# A Study of Gamification and Financial Behaviour: The Role of Savings, Financial Planning and Investment among Young Adults

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**Abstract**

Gamification, which applies points, badges, rewards and challenges in contexts outside of games, is now widely used in financial applications, but there is little research on the relationship between gamification and real-life money behaviours among young adults. This study aims at analysing the relationship between gamification, interest and habit adaption with three aspects of financial behaviour (saving, financial planning and investment) among young adults in the city of Vijayawada, India. The study adopted questionnaire with a 5-point Likert scale, which was sent to 130 young adults, with 97 responding with full questionnaires. The data were analysed in Microsoft Excel with descriptive statistics, one-sample t-test, Chi-square test of independence, one-way ANOVA, simple and multiple linear regression, and Baron and Kenny mediation analysis with Sobel test. Overall, respondents felt that gamification increases their interest in personal finance (M = 3.87) and motivates them to save, plan and invest (M = 3.91). Financial behaviour was positively associated with perceived gamification ($\beta = .63$, $R^2 = .40$); increased interest and increased habit adaption were also positively associated with financial behaviour ($\beta = .65$, $R^2 = .42$) and increased interest was positively associated with financial planning ($\beta = .51$, $R^2 = .26$). Increased interest and habit adaption mediated the link between gamification and financial behaviour (Sobel $z = 2.55$, $p = .011$). There were only minor differences along demographic lines except for financial behaviour and plans (by income) and gamification perceptions (by education). The results indicate that gamified financial tools are most effective when they turn engagement into a habit that can be sustained and provide some guidance to fintech designers, educators and regulators.

**Keywords:** *Gamification; Financial behaviour; Savings; Financial planning; Investment behaviour; Young adults; FinTech; India*

## Introduction

In the past ten years, digital financial platforms have been transformed by the proliferation of smartphone usage, the development of fintech infrastructure, and the greater interest of young adults in handling their own finances. Gamification – the incorporation of game-like features such as points, badges, leaderboards, progress bars, rewards, and celebratory animation – has become a significant approach to user engagement in financial apps and services (Agrawal & Sharma, 2025). Nick Pelling coined the term gamification in 2002 and it has since come to be used in many sectors. It is becoming more popular as interactive technologies are getting more popular to affect user participation and behaviour.

Gamification is particularly common in the financial sector, such as in financial education mobile apps and retail investment platforms. Financial education applications include interactive lessons, financial calculators, customised guidance and rewards and features, which gain as users progress to keep financial learning fun and continuous. The study highlighted positive results regarding the use of gamification in financial education apps, underscoring the

importance of supporting psychological needs such as competence or autonomy, as described in the Self-Determination Theory (SDT) (Agarwal, 2026)

Gamification has also been seen in mobile investment and brokerage platforms, where support including colourful interfaces, achievement notification, rewards, animations, social comparison etc. are used to motivate users to engage with the platform. As retail investors have been jumping into the market in increasing numbers, some of the features of the games have been criticized for incentivizing short-term trading and have drawn the attention of regulators. The connection between hedonic gamification and the growth of trading activity has been previously observed, but it could be attributed to user differences in financial literacy and investment preferences (Chapkovski et al., 2023). These elements can also impact on risk taking, trading volume and behavioural biases like overconfidence and disposition effect, and thus, pose ethical concerns and investor protection issues, as supported by a systematic review conducted by Prasetia et al. (2026).

Gamification can also impact lifestyle in financial matters, such as saving, financial planning, and investment. The results obtained from the digital financial environment in India indicates that not all aspects of financial behaviour are equally impacted by gamification. It might moderate the connection between financial planning, financial self-efficacy, financial behaviour, and the effect of financial attitude on financial behaviour is seen only to a limited extent (Agrawal & Sharma, 2025). This suggests gamification could be a behavioural reinforcement tool to support specific psychological motivations in financial decision making.

The general conclusion from the existing literature is that there is a growing and somewhat disjointed understanding of gamification and financial behaviour of young adults. Young people are significant consumers of digital and gamified financial services platforms and a critical period in their evolving long-term saving, planning and investment behaviours. Previous studies have mostly focused on different financial education related topics separately, such as financial education, trading behaviour, financial literacy, or certain psychological factors in gamification. There is limited research that investigates saving behaviour, financial planning and investment behaviour in a combined model, especially for young adults in the context of India. Therefore, the present study is designed to bridge this gap by exploring the relationship between gamification and saving, financial planning, and investment behaviour among young adults, as well as insights for developing engaging and financially responsible digital financial technologies**.**

**Review of Literature: -**

**Prasetia and colleagues (2026),** studied the effect of gamification elements on the trading frequency, risk-taking and cognitive biases of retail investors. The research revealed that the features introduced through gamification have the potential to impact investor behaviour, specifically trade volume and risk-taking decisions. The study identifies the necessity of additional empirical research on the long-term impacts of gamification on investors' results. The future study can explore long-term behavioural impacts, individual variations and ethics in gamified investment platforms

**Lai and Langley (2024),** explored the use of gamification in FinTech services and its impact on behaviours like payments and savings. The research identified the gamification opportunity to enhance participation with financial services. The study focused only on a selected sample, suggesting the need for a more extensive empirical study. Future researchers could study the applicability of gamification in other regulatory, cultural and financial-service contexts.

**Yang et al. (2023),** analysed gamification implementation in mobile wallets and explored the factors that would affect the adoption of mobile wallet services among young people in China. The study determined factors that contribute to users' acceptance and adoption of gamified mobile-wallet service. The study adopted the well-known technology adoption perspectives to grasp user behaviour. Further studies could investigate the effects of various gamification elements, other age groups and other users in various countries and cultural environments.

**Montero-Benavides et al. (2025),** investigated the implementation of gamification in financial education and its impact on student engagement and learning outcomes. The results showed that gamification can be used to help engage and learn in financial education settings. The study was limited to educational outcomes and not much was done on other

psychological and behavioural outcomes. Further studies are needed with larger and more varied samples, and include affective factors, long-term learning outcome and actual behavioural changes.

**Sarwar and Mubashar (2025),** explored the impact of gamification in FinTech applications on users motivation to achieve their financial goals. The study indicates gamification as a way to promote the motivation and engagement with financial activities. The study is related to gamification and the behaviour of achieving financial goals. Future studies can explore specific financial behaviours, employ longitudinal data, and explore the potential for long-term change in financial goal achievement using gamification.

**Hüller, Reimann and Warren (2023),** studied the impact of gamification on investment risk-taking via financial platforms. The results indicate that gamification has an impact on investment-related risk-taking behaviour. Based on the study, evidence has been provided on behavioural responses to gamified investment environments. Further studies can focus on individual differences, like risk taking and emotional reactions and determine if those impact work in the longer term.

**Woźniak (2020),** study aims to examine the employee's response to gamified incentives in the workplace. The research was more about the acceptance of gamification and not necessarily about the actual long term behaviour change. Further studies could examine the application of gamification in real workplace contexts, with larger and more representative samples and the impact of gamification on the long-term can be evaluated.

**Agarwal et al. (2021),** explored how people can be motivated with gamification and financial rewards. This study investigated the potential for gamification and incentive combination to encourage an individual to adopt a new behaviour. That gamification and incentives can contribute to behavioural engagement were found, but with possible context and individual differences. Studies should be conducted in the future with long-term behavioural adaptations, larger samples and individual factors such as motivation and emotional regulation.

**Wanick and Bui (2019)**, provided an overview of the research on gamification and its impact on engagement, motivation and participation in various settings. The review highlighted the importance of game elements in encouraging user participation and engagement. The study does not offer specifics on a particular financial application of gamification; instead, it offers a broad conceptual understanding of gamification. Future studies can further empirically test within specific sectors and look at long term behavioural effects of various gamification designs.

**Fanaroff et al. (2024)** explored the effects of gamification and monetary rewards on physical activity. This study investigated the use of incentives to facilitate participation in health-related activities, as well as the effectiveness of gamified interventions. The results support the use of gamification as a behaviour intervention. Future research could explore the sustainability of these impacts, varying incentive regimes and other individual-level factors that could affect reactions to gamification.

**Rodrigues, Costa and Oliveira (2016),** suggested a game element taxonomy to create a gamified e-banking system design framework. The research was aimed on the search of appropriate elements for gamification and their integration into e-banking services. The framework gives a design approach to gamification in banking. Future research can explore the impact of various game elements on customer engagement, financial behaviour, and digital banking service usage.

**Ahmad et al. (2025),** carried out a systematic review of 45 empirical personal finance gamification studies. The review revealed that there has been research in financial learning, financial attitudes, investment and risk-management, and other areas, although there is not enough consistent evidence about gamification. Uncertainty was also mentioned in the review about the impact of gamification on financial knowledge and attitudes and behaviours. Future studies could engage in more empirical studies, more extended studies, and investigate other topics not explored, such as insurance and social gaming elements and real-life financial behaviour.

**Muhammad and Minhajuddin (2025),** explored the impact of gamified trading characteristics on trading frequency, risk-taking, and market volatility, focusing on investors with varying degrees of financial knowledge. The study suggests that trading activities and risky behaviour can be boosted in a gamified trading environment. Financial literacy is

emphasized in this research as an important aspect in comprehending the reactions to gamification. Other investor attributes, longer term results and investor behavioural effects (other than trading frequency and risk-taking) can be explored in future research.

**Grobbelaar and Alsemgeest (2024),** studied how to promote active and digital learning for improving financial literacy and retirement readiness of millennials. The study indicates that financial learning is more interactive and engaging through gamification. The research is mainly conceptual in discussion of gamified retirement education Further studies can be conducted to find out whether financial education, as a gamification, has an actual positive effect on savings, retirement plans and financial behaviour in the long-term.

**Rahman et al. (2024)**, investigated the gamification components in mobile wallets and their connection to user's usefulness, attitude and usage continuity. The results showed that gamification has the potential to positively impact users' perception and continuance intention. This study focused on the use of digital-wallets and not on personal financial behaviour as a whole. Future studies may investigate initial adoption, varying developing-market environments, and the impact of trust and other conditions on the long-term financial-service adoption and usage.

**Rombebunga et al (2025),** surveyed the gamification research's evolution in various fields such as education, health, finance and marketing. The study pointed out the increasing prevalence of gamification and the need for more robust evidence of the long-term behavioural impacts of gamification. The overview gives a general perspective of the evolution of gamification research. Further studies could be sector-specific empirical studies with objective behavioural data and a longitudinal research design.

**van der Heide and Želinský (2021)**, examined the representation and justification of the use of gamification by FSPs. The study was mainly concerned with discourse and explanations offered by financial-service-providers, rather than with actual user behaviour. The research offers insights into the gamification placement in FinTech services. Empirical and user-level data can be used in future research to examine users' actual experiences and measure the behavioural outcomes.

**Shah and Pandya (2019)**, investigated how gamification can be applied in employee engagement and skill development for accounting and finance firms. The study proposed that gamification lends a way to improve the engagement of employees and learning. The focus of the research lies in the field of gamification in the organizational and working place. Gamification in other financial situations could be explored, as could the efficacy of the gamification with larger sample sizes and measurable behavioural indicators.

**Chapkovski, Khapko and Zoica (2023)**, conducted an experimental study on the impact of gamified trading platforms on trading frequency and risk-taking by retail investors. The results indicated that gamification can boost some types of trading and risk-taking behaviour. The experimental method shows that there are behavioural reactions to the gamified trading environment. Further research is warranted to determine whether these effects last over time, as well as to explore other characteristics and financial behaviors of investors.

**Tierney (2021),** discussed the legal and regulatory issues of gamified securities trading platforms. The study said that while some of the risks arising from games trading may not be adequately mitigated by current securities laws. The research is mostly legal, theoretical and not empirical. Future research can examine actual consumer-harm evidence, regulatory responses and cross-jurisdictional differences in the regulation of gamified financial platforms.

**Bhuvan Agarwal (2026)**, studied how gamification affects the engagement and learning of financial education apps. The study identified gamification elements like points, badges, leaderboards and progress indicators as potential tools to enhance engagement and learning outcomes. The study concentrates primarily on the educational outcomes in financial applications. Future studies could investigate if engagement and learning are maintained over time and if there is a measurable impact on actual financial behaviour.

**Lai (2025),** investigated the effect of finfluencers and gamification on financial knowledge, financial attention and financial behaviour among youths. This research underlined the importance of digital mechanisms in influencing young

people's financial attitudes and behaviours. The study takes the social media influence and gamification interaction into account. Future research is needed to distinguish between the impact of various digital influences and to study the isolated impact of gamification on financial knowledge, attitudes and behaviour.

**Yuan (2025/2026),** studied how to integrate artificial intelligence in finance trading simulations with university students and gamification. The study results indicated that the simulation environment improved engagement, knowledge and decision-making. The study shows the promise of a financial education that leverages new technologies. Further research could explore these technologies in live financial settings and determine the extent to which they produce these improvements in simulation settings and lead to stable financial behaviours.

**Baker and Odinet (2025),** analysed the increasing trend of gamification in financial services, and created a framework to comprehend gamification approaches in financial services. The study offers a theoretical view of how gamification has spread and is now being introduced into other sectors of banking. The suggested framework can be tested empirically in future studies and its impact on the behaviour of customers, financial decision making and consumer protection can be explored.

**Agrawal and Sharma (2025),** examined the relationship between financial attitude, financial self-efficacy, financial planning and financial behaviour, considering the moderating influence of gamification among financial-app users in India. As a result of the study, it was determined that gamification has a significant moderating effect on some financial planning and financial self-efficacy – financial behaviour relationships. The study offers empirical support in financial-app context from the perspective of India. These findings could be explored in subgroups of the cohort, over different financial instruments and time horizons to make sure these observed effects persist over time.

**Research Gap: -**

While many studies have focused on the use of gamification in FinTech adoption, trading, financial education, financial planning and investment, there are fewer empirical research examining the correlation between the multiple dimensions of financial behaviour with increased interest and adaptation to gamification. This is particularly true in the case of saving and financial planning and investment behaviour amongst young adults, especially in the Indian context. So, the present study aims to explore the correlation among the three dimensions of financial behaviour, financial interest and adaptation and the use of gamification. Thus, the current study is focused on the relationship between using gamification, financial interest and adaptation among young adults.

**Problem Statement: -**

As financial applications gain an increasing popularity of gamification, young adults' interest and participation in financial activities may also rise. But it is not very conclusive to link the rise in interest and adaptation to their actual financial behaviour. Previous research has focused primarily on the adoption of FinTech, trading, financial education and financial planning, individually. Hence, it is important to explore the association between gamification, raised interest and adaptation, and saving, financial planning and investment behaviour among the young adults.

**Research Questions: -**

1. Does gamification increase young adults' interest in personal finance and their adaption of regular financial habits?

2. Does gamification have an impact on young adults' saving, financial planning and investment behaviour?

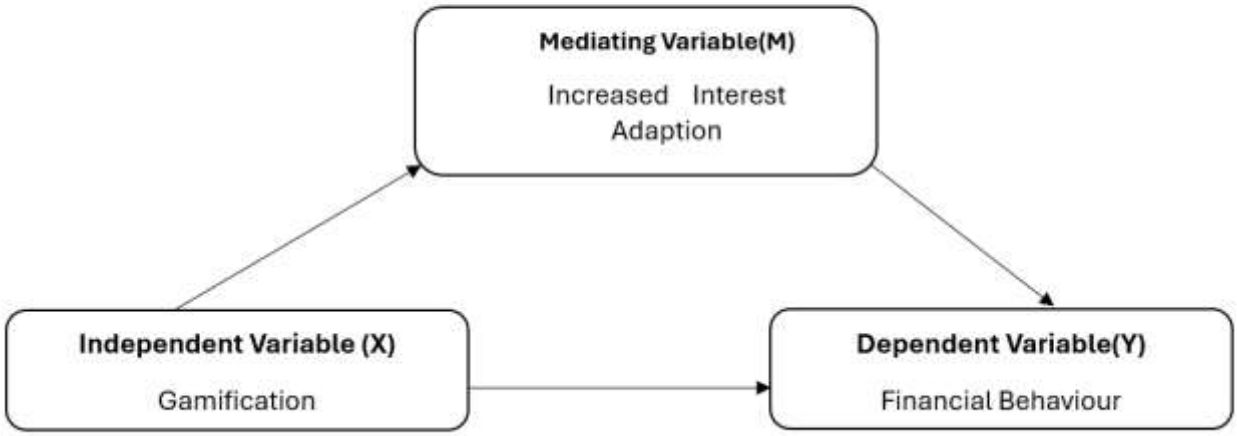
3. Does a higher interest and/or habit adaption affect the overall financial behaviour of young adults?

4. Is there a strong link between more people becoming interested in personal finance and financial planning?

5. Do increased interest and habit adaption explain (mediate) the relationship between gamification and financial behaviour?

**Conceptual Framework**

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**Research Objectives: -**

1.To study the effect of gamification on increasing interest and habit adaption among young adults.

2. To assess the impact of gamification in increasing in saving behaviour, financial planning and investment behaviour.

3. To analyse the relationship between increased interest and adaption and financial behaviour among young adults.

4. To study the impact of Increased Interest on Financial Planning among young adults.

5. To analyse the role of increased interest and habit adaption in the relationship between gamification and financial behaviour among adults.

**Research Hypothesis: -**

**Null Hypothesis (HO-1)** - There is no significant effect of gamification on increasing interest and habit formation among young adults.

**Alternative Hypothesis(H1-1)** – There is a significant effect of gamification on increasing interest and habit formation among young adults.

**Null Hypothesis (HO-2)** - There is no impact of gamification in increasing in saving behaviour, financial planning and investment behaviour.

**Alternative Hypothesis (H1-2)** -There is an impact of gamification in increasing in saving behaviour, financial planning and investment behaviour.

**Null Hypothesis (HO-3)** – There is no significant relationship between gamification and financial behaviour among young adults.

**Alternative Hypothesis (H1-3)** -There is a significant relationship between gamification and financial behaviour among young adults.

**Null Hypothesis (HO-4)** -There is no significant impact of increased interest on financial planning among young adults.

**Alternative Hypothesis (H1-4)** – There is a significant impact of increased interest on financial planning among young adults.

**Null Hypothesis (HO-5)** -The increased interest and adaption does not have role in the relationship gamification and financial behaviour among young adults.

**Alternative Hypothesis(H1-5)** – The increased interest and adaption have role in the relationship gamification and financial behaviour among young adults.

**Research Methodology**

**Research design**

The study adopted a quantitative, descriptive and cross-sectional research type with secondary literature. The primary data was collected using a structured self-administered questionnaire with the young adults in various sectors of Vijayawada, Andhra Pradesh.

**Sampling and Data collection: -**

A total of 130 questionnaires were sent out and 97 were returned, a response rate of 74.6%. No responses were missing and all 97 were analysed. A convenience (non-probability) sampling was used and respondents filled out an online form. The names and times of the respondents were anonymized in the analysis.

**Instrument development**

There were two parts to the questionnaire. Part A collected data on the demographic characteristics: sex, age group, education, and personal monthly income/allowance. In Part B fifteen statements (Q6–Q20) were included to capture the constructs of the conceptual framework, which were gamification, increased interest in the product, increased habit adaption and financial behaviour (saving, planning and investment). The answers provided ranged from 1 (Strongly Disagree) to 5 (Strongly Agree) (Likert, 1932). The instrument was checked for clarity and validity before the final analysis and also Cronbach's alpha (Cronbach, 1951) was used to test the internal consistency.

***Measurement of constructs***

Each respondent uses gamified financial applications; therefore, gamification is measured by the perceived influence of gamified features (rewards, points, badges and challenges) on saving, planning and investment (GAM). Construct scores are the average of the items of each construct and increased interest (INT) is the average of Q6 and Q7. The constructs are listed in Table 1.

**Table 1: Constructs and questionnaire items**

| Construct | Code | Items | Content of the statements |
|---|---|---|---|
| Increased interest and habit adaption | IIA | Q6–Q8 | Gamified apps raise interest in personal finance; rewards, points and badges motivate participation; gamification encourages adapting regular financial habits |
| Gamification and financial activities | GAM | Q9–Q11 | Gamification motivates regular saving; encourages planning and managing income and expenses; increases interest in investment |

| Construct | Code | Items | Content of the statements |
|---|---|---|---|
| Financial behaviour | FB | Q12–Q14 | Increased interest improves saving behaviour; regular habits improve money management; interest and habit adaption improve overall financial behaviour |
| Interest and financial planning | PLAN | Q15–Q17 | Increased interest motivates preparing a financial plan, setting financial goals and tracking income and expenses |
| Perceived mediating role | MED | Q18–Q20 | Gamification raises interest, which influences behaviour; gamification builds habits that improve behaviour; interest and habits strengthen the gamification effect |

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**Use of tools and techniques of analysis.**

All statistical analysis completed in MS Excel using statistical functions and all calculations have been generated as a live formula in the accompanying workbook. All results were at 5% level of significance. Table 2 shows the relationship between each hypothesis and the test that was used.

**Table 2: Hypotheses and statistical tests**

| Hypothesis / objective | Variables | Statistical test |
|---|---|---|
| H1 (Objective 1) | IIA compared with the neutral value 3 | One-sample t-test |
| H2 (Objective 2) | GAM (saving Q9, planning Q10, investment Q11) compared with 3 | One-sample t-test |
| H3 (Objective 3) | FB regressed on GAM; FB regressed on IIA | Simple linear regression, Pearson correlation |
| H4 (Objective 4) | PLAN regressed on increased interest (INT = mean of Q6–Q7) | Simple linear regression |
| H5 (Objective 5) | GAM → IIA → FB | Baron and Kenny steps, multiple regression, Sobel test |
| Supplementary | Demographic profile × High/Low agreement level | Chi-square test of independence |
| Supplementary | Construct scores across demographic groups | One-way ANOVA with Bonferroni post hoc tests |

For the chi-square tests, the constructs scores were dichotomized into High (mean 4.00 or higher, that is agreement on average) and Low/Moderate (mean less than 4.00). The categories of age (24 years and above), education (under graduate and post graduate and other), and income (less than ₹5000, ₹5001 to ₹20,000, and above ₹20,000) were combined because they were sparse with the condition that no category has less than 1 expected count and at most 20% less than 5 counts as per Cochran's (1954) rule. The one-way ANOVA used the original categories of gender (2 groups), age (3 groups), education (3 groups) and income (4 groups), and Bonferroni-adjusted pairwise t-tests followed any significant F-test. The three regression steps of Baron and Kenny (1986) and the Sobel (1982) test of the indirect effect were used to examine mediation.

**Data Analysis and Interpretation**

Profile of respondents

As can be seen in Table 3 the sample is mostly female (60.8%), young (81.4% aged between 18–23 years) and comes from undergraduate courses (69.1%). Nearly half of the respondents (46.4%) earn or receive less than ₹5,000 a month.

**Table 3: Demographic profile of respondents (N = 97)**

| Variable | Category | Frequency | Percent |
|---|---|---|---|
| Gender | Female | 59 | 60.8% |
| | Male | 38 | 39.2% |
| Age | 18–20 years | 37 | 38.1% |
| | 21–23 years | 42 | 43.3% |
| | 24–26 years | 7 | 7.2% |
| | Above 26 years | 11 | 11.3% |
| Education | Undergraduate | 67 | 69.1% |
| | Postgraduate | 22 | 22.7% |
| | Other | 8 | 8.2% |
| Monthly income / allowance | Below ₹5,000 | 45 | 46.4% |
| | ₹5,001–₹10,000 | 19 | 19.6% |
| | ₹10,001–₹20,000 | 16 | 16.5% |
| | Above ₹20,000 | 17 | 17.5% |

***Reliability and descriptive statistics***

It examines the reliability of the data and descriptive statistics.

Cronbach's alpha α for the five constructs was .885 to .950 and for all 15 items combined was .963 which is above the .70 criterion for acceptable reliability (Nunnally, 1978). Therefore, the instrument has good internal consistency. Table 4 reports the construct scores. All 5 of them are above the neutral value of 3, and all of the 1-sample t-tests are significant at the 1% level. The highest levels of agreement were for financial planning (M = 4.39) and financial behaviour (M = 4.24), whereas the levels of agreement for the perceptions related to gamification (IIA and GAM) were slightly lower but still positive.

**Table 4: Construct scores, reliability and one-sample t-tests against the neutral value 3**

| Construct | Mean | SD | Cronbach α | % High (≥ 4.00) | t (df = 96) | p |
|---|---|---|---|---|---|---|
| Increased interest & habit adaption (IIA) | 3.87 | 0.97 | .894 | 66.0% | 8.76 | < .001 |
| Gamification & financial activities (GAM) | 3.91 | 1.00 | .950 | 58.8% | 8.94 | < .001 |
| Financial behaviour (FB) | 4.24 | 0.75 | .885 | 70.1% | 16.29 | < .001 |
| Interest → financial planning (PLAN) | 4.39 | 0.72 | .917 | 81.4% | 19.04 | < .001 |
| Perceived mediating role (MED) | 4.25 | 0.89 | .941 | 68.0% | 13.89 | < .001 |

.All fifteen statements have means which are significantly higher than 3 at the item level (Table 5) ($p < .001$). The highest agreement rates for the statements are for those that relate habits and interest to money management (Q13 – Q17, ranging from 81.4% to 85.6% agreeing), with the lowest agreement rates for the first three statements that address the direct effect of gamification on interest and participation (Q6, Q8 and Q9, ranging from 62% to 63%).

**Table 5: Item-wise mean, standard deviation and percentage agreement**

| Item | Statement | Mean | SD | % Agree (4–5) |
|---|---|---|---|---|
| Q6 | Gamified apps increase my interest in personal finance | 3.78 | 1.07 | 62.9% |
| Q7 | Rewards/points/badges motivate participation | 3.92 | 1.17 | 69.1% |
| Q8 | Gamification encourages adapting regular financial habits | 3.90 | 0.96 | 62.9% |
| Q9 | Gamification motivates regular saving | 3.90 | 1.04 | 61.9% |
| Q10 | Gamified tools encourage planning income & expenses | 3.94 | 1.02 | 66.0% |

| Item | Statement | Mean | SD | % Agree (4–5) |
|---|---|---|---|---|
| Q11 | Gamification increases interest in investment | 3.89 | 1.09 | 64.9% |
| Q12 | Increased interest improves my saving behaviour | 4.00 | 1.02 | 69.1% |
| Q13 | Regular financial habits improve money management | 4.31 | 0.71 | 85.6% |
| Q14 | Interest & habit adaption improve overall financial behaviour | 4.42 | 0.73 | 85.6% |
| Q15 | Increased interest motivates me to prepare a financial plan | 4.38 | 0.73 | 85.6% |
| Q16 | Greater interest encourages setting financial goals | 4.37 | 0.78 | 81.4% |
| Q17 | Increased interest encourages tracking income & expenses | 4.41 | 0.81 | 85.6% |
| Q18 | Gamification increases interest, which influences financial behaviour | 4.25 | 0.90 | 75.3% |
| Q19 | Gamification helps develop habits that improve financial behaviour | 4.21 | 1.00 | 71.1% |
| Q20 | Interest & habit adaption strengthen the gamification effect | 4.31 | 0.92 | 75.3% |

**Testing of Hypotheses**

**H1**: Gamification and increased interest and habit adaption

The mean IIA score was 3.87 (SD = 0.97), significantly higher than the neutral value of 3, $t(96) = 8.76$, $p < .001$, and 66.0% of respondents scored 4 or above.

**H0-2** is rejected as gamification influences young adults' interest in personal finance and the adoption of regular financial habits significantly and positively. The ability to save and plan for investments, and gamification of these behaviours.

The respondents have agreed that gamification is effective in encouraging regular saving (M = 3.90), planning and managing income and expenses (M = 3.94) and interest in investment (M = 3.89). The combined GAM score (M = 3.91, SD = 1.00) was significantly above neutral, $t(96) = 8.94$, $p < .001$, with 58.8% scoring 4 or above.

**H0-3is rejected**. No single dimension stood out as being rated higher or lower than the others, as the ratings were near identical for the three dimensions. The three key elements of gamification, interest and adaption, and financial behaviour will be explored. The elements of gamification, interest and adaption, and financial behaviour will be explored.

Simple linear regression shows that GAM significantly predicts financial behaviour: B = 0.477, SE = 0.060, $\beta = .634$, $t(95) = 7.98$, $p < .001$. The model explains 40.2% of the variance in FB (adjusted $R^2 = .395$; $F(1, 95) = 63.73$, $p < .001$). Greater interest and habit adaption also predicts (B = 0.504, $\beta = .652$, $R^2 = .425$, $p < .001$): every one-point change on IIA corresponds to approximately half a point change on FB. H0-3 is rejected (Table 6).

**H0-4**: Greater interest and financial planning

Increased interest (INT) has a significant positive effect on financial planning: B = 0.358, SE = 0.062, β = .508, t (95) = 5.74, p < .001, with $R^2$ = .258 (adjusted $R^2$ = .250; F (1, 95) = 32.97, p < .001). H0-4 is rejected. Other factors are important, and interest accounts for approximately 25% of the variation in planning..

**Table 6: Simple linear regression results**

| Model | B | SE B | β | t | p | $R^2$ | F |
|---|---|---|---|---|---|---|---|
| M1: FB ← GAM (H3) | 0.477 | 0.060 | .634 | 7.98 | < .001 | .402 | 63.73 |
| M2: FB ← IIA (Objective 3) | 0.504 | 0.060 | .652 | 8.38 | < .001 | .425 | 70.15 |
| M3: PLAN ← INT (H4) | 0.358 | 0.062 | .508 | 5.74 | < .001 | .258 | 32.97 |

***H5: Role of increased interest and habit adaption***

The mediation analysis (Table 7) is based on Baron and Kenny (1986). Gamification has a significant predictive effect on financial behaviour (path c = 0.477, p < .001) and the mediator, increased interest and habit adaption (path a = 0.856, p < .001). When both GAM and IIA are entered together ($R^2$ = .441, F (2, 94) = 37.09, p < .001), IIA remains a significant predictor of FB (path b = 0.322, p = .011), while the direct effect of GAM falls to 0.201 and is no longer significant (p = .101). The indirect effect is 0.276 (Sobel z = 2.55, p = .011), which accounts for about 58% of the total effect. H0-5 is rejected. It is a pattern that is consistent with full mediation: gamification has a positive relationship with financial behavior as it increases interest and develops habits. This is also reflected in respondents' perception of this mechanism directly, as the mean responses (MED items: Q18–Q20) averaged 4.25, t (96) = 13.89, p < .001.

**Table 7: Mediation of the gamification–financial behaviour relationship by increased interest and habit adaption**

| Path | B | SE | t / z | p |
|---|---|---|---|---|
| c: GAM → FB (total effect) | 0.477 | 0.060 | 7.98 | < .001 |
| a: GAM → IIA | 0.856 | 0.048 | 17.95 | < .001 |
| b: IIA → FB (controlling GAM) | 0.322 | 0.125 | 2.58 | .011 |
| c′: GAM → FB (direct effect, controlling IIA) | 0.201 | 0.122 | 1.66 | .101 |
| Indirect effect a × b (Sobel test) | 0.276 | 0.108 | 2.55 | .011 |

***Supplementary analysis: chi-square tests***

A series of chi-square tests were used to determine if there was an association between the demographic profile and High versus Low/Moderate agreement (Table 8). There was no association between gender or age with any construct. There were two noteworthy associations, among the sixteen. Education was also related to the gamification perceptions (GAM), $\chi^2$ (1) = 8.75, p = .003: 68.7% of the undergraduates were in the High score range compared with 36.7% of the

postgraduate and other respondents. Financial planning (PLAN) was associated with income, $\chi^2$ (2) = 9.74, p = .008, as the proportions of High scorers increased from 68.9% in the lowest income group to 100.0% in the highest income group (Table 9).

**Table 8: Chi-square tests of independence (demographic profile × agreement level)**

| Demographic | IIA | GAM | FB | PLAN |
|---|---|---|---|---|
| Gender | $\chi^2(1) = 0.00$, p = .975 | $\chi^2(1) = 0.50$, p = .480 | $\chi^2(1) = 2.33$, p = .127 | $\chi^2(1) = 1.20$, p = .272 |
| Age | $\chi^2(2) = 0.39$, p = .824 | $\chi^2(2) = 1.16$, p = .560 | $\chi^2(2) = 3.48$, p = .176 | $\chi^2(2) = 0.30$, p = .860 |
| Education | $\chi^2(1) = 3.09$, p = .079 | $\chi^2(1) = 8.75$, p = .003 * | $\chi^2(1) = 2.12$, p = .146 | $\chi^2(1) = 0.06$, p = .807 |
| Monthly income | $\chi^2(2) = 0.33$, p = .846 | $\chi^2(2) = 1.25$, p = .536 | $\chi^2(2) = 4.29$, p = .117 | $\chi^2(2) = 9.74$, p = .008 * |

**Table 9: Percentage of High scorers in the significant associations**

| Cross-tabulation | Group | n | High agreement | % High |
|---|---|---|---|---|
| Education × GAM | Undergraduate | 67 | 46 | 68.7% |
| | Postgraduate & Other | 30 | 11 | 36.7% |
| Income × PLAN | Below ₹5,000 | 45 | 31 | 68.9% |
| | ₹5,001–₹20,000 | 35 | 31 | 88.6% |
| | Above ₹20,000 | 17 | 17 | 100.0% |

***Supplementary analysis: one-way ANOVA***

Means for construct scores were compared using one-way ANOVA for the various demographic groups (Table 10). There were no significant differences in any construct found for gender, age, or education. Monthly income did differ significantly for financial behaviour, F (3, 93) = 2.90, p = .039, and financial planning, F (3, 93) = 5.00, p = .003. Respondents in the ₹5,001–₹10,000 band recorded the highest scores (FB = 4.63, PLAN = 4.72) and those receiving below ₹5,000 the lowest (FB = 4.05, PLAN = 4.11). A Bonferroni adjusted comparison (Table 11) reveals significant differences between the lowest band, and the ₹5,001–₹10,000 band on both constructs, and between the highest band and the financial planning band. Levene's test showed that the variance was unequal between financial planning income

bands and the result was subsequently verified using Welch's ANOVA (F = 4.68, p = .006) and Kruskal–Walli's test (H = 11.10, p = .011).

**Table 10: One-way ANOVA (construct scores by demographic group)**

| Grouping factor | IIA | GAM | FB | PLAN |
|---|---|---|---|---|
| Gender | F(1,95) = 0.27, p = .607 | F(1,95) = 0.27, p = .602 | F(1,95) = 0.71, p = .400 | F(1,95) = 0.21, p = .650 |
| Age | F(2,94) = 0.75, p = .477 | F(2,94) = 1.49, p = .232 | F(2,94) = 0.17, p = .844 | F(2,94) = 0.19, p = .826 |
| Education | F(2,94) = 1.65, p = .198 | F(2,94) = 1.61, p = .206 | F(2,94) = 0.85, p = .432 | F(2,94) = 1.81, p = .169 |
| Monthly income | F(3,93) = 0.54, p = .659 | F(3,93) = 1.17, p = .326 | F(3,93) = 2.90, p = .039 * | F(3,93) = 5.00, p = .003 * |

.**Table 11: Mean scores by income band and significant post hoc comparisons**

| Income band | n | FB mean | PLAN mean |
|---|---|---|---|
| Below ₹5,000 | 45 | 4.05 | 4.11 |
| ₹5,001–₹10,000 | 19 | 4.63 | 4.72 |
| ₹10,001–₹20,000 | 16 | 4.23 | 4.50 |
| Above ₹20,000 | 17 | 4.33 | 4.65 |

| Pairwise comparison (significant after Bonferroni adjustment) | Construct | Mean difference | Adjusted p |
|---|---|---|---|
| Below ₹5,000 vs ₹5,001–₹10,000 | FB | -.58 | .028 |
| Below ₹5,000 vs ₹5,001–₹10,000 | PLAN | -.61 | .009 |
| Below ₹5,000 vs Above ₹20,000 | PLAN | -.54 | .039 |

**Table 12: Summary of hypothesis testing**

| Hypothesis | Test result | Decision |
|---|---|---|
| H0-1: no effect of gamification on interest and habit adaption | IIA M = 3.87; t(96) = 8.76, p < .001 | Rejected |
| H0-2: no impact of gamification on saving, planning and investment | GAM M = 3.91; t(96) = 8.94, p < .001 | Rejected |

| Hypothesis | Test result | Decision |
|---|---|---|
| H0-3: no relationship between gamification and financial behaviour | $\beta = .634$, $R^2 = .402$, $p < .001$ | Rejected |
| H0-4: no impact of increased interest on financial planning | $\beta = .508$, $R^2 = .258$, $p < .001$ | Rejected |
| H0-5: interest and adaption have no role in the gamification–behaviour relationship | Sobel $z = 2.55$, $p = .011$ | Rejected |

**Discussion**

All five of the hypotheses are supported by the results. Financial aspects of the games, including those that are gamified, result in increased interest in personal finance and adoption of regular financial practices among the young adults in the sample (H1). This is consistent with the correlational findings of Agarwal (2026), who determined that exposure to gamification features was predictive of engagement and financial education outcomes in financial education apps, and with Self-Determination Theory (SDT) that posits that financial education applications involving gamification should satisfy the financial education needs for competence and autonomy (Ryan & Deci, 2000). It was further in line with the systematic reviews conducted by Ahmad et al. (2025) and the systematic review conducted by Rombebunga et al. (2025) who reported generally positive findings regarding the effects of gamification on financial learning, attitudes and behaviour.

The impacts of gamification by respondents on saving, planning, and investment were almost equal (M = 3.90, 3.94 and 3.89) (H2). Similarly, Sarwar and Mubashar (2025) correlated gamified fintech with motivation and financial objective achievement. There should be a caveat on the investment result. Studies on trading apps relate gamified interfaces to increased trading frequency and risk-taking behaviours (Chapkovski et al., 2023; Prasetia et al., 2026; Said et al., 2025). In a current study, interest in investment is measured, not the quality or riskiness of investment decisions, Therefore a higher interest does not mean a better investing.

There was a strong relationship between both gamification perceptions and the increased interest and habit adaption with financial behaviour (H3), accounting for 40% and 42% of the variance of financial behaviour, respectively. Financial planning (H4) was also influenced by interest, although this was a smaller part of the equation ($R^2 = .258$), which indicates that some other factors contribute to financial planning. For instance, financial self-efficacy and financial planning along with gamification are found to interact in the context of financial behaviour by Agrawal and Sharma (2025), which are not included in this questionnaire.

The mediation outcome (H5) is the main finding of this study. When the direct effect was added back with the increased interest and habit adaption, the direct effect of gamification on financial behaviour became non-significant, and the indirect effect remained significant. Gamification, however, seems to be important primarily based on the interest and habits that it develops, rather than the game features. This addresses the gap stated above, which is the need for the study of engagement and adaption to go hand-in-hand with the study of behavioural outcomes. There are two cautions, however: (1) two tests with strong overlap (GAM and IIA) were used, making it difficult to distinguish the effects of the two, and (2) the Sobel test requires that the indirect effect be normally distributed. A robustness check would be helpful, a bootstrap test.

There were no significant differences in the demographic characteristics. Very little difference was seen across mean scores of gender, age and education, indicating that the perceived advantage of gamification is widely applicable to young adults. The exception to this is with the lowest income or allowance band where there were some respondentshatreported lower financial behaviour and planning scores than the middle and upper bands. A possible

interpretation is that there is not much that can be saved, planned or invested if a very small allowance is given, but the data does not

support this interpretation. Considering the multiple 32 chi-square and ANOVA tests conducted, there was an expectation of 1-2 significant results

due to chance at the 5% level, so the four significant demographic findings should be viewed as exploratory.

**Findings of the Study**

1.Young adults are more interested in personal finance and have better habits when using gamification (3.87 mean, 66.0 percent scored 4 or higher).

2. The respondents believe that gamification promotes saving, financial planning and investment (GAM mean = 3.91), and almost equal ratings are given to the three dimensions.

3. Financial behaviour and gamification are positively and significantly correlated ($R^2$ = .402) and as are financial behaviour and increased interest and habit ($R^2$ = .425).

A higher interest leads to better financial planning ($\beta$ = .508, $R^2$ = .258).

4.Indirect effect of gamification on financial behaviour is significant with mediator variable (5.276, Sobel p = .011) and direct effect of gamification is insignificant after adding the mediator variable.

5.There is no correlation between gender and age on any construct, and no difference between them on any construct. The undergraduates are more likely to report a high perception of gamification than postgraduate and other respondents.

6.The financial behaviour and financial planning scores of the respondents of lowest income band (₹5,000 & below) are lower than those of the respondents of middle-income band (₹5,001 to ₹10,000).

**Suggestions and Implications**

According to the findings, the majority of the benefits of gamification are obtained through habits, so designers of fintech and banking apps should create features to make it a habit, including streaks, savings goals, progress bars and spending trackers.

Financial planning features (goal setting, budget planning and expense tracking) should be further promoted by designers, because the outcomes were highest rated by respondents and interest predicts financial planning.

Financial educators can leverage gamified tools to incorporate into college and financial literacy offerings, and find that young adults have positive reactions in both genders and age groups.

Students and others with very small allowances should be targeted with products that are aimed at ‘micro-saving' and low-balance targets, as this group reported the lowest planning and behaviour scores.

Regulators and platform owners should be vigilant about making sure the investment features on their platforms are responsible, such as avoiding pushy prompts that encourage frequent trading and risk-taking, as previous studies have

shown that gamification can lead to excessive trading and risk-taking behaviour (Chapkovski et al., 2023; Said et al., 2025).

Young adults should use financial tools that are designed to be fun and gamified to help them save money and develop a financial plan routine, but not to gamify points and rewards as an end goal.

**Limitations and Scope for Further Research**

There is a limitation of the study. Convenience sampling was used in one city to obtain the sample of 97 young adults and the results do not claim to be generalizable for all young adults in India. All the variables are subjective perceptions obtained at the same time from the same subjects, and this may lead to spurious correlations among the constructs and prevent causal inferences. Measurement of gamification was based on perceived rather than actual exposure/usage of specific features in the app. The magnitude of the mean scores (3.87 to 4.39) suggests ceiling effects may have existed to diminish score variance and the high correlations between the constructs make it difficult to separate out the contributions of the individual constructs. Small groups in education were 'Other' and the higher age bands. Some of the group comparisons are somewhat inaccurate.

There are several areas in which future research could be directed: probability sampling of several cities, comparing gamified-app users with non-gamified users, measuring actual saving, investment and app-usage data, testing moderating variables like financial literacy and self-efficacy, and the use of a structural equation model with bootstrapped indirect effects, following respondents over time to test the durability of the effect of gamification on habits.

**Conclusion**

This study attempted to explore the relationship between gamification, interest and habit formation, and saving, financial planning and investment behaviour among the young adults in Vijayawada. All five of the null hypotheses were rejected on the basis of 97 responses. There is a positive relation between gamification and financial behaviours, and interest and adaption of financial habits carry most of the relation between gamification and financial behaviours; increased interest in personal finance is perceived to increase interest and improve financial habits; increased interest improves financial planning; and increased interest and adaption of financial habits carry most of the relation between gamification and financial behaviour. There were few differences by gender, age or education level and low-income participants had lower planning and behaviour scores. The study contributes to a body of literature that focused predominantly on the adoption of financial education and fintech services or trading independently, and suggests that financial tools that leverage on gamification work best when they make engagement into habit.

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