motivation, price value, and habit.

This research is relevant in the growing area of FinTech because it provides comprehensive understanding of how gamification impacts behavioral intentions to attain financial goals. Given that gamifying elements are becoming more popular in the applications of FinTech, it is critical to identify the effects of gamifying features on the user's motivation and behavior. Although prior research has focused on the use of FinTech to achieve greater financial inclusion; for instance, (Khan & Khan, 2020) and (Ali et al., 2023); have explored the role of FinTech in promoting financial inclusion, but these studies did not analyze the impact of gamification on users' financial goals. Therefore, through exploring the connection between gamified elements and users' intentions, this research highlights how FinTech platforms can use gamification not just to make their services more enjoyable but to guide users toward better financial decisions and smarter investments. By making users feel more connected to the app, more confident in their choices, and empowered to manage their finances, gamification helps meet the needs of today's users.

2. Literature Review

With the rise of financial technologies or commonly referred to as FinTech, individual's methods of handling their money from budgeting, saving, investing, and transferring has been revolutionized. FinTech platforms provide numerous advantages to their users by being convenient, effective and easily accessible compared to the traditional financial services. Gamification in FinTech apps is also used, most commonly, to increase performance expectancy as the financial tasks become more appealing and exciting to perform. For instance, the ability to track savings goals or investment achievements with badges or points can increase users' belief that the platform will help them meet their financial objectives (Celestin & Vanitha, 2021).

2.1 Gamifying Features of FinTech

Gamification has rapidly become popular as a way of enhancing user engagement in many fields including finance. Gamification in FinTech applications is a strategy used in creating financial activities like saving, budgeting, and investing more interactive and enjoyable. Bitrián, et al (2021) stated that in cases when financial technology applications incorporate elements of game design, it is discovered that the games help in promoting user engagement and provide people with purpose and drive to act in a particular manner that will help in achieving their monetary objectives. Additionally, users' perception of the usefulness in attainment of financial goals and joy that these features bring, influence their sustained interaction with the FinTech platforms (Barbu et al., 2021). Gamification also creates a significant psychological effect of progress and

of accomplishment, something that can go a long way. According to (Wijayanti et al., 2024), the use of progress bars and similar tools provide users real-time feedback when managing their finances and hence make it easier to track one's spending and savings. Baptista and Oliveira (2017) analyzed the adoption of mobile banking and concluded that gamification elements like rewards, challenges, and leaderboards encourage sustained user engagement, which in turn enhances users' behavioral intentions and satisfaction. However, not all the opinions regarding gamification are entirely favorable. Some of the downsides of implementing gamifying features in financial applications have been brought to the concern of the critics. Devar, (2023) also note that although gamification can increase engagement it can also help people learn bad habits and ways of dealing with money. For instance, some users may become overly focused on point's accumulation or competition with other users, which could lead to impulsive spending or other such habits. If gamified elements are not well-integrated into the overall user experience, users may perceive them as shallow or trivial, ultimately undermining the platform's effectiveness in promoting long-term financial well-being (Tan et al., 2023)

2.2 Behavioral Intention to Use Gamifying Feature for Financial Goals Achievement

Behavioral intention measures a person's motivation or willingness to engage with a particular technology or system and is one of the major constructs of the Unified Theory of Acceptance and Use of Technology (UTAUT) (Samar, & Mazuri, 2019).In the context of gamifying FinTech platforms, behavioral intention relates to users' readiness to engage with gamifying features within an application to achieve specific financial objectives such as saving, budgeting or investing.

From the research, it has been shown that behavioral intention of the user is influenced by their perceived usefulness of the technology, as well as perceived enjoyment derived from its usage. Gamification has been found to have positive impact on behavioral intention by making financial activities enjoyable and engaging. Anderson and Sun (2020) found that users are more likely to interact with FinTech applications that incorporate gamified features because these features make financial management tasks feel less like a chore and more like a rewarding experience. By introducing challenges, rewards, and progress tracking, FinTech platforms can foster a sense of accomplishment, encouraging users to continue using the app to achieve their financial goals (Hamari et al., 2014). However, consumers may also resist using FinTech platforms due to certain there are certain personal characteristics i.e. digital self-efficacy and consumer-perceived digital knowledge (Sultan et al., 2024). Gamifying features also increase extrinsic motivation since these components motivate participants to regain the control over their financial conditions. According to (Xu, et al., 2021), it has been found that incorporation of points, levels and leaderboards increases the intrinsic motivation by offering clear, measurable goals and immediate feedback. This, in turn, serves to enhance users' loyalty to the goal of financial optimization, paying off debts, saving for retirement, or building an emergency fund.

H_1: Gamifying features of FinTech significantly impact Behavioral Intention to Use Gamifying Features

2.3 Perceived Usefulness to Use Gamifying Features

Perceived usefulness, as defined by the Technology Acceptance Model (TAM) refers to an individual's belief that using a particular system will enhance their performance or help them achieve their goals more efficiently (Davis, 1989). According to Anderson & Sun, (2020), users who interact with gamified FinTech platforms are more likely to perceive them as effective tools for managing finances, including tasks such as budgeting, saving, and investing. When users receive detailed feedback on the improvement, they become more aware of the usefulness of the given platform in order to achieve the set goals. This in turn increase the overall financial performance especially with the use of incentives and gifts as part and parcel of the game. Rodrigues et al. (2017) examined how gamified design elements in banking websites impact user intention, finding that game mechanics significantly improve the perceived ease of use, thus positively influencing users' behavioral intentions towards online banking. Suleman & Abbas, 2022) examined the relationship between the perceived usefulness of game-like features in MBA and users' behavioral intention towards the adoption of FinTech services. The authors discovered that users had a positive perception that gamified elements were beneficial to the improvement of perceived task engagement thus higher usage intentions. Werbach & Hunter, (2012) postulate that when user gets incentives or compliments for accomplishing their financial tasks, they develop confidence on their ability to manage their finances. Intensified feelings of competence is directly proportional to rising views of the usefulness of the platform, as users perceive that it is assisting them in improving their financial performance.

H2: Gamifying features of FinTech applications are positively related to the perceived usefulness of the application.

Furthermore, as Baird & Marz, (2018) pointed out that there is a need to harmonize gamification elements with users' goals that they need to achieve in terms of finance. Things like bars of completion for certain goals such as savings or spending can also help assist in managing the finances. Also, when the users see more progress towards their set goals, they will find and recommend the platform to be more useful and will increase its usage. Additionally, predictions and working values based on personal input, micro-messages, and invitations to strive for excellence derived from personalized challenges and feedback, according to the financial status of users can help them build confidence in the usefulness of the platform (Hyzy, & Wardle, 2023). Thus, there is a positive correlation between gamification and perceived usefulness despite pervasive. At the same time, the evidence must not overshadow the fact that all users may not find these elements useful.

H3: *Perceived usefulness mediates the relationship between Gamifying FinTech applications and behavioral intention to use gamifying features.*

2.4 Enjoyment to use Gamifying Features

In the context of games, the feature of enjoyment to use the app has been shown to be an important factor affecting use intentions (Mäntymäki & Riemer, 2014). Therefore, it has emerged that enjoyment is one of the key drivers of behavioral intention in gamifying systems. Hamari et al., (2014) revealed that clients liking the interactive gamification in specific FinTech are likely to have positive attitude towards that specific FinTech, consequently using it in their day-to-day finances. Extraordinary features that would make various financial activities look like games can change the outlook towards some key tasks such as budgeting or saving into enjoyable exercises, keeping users engaged. By adding elements like games, competitions, rewards and progress indicators, it can add fun to learning. According to Deng, (2021) such features trigger feelings of achievement and persistence and enhance users' self-generated interests in the platform. For example, when users receive bills for financial activities or earn points, rewards or badges for hitting preferred saving goals, they are likely to perceive a level of satisfaction, ultimately deriving utility from the platform. Basuki, et al (2022) insist in their work that enjoyment can mediate the interaction between perceived usefulness and behavioral intention. This makes sense because people who would prefer using a game-related feature will keep using the platform for fun even if they do not find a game feature as useful to them in the first place. Thus, enjoyment can play a protective role by ensuring user engagement to the site as they slowly begin to realize its functional significance.

H_4: The enjoyment of using gamified features moderates the perceived usefulness and influences users' behavioral intentions toward using these features in FinTech applications.

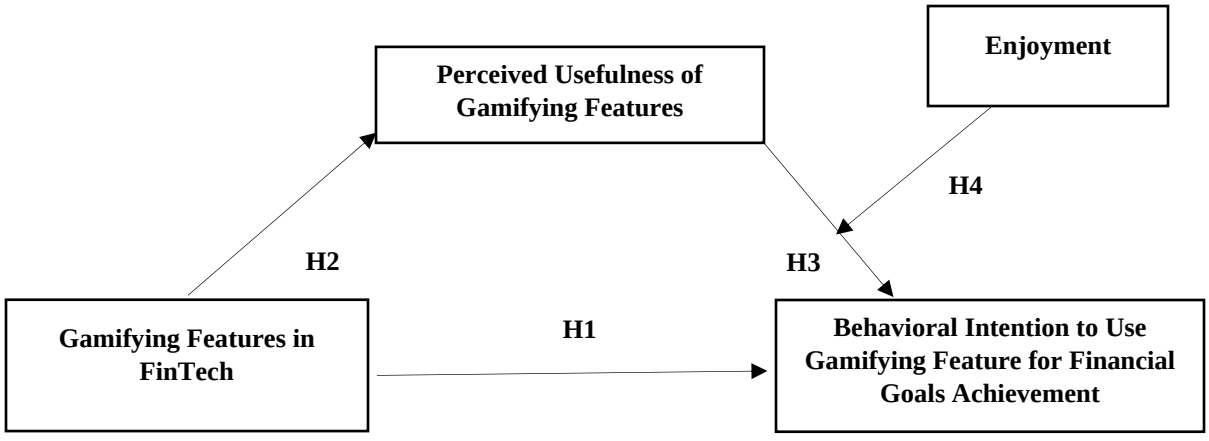

Figure 2.1 Theoretical Framework

3. Research Methodology

The research implements a quantitative perspective to evaluate the efficacy of applying gamification in FinTech applications on users' behavioral intentions and their capability to achieve financial goals. Survey method is used in the research to gather data from users of the mobile banking applications. Target population for this study is the Mobile Banking application users especially focusing on Easypaisa and JazzCash, both of which are well-known FinTech platforms in Pakistan.

The data was collected through a self-administered questionnaire on a 5-point Likert scale to collect quantitative data regarding users' engagement with gamifying features in the context of FinTech applications. Ten items were adapted from the work of Foroughi et al., (2023) to measure behavioral intention to use gamifying features, perceived usefulness of gamifying features, enjoyment to use gamifying features, whereas four items were adaoted from Pal, et al., (2021)to measure gamifying features in FinTech.

4. Results and Discussion

The following section presents the findings from our analysis, focusing on the impact of gamified elements in fintech applications on users' behavioral intentions, perceived usefulness, and financial goal progression.

Table 4.1: Demographic Statistics

Category		**Frequency**	**%**
Gender	Male	74	46.5
	Female	85	53.5
Age	18-25	125	78.6
	25-30	24	15.1
	30-35	6	3.8
	35-40	2	1.3
	45 or above	2	1.3
Occupation	Unemployed	116	73.0
	Job	31	19.5
	Business	12	7.5

Table 4.1 indicates that the sample predominantly consists of younger individuals, with the majority of participants aged between 18 and 25 years. Interestingly, the number of female participants (53.5%) slightly exceeds the number of male participants (46.5%), showing a more balanced gender representation. Additionally, the data highlights that many respondents are unemployed (73%), which could indicate that young people without full-time employment make up a significant portion of FinTech users.

4.1 Reliability Analysis

To ensure the consistency of the measurement scales used in the study, a reliability analysis was conducted using Cronbach's alpha. Table 4.2 presents the reliability coefficients for each of the variables examined in the study.

Table 4.2: Reliability Analysis (N=160)

Variables	No. of Items	Cronbach's alpha
Gamifying Features (GIF)	4	.929
Behavioral Intention (BI)	3	.790
Perceived Usefulness (PU)	4	.925
Enjoyment (E)	3	.922

The Cronbach's alpha values, as shown in Table 4.2, indicate strong internal consistency for all scales, with values above the recommended threshold of 0.70. Specifically, the scale for **Gamifying Features** (GIF) has a very high reliability ($\alpha = 0.929$), as do the scales for **Perceived Usefulness** (PU) ($\alpha = 0.925$) and **Enjoyment** (E) ($\alpha = 0.922$). The **Behavioral Intention** (BI) scale, while slightly lower ($\alpha = 0.790$), still demonstrates acceptable reliability. These results suggest that the measurement tools used in the study are reliable and appropriate for further analysis.

4.3 Pearson Correlation

Pearson correlation analysis was conducted to examine the relationships between the key variables: Gamifying Features, Behavioral Intention, Perceived Usefulness, and Enjoyment. The results of the correlation analysis are presented in Table 4.3

Table 4.3: Pearson Correlation

	GIF	BI	PU	E
GIF	1			
BI	.695**	1		
PU	.734**	.602**	1	
E	.645**	.548**	.714**	1

Correlation is significant at the 0.01 level (2-tailed)**

The results in Table 4.3 demonstrate significant positive correlations between all variables at the 0.01 level. There is a strong positive correlation between Gamifying Features (GIF) and Perceived Usefulness (PU) ($r = 0.734$, $p < 0.01$), as well as between Gamifying Features and Enjoyment (E) ($r = 0.645$, $p < 0.01$). Additionally, Perceived Usefulness and Enjoyment are highly correlated ($r = 0.714$, $p < 0.01$), indicating that users who perceive gamifying features as useful are also more likely to enjoy using them.

Furthermore, Behavioral Intention (BI) is positively correlated with both Gamifying Features ($r = 0.695$, $p < 0.01$) and Perceived Usefulness ($r = 0.602$, $p < 0.01$), suggesting that these factors play a significant role in shaping users' intentions to continue using FinTech platforms.

4.4 Direct Hypothesis Testing

Regression analysis was performed to test the direct hypotheses related to the impact of gamifying features, perceived usefulness, and enjoyment on behavioral intention. The results are presented in Table 4.4

Table 4.4: *Regression Analysis*

Hypothesis	Path	B	SE	T	p	LLCI	ULCI	Status
H1	GIF → BI	0.5111	0.0848	6.0251	0.0000	0.3435	0.6786	Supported
H2	PU → BI	0.0794	0.0152	5.2237	0.0000	0.2882	0.7476	Supported
H3	GIF → PU	0.8217	0.0449	18.3086	0.0000	0.7330	0.9103	Supported

The regression analysis supports all the hypotheses. H1 confirms that gamifying features have a significant positive impact on users' behavioral intentions ($B = 0.5111$, $p < 0.001$). This showed that gamification enhances user engagement by fulfilling their needs for connection, skill-building, and independence. As users become more involved, they are more likely to continue using the platform (Akhtar, et al., 2024). H2 shows that perceived usefulness also significantly contributes to behavioral intention ($B = 0.0794$, $p < 0.001$), though its effect size is smaller than that of gamifying features. Gamifying features have a long-term economic impact on perceived usefulness by increasing the commitment and attachment of users, which advances app adoption rates, leads to high transaction volumes, and ultimately improves retention. (Bitrián et al., 2021). H3 indicates that gamifying features strongly influence perceived usefulness ($B = 0.8217$, $p < 0.001$These results are consistent with previous research in this area that showed gamification is an effective tactic for managing users and encouraging constructive financial management behaviors (Hamari et al., 2014; Werbach & Hunter, 2012).These results suggest that gamified features like rewards, challenges, and progress tracking can make using digital platforms more fun and engaging (Yu, & Huang, 2022). Users are more likely to use the platform frequently since they engage with it more, which increases transaction volumes and the platform's overall revenue.

4.5 Mediation Analysis

The analysis reveals that perceived usefulness significantly mediates the relationship between gamifying features and behavioral intention, as indicated by the significant indirect effect (0.652, $p < 0.001$) and confidence intervals that do not include zero (LLCI = 0.1193, ULCI = 0.2063). The mediation effect in H4 shows that perceived usefulness mediates the relationship between gamifying features and behavioral intention, with an indirect effect of 0.0652 ($p < 0.001$).

Table 4.5: Mediation Analysis

Relationship	Total Effect	Direct Effect	Indirect Effect	LLCI	ULCI	Status
GIF → PU → B1	2.1631	1.5111	0.652	0.1193	0.2063	Supported

This result supports the findings of Denden, et al., (2022) who suggested that usefulness is the most influential factor in the intention to use gamified learning environments. These results are also supported by the unified theory of acceptance and use of technology, which state that perceived usefulness strongly influenced by the actual adoption of the technology (Samar, & Mazuri, 2019). This suggests that part of the impact of gamifying features on behavioral intention is transmitted through users' perceptions of how useful these features are in achieving their financial goals.

4.6 Moderation Analysis

A moderation analysis was conducted to assess whether enjoyment moderates the relationship between gamifying features and behavioral intention. The results are presented in Table 4.6.

Table 4.6: Moderations

Hypothesis	Path	B	SE	T	p	LLCI	ULCI	Status
H5	GIF × E → B1 (Interaction)	0.6310	0.069	3.1606	0.026	0.0713	0.0869	Supported

The moderation analysis supports H5, showing that enjoyment significantly moderates the relationship between gamifying features and behavioral intention (B = 0.6310, p = 0.026). These findings are parallel to the outcomes of prior studies Naqvi, (2021) who found that enjoyment or entertainment are considered the most significant antecedents to intention to use and satisfaction. The confidence interval (LLCI = 0.0713, ULCI = 0.0869) further confirms this moderating effect, indicating that higher levels of enjoyment amplify the positive relationship between gamifying features and users' intentions to engage with the platform. The results further suggest that as users find the platform more enjoyable, their intention to engage grows, leading to higher transaction volumes, increased platform revenue, and long-term customer loyalty, ultimately contributing to the financial success and market competitiveness of the platform.

5. Conclusion

In conclusion, this research sheds light on the impact gamification can have on how users engage with FinTech platforms like Easypaisa and JazzCash, particularly when it comes to their investment habits. By adding fun elements like rewards, challenges, and progress tracking, these platforms become more enjoyable, which encourages users to spend more time on them. The study found that when users enjoy these features, they’re more likely to keep coming back, and

they also feel the platform is more useful—especially when it comes to making smarter financial decisions and investments.

The key takeaway is that perceived usefulness plays a big role in whether users continue to engage with the platform. When they see the gamified features as genuinely helpful, they're more likely to use the app regularly, leading to higher satisfaction, better financial choices, and stronger user loyalty. When it comes to investments, this means that users who find gamified features useful are more likely to make informed decisions and stick with their financial goals. While enjoyment is important, it supports the relationship between gamified features and positive behavior. In short, users are more likely to remain loyal to the platform and make consistent investments when they enjoy the experience.

In the end, this research highlights how FinTech platforms can use gamification not just to make their services more enjoyable but to guide users toward better financial decisions and smarter investments. By making users feel more connected to the app, more confident in their choices, and empowered to manage their finances, gamification helps meet the needs of today's users. This approach can help these platforms keep users coming back, boost their financial decision-making, and ensure long-term success for both users and the platform itself.

However, it is crucial to necessarily draw attention to the fact that while all the distinctions discussed enhance short-term engagement, long-term durability of such effects stays questionable. There has been evidence in literature showing that users will drop off the gamification aspects the moment they get bored, which is perfectly tenable by users. Thus, it must be noted that it becomes imperative for the FinTech developers to consistently develop new layers or modify the existing gamification strategies to sustain users' interest.

5.1 Implications of the Study

As stated earlier, this research has a number of implications for both the academia and the FinTech industry. From the theoretical point of view, this research advances the theoretical framework of gamification in FinTech. It offers the evidence about the aspect that embraces the gamifying features and its impact on the behavioral intentions of the respective users; this is based on perceived usefulness and perceived enjoyment. These results contribute to the body of knowledge by further adapting the Technology Acceptance Model (TAM) and the UTAUT in the context of the FinTech industry as well as provided recommendations regarding the use of gamification for the purpose of increasing user utility.

5.2 Limitations of the Study

However, there are few points of concern that ought to be spoken about before concluding this research study. While the study has brought out several key findings, it will only be rightful to admit to the following limitations.

The fact that the study is aimed at only the FinTech users in Pakistan market. This is especially so because the findings are rooted in the experiences of Easypaisa and Jazzcash which are popular platforms in the country but may not be applicable to other regions whereby there are other different FinTechs and people's behavior is relatively different. Future research in the dynamics of gamification in FinTech should therefore investigate other geographical location to establish the significance of the findings in different cultures and economy.

5.3 Future Directions

As this study centered on young and unemployed individuals, future work should investigate the effects of gamification elements on the specific group of users and other groups, such as middle-aged people with steady jobs. While the field continues to grow and develop, one could consider possibilities of developing the concept of Artificial Intelligence for the purpose of personalization of the use of game mechanics in the FinTech context in the future studies. Using AI in gamifying applications may help deliver more user-specific content with better engagement, as the application and the user will adjust the difficulty and incentives according to users' performance based on their financial habits.

Declaration of Interest: The authors declare no conflict of interest.

References

Ali, A., Khan, M. A., & Ahmed, S. (2023). Impact of gamification on user engagement in financial technology applications. Journal of Financial Innovation, 11(2), 245-262. https://doi.org/10.1186/s40854-023-00312-5

Anderson, C. A., & Sun, K. (2020). *Gamification and the rise of digital rewards: A review of the literature.* Journal of Business Research, 108, 220-230. https://doi.org/10.1016/j.jbusres.2020.01.026

Baird, A., & Marz, N. (2018). *The influence of gamification on customer engagement in online platforms*. Journal of Digital Marketing, 12(1), 47-63. https://doi.org/10.1080/19423961.2018.1463621

Baptista, G., & Oliveira, T. (2017). Why so serious? Gamification impact in the acceptance of mobile banking services. *Internet Research, 27*(1), 118-139.

Barbu, C. M., Florea, D. L., Dabija, D. C., & Barbu, M. C. R. (2021). Customer experience in fintech. *Journal of Theoretical and Applied Electronic Commerce Research*, *16*(5), 1415-1433.

Basuki, R., Tarigan, Z. J. H., Siagian, H., Limanta, L. S., Setiawan, D., & Mochtar, J. (2022). *The effects of perceived ease of use, usefulness, enjoyment and intention to use online platforms on behavioral intention in online movie watching during the pandemic era* (Doctoral dissertation, Petra Christian University).

Bayuk, J., & Altobello, S. A. (2019). Can gamification improve financial behavior? The moderating role of app expertise. *International Journal of Bank Marketing*, *37*(4), 951-975.

Bitrián, P., Buil, I., & Catalán, S. (2021). Enhancing user engagement: The role of gamification in mobile apps. *Journal of Business Research*, *132*, 170-185.

Celestin, M., & Vanitha, N. (2021). From gamification to investment: How apps are changing personal finance. In *7th International Conference on Modern Research Trends in Arts, Science, Engineering & Technology* (pp. 175-182).

Chauhan, S., Akhtar, A., & Gupta, A. (2022). Customer experience in digital banking: A review and future research directions. *International Journal of Quality and Service Sciences*, *14*(2), 311-348.

Denden, M., Tlili, A., Abed, M., Bozkurt, A., Huang, R., & Burgos, D. (2022). To use or not to use: Impact of personality on the intention of using gamified learning environments. *Electronics*, *11*(12), 1907

Devar, T. (2023). *The Use of Digital Gamification to Improve Money Management* (Master's thesis, University of Pretoria (South Africa)).

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 13(3), 319-340

Deng, L. (2021). Gamified information systems: gameful experiences, achievement goals, and performance. *Quarterly Review of Business Disciplines*, *8*(3), 193-211.

Foroughi, B., Iranmanesh, M., Kuppusamy, M., Ganesan, Y., Ghobakhloo, M., & Senali, M. G. (2023). Determinants of continuance intention to use gamification applications for task management: an extension of technology continuance theory. *The Electronic Library*, *41*(2/3), 286-307.

Harsono, I., & Suprapti, I. A. P. (2024). The role of fintech in transforming traditional financial services. *Accounting Studies and Tax Journal (COUNT)*, *1*(1), 81-91.

Hamari, J., Koivisto, J., & Sarsa, H. (2014). *Does gamification work? A literature review of empirical studies on gamification*. In Proceedings of the 2014 47th Hawaii international conference on system sciences (pp. 3025-3034). IEEE. https://doi.org/10.1109/HICSS.2014.377

Huotari, K., & Hamari, J. (2017). *Defining gamification: A service marketing perspective*. In *Proceedings of the 2017 50th Hawaii international conference on system sciences* (pp. 2266-2275). https://doi.org/10.24251/HICSS.2017.275

Hyzy, M., & Wardle, B. (2023). *Gamification for product excellence: Make your product stand out with higher user engagement, retention, and innovation*. Packt Publishing Ltd.

Kankanhalli, A., Tan, B. C. Y., & Wei, K. K. (2012). *Contributing to online knowledge sharing: An empirical investigation*. MIS Quarterly, 36(1), 113-143. https://doi.org/10.2307/41410412

Karandaaz, (2023). *Karandaaz Financial Inclusion Survey (K-FIS) 2023*. Retrieved from Karandaaz Pakistan.

Khan, S., & Khan, M. A. (2020). *The role of gamification in user engagement: Evidence from financial technology*. *Journal of Financial Services Marketing, 25*(1), 30-42. https://doi.org/10.1057/s41264-020-00055-w

Kumar, J. (2013). *Understanding the influence of gamification on user engagement: An empirical study*. *Journal of Management Information Systems, 30*(4), 133-162. https://doi.org/10.2753/MIS0742-1222300406

Litvin, S., Saunders, R., Maier, M. A., & Lüttke, S. (2020). Gamification as an approach to improve resilience and reduce attrition in mobile mental health interventions: A randomized controlled trial. *PLoS one*, *15*(9), e0237220.

Naqvi, M. H., Guoyan, S., & Naqvi, M. H. A. (2021). Measuring the influence of web features in the online gamification environment: a multimediation approach. *Wireless Communications and Mobile Computing*, *2021*(1), 3213981.

Pal, A., Indapurkar, K., & Gupta, K. P. (2021). Gamification of financial applications and financial behavior of young investors. *Young Consumers*, *22*(3), 503-519.

Rahman, S., Nguyen-Viet, B., Nguyen, Y.T.H. and Kamran, S. (2024), "Promoting fintech: driving developing country consumers' mobile wallet use through gamification and trust", International Journal of Bank Marketing, Vol. 42 No. 5, pp. 841-869,

Ramos de Luna, I., Marín, A., & Ruiz, F. (2021). *The impact of gamification on user experience in financial applications*. *Journal of Financial Technology and Innovation*, *5*(1), 12-25. https://doi.org/10.1016/j.jfintec.2021.100043

Raza, A. (2021). *Gamification in financial services: An empirical analysis of user acceptance and engagement*. *International Journal of Financial Technology*, *8*(2), 85-102. https://doi.org/10.1504/IJFT.2021.115463

Rodrigues, L. F., Oliveira, A., & Costa, C. J. (2017). Playing seriously - How gamification and social cues influence bank customers to use gamified e-business applications. *Computers in Human Behavior*, *63*, 392-407.

Samar, R., & Mazuri, A. G. (2019). Does gamified elements influence on user's intention to adopt internet banking with integration of UTAUT and general self-confidence?. *International Journal of Business Excellence*, *19*(3), 394-414.

Sultan, A., & Mubashar, A. (2024). Impact of Consumer and FinTech Characteristics on FinTech Resistance: A Study from User Perspective. NUML International Journal of Business & Management, 19(1).

Suleman, A., & Abbas, Q. (2022). *Gamification in FinTech: Assessing the impact on user engagement and satisfaction*. *Journal of Financial Technology*, *7*(2), 45-62. https://doi.org/10.1007/s12123-022-09662-3

Tan, C. T., Devilly, O. Z., Lim, S. M., Divo, B., Kok, X. F. K., Jasin, J., ... & Htein, L. A. (2023). The Effect of Gamification Mechanics on User Experiences of AdventureLEARN: A Self-Driven Learning Platform. *Proceedings of the ACM on Human-Computer Interaction*, *7*(CHI PLAY), 1091-1114.

Weller, S., Schroeder, P. A., & Plewnia, C. (2022). Gamification improves antidepressant effects of cognitive control training—A pilot trial. *Frontiers in Digital Health*, *4*, 994484.

Werbach, K., & Hunter, D. (2012). *For the win: How game thinking can revolutionize your business*. Wharton Digital Press.

Wijayanti, T. C., Naim, S., Hendayani, N., Alfiana, A., & Hanum, F. (2024). Identify the Use of Economics for Family Financial Management in Digital Days. *Indonesian Interdisciplinary Journal of Sharia Economics (IIJSE)*, *7*(1), 325-345.

Xu, J., Lio, A., Dhaliwal, H., Andrei, S., Balakrishnan, S., Nagani, U., & Samadder, S. (2021). Psychological interventions of virtual gamification within academic intrinsic motivation: A systematic review. *Journal of Affective Disorders*, *293*, 444-465.

Yu, N., & Huang, Y. T. (2022). Why do people play games on mobile commerce platforms? An empirical study on the influence of gamification on purchase intention. *Computers in Human Behavior*, *126*, 106991.

Zichermann, G., & Cunningham, C. (2011). *Gamification by design: Implementing game mechanics in web and mobile apps*. O'Reilly Media.