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## The role of interactive fiction in shaping mobile gaming experiences for college students in Kolkata

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### Abstract

**Purpose:** The study examines the role of Interactive Fiction (IF) in mobile gaming, particularly its impact on creativity, imaginative thinking, and engagement among college students in Kolkata. The study also sought to understand how narrative-driven, choice-based game elements can be leveraged as both educational and entertainment tools.

**Methods:** A quantitative research approach is adopted, with data collected from 423 students across government and private colleges in Kolkata using structured questionnaires. Stratified random sampling ensured representation, and data is analyzed using statistical tools such as Excel and SPSS, and techniques like mean, standard deviation, and regression analysis.

**Key Findings:** The results demonstrated that IF significantly enhances creativity, imaginative thinking, and gaming engagement. Narrative-driven and choice-based features foster involvement, problem-solving, and emotional connection, making mobile games both engaging and educational.

**Implications:** The findings have theoretical implications for Flow Theory and Reader-Response Theory by showing that interactive narratives foster involvement and decision-making. The study suggests that game developers can design engaging experiences through interactive storytelling, while educators can use IF as an educational tool to cultivate creativity, critical thinking, and sustained learner engagement.

**Keywords:** Interactive fiction, mobile gaming, user experience, narrative-driven games, educational technology

### 1. Introduction

#### Section One: General Framework

Mobile gaming has become the entertainment choice for young people, with its roots in important social and economic factors. Mobile games are becoming very popular all over the world and making a lot of money <sup>[1]</sup>. Mobile gaming is easy to get into and can be played anywhere, even more than just for fun. But this level of fame comes with some very real dangers. A lot of teens are affected by cyberbullying in mobile games <sup>[2]</sup>. Also, people who have trouble with mobile games tend to play for longer periods of time, buy more in-game items, and play while completing homework <sup>[3]</sup>. Interestingly, mobile gaming has been associated with problem gaming, but it is less harmful than console and computer gaming. This shows how hard it can be for young people to play mobile games when it comes to their health and fun.

The rise and increased popularity of a genre closely related to IF, the visual novels in Western markets, with various themes <sup>[4]</sup>. This increasing frequency of phone use among students in India is mainly for education or gaming. A study in Kolkata found widely varying attitudes on the educational use of mobile phones based on gender, medium of education, and residence <sup>[5]</sup>.

In West Bengal, research on in-app purchases for mobile games has revealed that consumer behavior is influenced by both rational and irrational factors <sup>[6]</sup>. In another study among different educational strata, it was seen that higher smartphone game usage was associated with less emphasis on studies and career also had adverse effects on sleep and physical activity <sup>[7]</sup>.

Students' easy access to smartphones was found to be a major risk factor for addiction. It stresses the need for specific measures and awareness initiatives that would help metropolitan students, like those in Kolkata, use their smartphones in a healthy way. Interactive fiction combines narrative with player agency, enabling players to influence the trajectory and outcome of the story<sup>[8]</sup>. Choices and experiences create the player's decision-making, a vital part of the narrative, as the player selects options that influence the storyline. The level to which players perceive having authority over their choices is dependent on various factors, including the significance of the choices, their personal investment in them, and the game's regulations<sup>[9]</sup>.

The success of educational games is further supported by the relationship between narrative, agency, and experience, as storytelling improves learning outcomes and player engagement. Narrative and experience matter in educational games. Senyer and Bostan (2021)<sup>[10]</sup> looked into the narrative aspect of game UX using the Game User Experience Satisfaction Scale. Yasin *et al.*, (2022)<sup>[11]</sup> conducted a systematic review, looking to identify UX factors for mobile educational games while also stressing the importance of having adequate evaluation models. Palomino and Isotani (2024)<sup>[12]</sup> created a Narrative Gamification Framework for Education to provide guidelines for the gamification of lessons, with special attention to content transformation.

## 2. Review of Literature

### 2.1 Theoretical Framework

#### Flow Theory

The flow theory was discovered by Mihaly Csikszentmihalyi in the 1970s. Flow Theory refers to a psychological state where individuals are fully immersed in an activity, experiencing deep focus, enjoyment, and loss of time awareness. This theory highlights the balance between challenge and skill, fostering intrinsic motivation, creativity, productivity, and optimal human performance in various domains. Interactive fiction plays a role in shaping mobile games for college students in Kolkata, while flow theory by Mihaly Csikszentmihalyi anchors the immersion of the player. Flow is a psychological state in which the individual is deeply engrossed in the activity, occurring between a balance of challenge and ability. Narrative interactive fiction styles set the stage for the flow experience in that they allow a player to actively participate in the story. For the college students in Kolkata, these immersive experiences achieve both stimulation on the cognitive and emotional levels, which increases the level of enjoyment and continued engagement in mobile gaming<sup>[13]</sup>.

#### Reader-Response Theory

Response Theory is a literary theory that emphasizes the active role of readers in interpreting texts. Reader-response theory was introduced by Louise Rosenblatt and gained prominence primarily in the 1960s and 1970s<sup>[14]</sup>. The theory suggests that meaning is not fixed within the text alone but is created through the interaction between the reader's personal experiences, emotions, and perspectives and the text, making interpretation subjective and dynamic. Interactive fiction helps students in Kolkata engage with different mobile experiences. Louise Rosenblatt's reader-response theory, on the other hand, emphasizes the active role of readers as interpreters and co-creators of meaning.

According to Rosenblatt, meaning arises out of a dynamic transaction between text and reader. In an interactive digital narrative, the player/reader is not just a passive consumer of content but interacts with the branching storyline, making choices that predetermine his or her unique narrative path. A personalized approach increases emotional investment and identification with the characters for college students in Kolkata, thereby enriching the gaming experience and turning it into a participatory act through interpretation<sup>[15]</sup>.

### 2.2 The Evolution of Interactive Fiction in Gaming

Wright and Weible (2024) explored the current attitudes about digital IF and text adventure games in the educational setting. The study intended to clarify whether and how these narrative-based digital tools had been perceived and utilized in learning contexts, especially within science, mathematics, and education technology fields. The methodology employed difficult inclusion criteria initially, followed by thematic coding for the identification of literature patterns. The results showed that more and more people are interested in using digital IF and narrative adventure games to engage students, help them think critically, and solve problems, with the possibility of growth. The findings showed that learners generally had positive reactions, but how well the game worked depended on the story quality, the game design, and how well it fit into the curriculum. The study underscored the potential for interactive narratives to influence the fundamental conceptualization of ideas when appropriately aligned with educational objectives<sup>[16]</sup>.

Weiland (2023) examined the combination of character growth, plot advancement, and narrative structure to create engaging content. There was a qualitative and analytical study of classical and modern narrative styles that showed how to connect changes in a character's internal life with events in the plot. The framework was built on the tripartite concept of character arcs: positive, negative, and flat, continuing with how these arcs serve as the structure for narrative cohesion. The findings highlighted the need to tie together the inner journey of the protagonist with such important structural story beats as inciting incidents, midpoint shifts, and climaxes. This holistic approach yielded concrete strategies for writers hoping to marry character development with plot design successfully<sup>[17]</sup>.

### 2.3 Impact of Storytelling on Gaming Engagement

Dien (2025) evaluated the impact of empathy and immersion on economic and moral decision-making in video game contexts. The study discovered that players' decisions were significantly influenced by increased emotional engagement and immersive gameplay features, particularly in morally complex circumstances. The interactive elements in video games also created a simulated environment for economic trade-offs. In real life, emotionally charged situations could make people less likely to make decisions that were in their best interest. The results demonstrated that video games serve not only as sources of entertainment but also as influential instruments for developing ethical and economic reasoning, particularly when they promote empathy and psychological engagement<sup>[18]</sup>.

Ma *et al.*, (2024) recognized persuasive communication as an instrument, emphasizing the variety of media and user engagement. Studies amalgamated from diverse research demonstrate that high-immersive contexts, encompassing

virtual reality and interactivity, which cultivate presence, empathy, and narrative transportation, surpass low-immersive environments, such as conventional text or video. Elevated psychological states were recognized as mediators of persuasive processes, promoting enhanced attitudinal transformation, intention, and the realization of the narrative's message through behavior. The meta-analytic evidence substantiated the augmentation of cognition and emotion via immersion, facilitating users' deeper emotional engagement with narratives <sup>[19]</sup>.

## 2.4 Youth Gaming Trends in Urban India

Kumar *et al.*, (2024) found out how common and what causes Internet Gaming Disorder (IGD) among medical graduates at a school in Rajasthan. It demonstrated that IGD was becoming a major issue for students, especially in educational institutions where they had to do well. The study found that a lot of the students who showed signs of IGD did so because they did things that are prevalent among patients, like playing games for a long time, liking online multiplayer games, and getting bad grades. The study also looked at psychological factors, such as more stress and anxiety, and trouble sleeping. It stressed how important family history and lack of parental supervision are in causing bad gaming habits. As a result, the results showed how important it is to find, recognize, and help students in school who are playing too many video games as soon as possible in order to lessen the negative effects on their mental health and academic problems <sup>[20]</sup>.

Kuppili *et al.*, (2022) analyzed qualitative research to assess the changes in internet usage, mobile phones and tablets, social media, and gaming during the COVID-19 pandemic. The research revealed a significant increase in digital engagement across all age groups, particularly among adolescents and young adults. The studies reviewed indicated an increase in problematic internet usage, digital dependency, and adverse mental health outcomes, including anxiety, depression, and sleep disturbances. Social media and gaming platforms emerged as prominent coping mechanisms for stress and boredom; nevertheless, excessive usage correlated with exacerbated negative mental health outcomes. The findings indicated an immediate necessity to examine digital literacy programs and mental health treatments as a means to mitigate the adverse effects associated with increased digital media usage <sup>[21]</sup>.

## 3. Objectives

1. To examine the role of interactive fiction in fostering creativity and imaginative thinking among college students.
2. To assess the role of interactive fiction in enhancing gaming engagement among college students.
3. To propose strategies for developing culturally relevant and context-specific interactive fiction narratives that enhance their appeal and educational impact among Indian college students.

## 4. Research Methodology

The study adopts a quantitative research approach to study the effects of interactive storytelling elements on the engagement of mobile games. The study is conducted in the city of Kolkata, with college students selected from both government and private institutions constituting its target population, since these individuals constitute a large amount

of mobile gamers. The top 4 Government / State-aided Colleges / Universities in Kolkata selected for the study are -Jadavpur University, University of Calcutta, Indian Statistical Institute (ISI), Kolkata, IISER Kolkata and the top 4 Private / Autonomous Colleges of Kolkata are St. Xavier's College, Kolkata, Heritage Institute of Technology, Kolkata, Institute of Engineering & Management (IEM), Kolkata, Techno India University, Kolkata. The stratified random sampling procedure ensured representation across various institutions, disciplines, and demographic divisions. The study is based on structured questionnaires as primary data instruments. The sample size is 385 using the Cochran formula. The questionnaire is sent to 450 respondents to enhance reliability, out of which 27 responses are not valid and incomplete, so the 423 is final sample size. The collected data is analyzed with Excel and SPSS software. Analytical tools such as mean, standard deviation, and regression analysis are used to establish patterns, variations, and relationships in terms of strength between the variables studied. These statistical techniques enabled the researcher to evaluate the role of interactive fiction in influencing users' engagement, immersion, and overall satisfaction with mobile games. The method, therefore, provides the data-driven basis to understand how narrative interactivity contributes to the mobile gaming experiences of college students within an urbanized academic milieu.

## 5. Results

This section comprises the findings and interpretation of the data. The demographic characteristics and objectives, as well as hypotheses, have been used to categorize the outcomes. A table displaying the results and an explanation of those results has been included in the aims and hypotheses.

Table 1 presents the demographic profile of the respondents. Based on gender, the majority are male (60.3%), while females account for 39.7%. In terms of age, most respondents fall within 23-25 years (33.8%), followed by 20-22 years (29.3%), 26 years and above (29.1%), and 17-19 years (7.8%). Regarding education level, the largest proportion of respondents are pursuing a master's degree (40.2%), followed by those pursuing a bachelor's degree (33.8%) and doctoral/research scholars (26.0%). Daily smartphone usage is dominated by respondents using their devices for 2-4 hours per day (37.8%), followed by 5-7 hours (27.9%), less than 2 hours (18.0%), and more than 7 hours (16.3%). With respect to college type, the sample is fairly balanced, with slightly more respondents from private/autonomous institutions (50.6%) than government/state-aided institutions (49.4%). Institution-wise, the highest representation is from IISER (14.7%), followed by Heritage Institute of Technology (13.5%), St. Xavier's College (12.8%), Techno India University (12.5%), ISI (12.1%), IEM (11.8%), Jadavpur University (11.6%), and the University of Calcutta (11.1%). Overall, the majority of mobile gamers in this study are young male students aged 23-25 years, mainly pursuing undergraduate or postgraduate programs, with moderate daily smartphone usage of 2-4 hours. This suggests that interactive fiction in mobile gaming is likely to have the greatest appeal and educational impact among tech-savvy college students in Kolkata.

**Table 1: The Respondents' Demographic Profile**

Sr. no.	Demographic characteristics	Category	N	%
1.	Gender	Male	255	60.3
		Female	168	39.7
2.	Age	17-19 Years	33	7.8
		20-22 Years	124	29.3
		23-25 Years	143	33.8
		26 Years and Above	123	29.1
3.	Education Level	Pursuing bachelor's degree	143	33.8
		Pursuing master's degree	170	40.2
		Doctoral / Research Scholar (Ph.D./M.Phil.)	110	26.0
4.	Daily Smartphone Usage	Less than 2 hours	76	18.0
		2-4 hours	160	37.8
		5-7 hours	118	27.9
		More than 7 hours	69	16.3
5.	College Type	Government / State-aided	209	49.4
		Private / Autonomous	214	50.6
6.	College	Heritage Institute of Technology	57	13.5
		Indian Institute of Science Education and Research	62	14.7
		Indian Statistical Institute (ISI)	51	12.1
		Institute of Engineering & Management (IEM)	50	11.8
		Jadavpur University	49	11.6
		St. Xavier's College	54	12.8
		Techno India University	53	12.5
		University of Calcutta	47	11.1

### 5.1 Results Based on Hypothesis

the creativity and imaginative thinking of college students.

**H1:** There is a significant impact of interactive fiction on

**Table 1: Regression Table**

Hypothesis	Regression Weights	Beta Coefficient	R	R <sup>2</sup>	F	t-value	p-value	Hypothesis Result
Hypothesis 1	Role of interactive fiction-> Creativity and Imaginative Thinking	0.591	0.591	0.350	226.551	15.052	0.000	Supported

Table 2 presents the regression results, which aimed to examine the role of interactive fiction in fostering creativity and imaginative thinking among college students. The standardized beta coefficient of 0.591 indicates a strong positive effect of interactive fiction on creativity and imaginative thinking. The correlation coefficient ( $R = 0.591$ ) reflects a strong association, while the coefficient of determination ( $R^2 = 0.350$ ) shows that interactive fiction explains 35.0% of the variance in creativity and imaginative thinking. The model is statistically significant, as indicated by the high F-value of 226.551, the t-value of 15.052, and the p-value of 0.000 ( $<0.05$ ), confirming the robustness of

the results. These findings demonstrate that interactive fiction significantly enhances students' creative and imaginative thinking by encouraging them to engage in choice-making, narrative exploration, and problem-solving within gaming environments. Hence, Hypothesis 1 is supported, highlighting that interactive fiction can serve as a powerful pedagogical and entertainment tool to stimulate creativity and imaginative thinking among college students.

### H2

There is a significant impact of interactive fiction on the gaming engagement of college students.

**Table 2: Regression Table**

Hypothesis	Regression Weights	Beta Coefficient	R	R <sup>2</sup>	F	t-value	p-value	Objective Result
Hypothesis 2	Role of interactive fiction-> Engagement	0.541	0.541	0.293	174.603	13.214	0.000	Supported

Table 3 presents the regression results, which examined the role of interactive fiction in enhancing gaming engagement among college students. The standardized beta coefficient of .541 indicates a strong positive effect of interactive fiction on gaming engagement, while the correlation coefficient ( $R = .541$ ) and the coefficient of determination ( $R^2 = .293$ ) reveal that interactive fiction accounts for 29.3% of the variation in gaming engagement. The overall model is statistically significant, as reflected in the F-value of 174.603, the high t-value of 13.214, and the p-value of 0.00 ( $<0.05$ ), confirming the robustness of the results. These findings demonstrate that interactive fiction significantly increases students' interest, immersion, and active

participation in mobile games, making the gaming experience more engaging and meaningful. The results imply that narrative-driven, choice-based elements not only capture attention but also sustain prolonged engagement by fostering a sense of personal involvement and emotional connection with the game. Hence, Hypothesis 2 is supported, and the study highlights the potential of interactive fiction to transform mobile gaming into a more participatory and immersive experience for college students, offering valuable insights for both game developers and educators aiming to leverage gaming as a tool for learning, motivation, and entertainment.



## 6. Discussion

The study found that interactive fiction (IF) significantly impacted the enhancement of creativity, imaginative thinking, and gaming engagement among college students. Regression analysis revealed that IF had the strongest influence on creativity and imaginative thinking ( $\beta = 0.591$ ,  $R^2 = 0.350$ ), accounting for 35% of the variance, with high statistical significance ( $F = 226.551$ ,  $t = 15.052$ ,  $p < 0.05$ ). Similarly, IF had a notable effect on gaming engagement ( $\beta = 0.541$ ,  $R^2 = 0.293$ ), accounting for 29.3% of the variance, which was supported by a strong model fit ( $F = 174.603$ ,  $t = 13.214$ ,  $p < 0.05$ ). The study showed that IF was important for both creativity and keeping participants involved over time. The study showed that narrative-driven, choice-based game elements encourage active participation, problem-solving, decision-making, immersion, and emotional connection. All of these things boost creativity. The study showed that interactive fiction can not only be fun to read, but it can also be used as a learning tool that can boost college students' creativity and interest, which has significant impacts on both gaming and learning environments.

The present study provides substantial support for existing research findings. Li *et al.*, (2024) emphasized that digital educational games significantly enhanced student motivation and identified engagement as a critical factor in optimizing learning outcomes <sup>[22]</sup>. Similarly, Barr (2018) highlighted that games cultivated teamwork, problem-solving skills, and positive attitudes toward learning, particularly within higher education settings <sup>[23]</sup>. In contrast to previous studies, the study contributed significantly by experimentally demonstrating, through rigorous regression analysis, the direct and significant effects of interactive fiction on creativity and gaming engagement among college students.

Habsari *et al.*, (2024) <sup>[24]</sup> indicated that initiatives centered on fiction-based writing fostered higher-order thinking in junior high students. Meanwhile, Lin and Chen (2024) <sup>[25]</sup> demonstrated that AI-driven educational applications enhanced creative thinking and intellectual curiosity among both learners and educators. Furthermore, Alajmi and Albalushi (2024) <sup>[26]</sup> found that experimental programs rooted in science fiction promoted innovation among fine arts students and encouraged positive attitudes toward creativity. Arrambide (2019) <sup>[8]</sup> underscored the importance of interactive narratives in video games for improving decision-making and engagement, and noted the critical role of choice and agency in digital learning environments. The present study integrates the concepts of motivation, higher-order thinking, and engagement to provide a comprehensive understanding of how interactive fiction simultaneously fosters creativity, innovative thinking, and sustained participation.

## 7. Conclusion

The study indicated that IF markedly improves the creativity, imaginative cognition, and gaming involvement of college students. IF involves decision-making and emotional connection by letting players make choices, explore stories, and solve problems. These features not only make games more fun but also encourage creative and critical thinking. The results showed that young, tech-savvy students were especially interested in IF. The study showed that IF could be an innovative method to encourage

creativity and keep students interested, which is useful for both game designers and teachers.

Theoretically, the study contributed to Flow Theory and Reader-Response Theory by showing how interactive narratives create immersive states and enable players to co-construct meaning. By applying Flow Theory, the study showed that interactive narratives are capable of placing players in deeply immersive states, where concentration, challenge, and enjoyment merge. This advances the understanding of how flow can be generated not just through gameplay mechanics but also through narrative interactivity. From the perspective of Reader-Response Theory, the study demonstrated that players were not passive consumers of stories. This broadens the scope of the theory beyond traditional text to digital storytelling formats. Practically, the findings highlight opportunities for game developers to design more engaging experiences and for educators to integrate IF as a tool for enhancing creativity, critical thinking, and learner engagement. Thus, IF emerged as a valuable medium at the intersection of entertainment and education.

Despite its contributions, the study is limited to the urban student population of Kolkata and relies on self-reported data, which may be biased. Future research should broaden the scope by including rural and cross-cultural populations, adopting longitudinal or experimental methods, and exploring how demographic factors such as gender, discipline, or cultural background influence the impact of IF. Such work would deepen understanding of IF's educational and cognitive potential across diverse contexts.

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