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THE INFLUENCE OF PERCEIVED EASE OF USE, CHALLENGE, VARIETY, AND SOCIAL INTERACTION ON PERCEIVED ENJOYMENT IN ROBLOX

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Abstract: The rapid growth of the global gaming industry has intensified competition among digital game platforms, making user enjoyment a critical factor for sustained engagement. Roblox, as a large-scale user-generated gaming platform, offers diverse gameplay experiences and social interactions that may influence users' perceived enjoyment. This study aims to examine the influence of perceived ease of use, challenge, variety, and social interaction on perceived enjoyment among Roblox users. A quantitative research approach was employed using an online survey distributed to respondents aged 12–30 years who had prior experience playing Roblox. A total of 190 valid responses were analyzed using multiple linear regression with IBM SPSS Statistics. The results indicate that perceived ease of use, variety, and social interaction have significant positive effects on perceived enjoyment, while challenge does not show a significant influence. These findings suggest that enjoyment in a user-generated gaming platform is driven more by usability, content diversity, and social engagement than by perceived difficulty. The study contributes to the understanding of user experience in digital gaming platforms and provides practical implications for developers and content creators in designing strategies to enhance player enjoyment and long-term engagement.

Keywords: *Roblox, Perceived Ease of Use, Social Interaction, Perceived Enjoyment, Online Gaming*

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1. Introduction

The global gaming industry has experienced rapid growth in recent years, both in terms of the number of users and the diversity of available platforms. This expansion has been driven by technological advancement, increasing digital connectivity, and continuous innovation in game development. Easy access without time and location constraints further accelerates the adoption of digital games across different demographic groups (Hsiao & Chen, 2016). As a result, online games are no longer viewed merely as entertainment products but have become an integral part of modern digital lifestyles (Perdana, 2022).

Indonesia represents one of the most promising markets in the gaming industry. Government and industry data indicate a substantial increase in the number of gamers, rising from 121.7 million users in 2021 to 174.1 million in 2022, with projections reaching over 190 million users in the coming years (Adikara, 2024). Indonesia is also recognized as one of the fastest-growing gaming markets in Southeast Asia (Unity, 2015), with market value dominated by mobile gaming (Hilal, 2024). This growth reflects a broader shift toward digital leisure

activities and highlights the strategic importance of understanding user behavior and experience in gaming platforms.

Among the various online gaming platforms, Roblox has emerged as a prominent global ecosystem. Since its introduction in 2006, Roblox has evolved into a user-generated platform where players simultaneously act as creators, designing and sharing interactive virtual experiences (Aditiya, 2025; A., I. R., 2025b). The platform supports multi-device access, including personal computers and mobile devices, and offers both single-player and multiplayer modes (Sari, 2022). Roblox has demonstrated exceptional growth and engagement at a global scale. A. I. R. (2025a) reported that the total number of Roblox accounts has surpassed the current world population, illustrating the platform's massive reach. This expansion is accompanied by strong user activity, as Thoifur (2025) documented record-breaking levels of concurrent active players on the platform. Platform analytics further confirm this upward trend, with continuous increases in monthly active users, revenue, and overall platform performance throughout 2025, as reported by Knezovic (2025). In addition to platform-wide growth, individual games within the Roblox ecosystem have also achieved remarkable milestones. For instance, the game *Grow a Garden* recorded more than 21.6 million simultaneous players according to Purba (2025), and this achievement was further highlighted by Clinten (2025) as a new benchmark for player concurrency on the platform. Together, these indicators reflect Roblox's strong market presence, high user engagement, and the scalability of its user-generated content ecosystem.

Despite this rapid expansion and impressive engagement indicators, limited empirical research has systematically examined what drives perceived enjoyment in large-scale user-generated gaming platforms such as Roblox. While prior studies have explored user experience in online games, many of them focus on specific genres or isolated experiential factors. There remains a need for an integrated analysis that simultaneously considers usability, challenge, content diversity, and social interaction within a unified framework.

The rapid expansion of digital applications has also intensified competition within the app ecosystem, making user retention increasingly challenging. Purcell, Entner, and Henderson (2010) observed that the rise of app culture has fundamentally changed how users discover, adopt, and abandon digital applications, with users having easy access to a wide range of alternatives. This dynamic creates low switching costs and encourages users to frequently experiment with new applications rather than maintaining long-term loyalty. Supporting this perspective, adjust (2014) reported that a large proportion of mobile applications experience short life cycles, with many apps failing to retain users beyond the initial usage period. These findings suggest that sustained user engagement is difficult to achieve unless applications are able to deliver compelling and enjoyable user experiences from the early stages of adoption. This condition underscores the importance of perceived enjoyment as a central determinant of user engagement, satisfaction, and long-term participation. Enjoyment reflects users' intrinsic emotional responses during interaction and has been widely recognized as a key factor in the success of hedonic digital systems (Davis, 1989; Chinomona, 2013).

Previous studies in digital gaming and interactive systems have examined various factors influencing perceived enjoyment, including usability, content design, novelty, and social interaction. The Technology Acceptance Model proposed by Davis (1989) emphasizes perceived ease of use as a fundamental antecedent of positive user experience. In gaming contexts, Chinomona (2013) demonstrated that ease of play significantly enhances perceived enjoyment and continuance intention. Furthermore, research on interactive media highlights that content variety and novelty stimulate intrinsic motivation and sustained engagement

(Jiang, 2021). Social dimensions of online games also play an important role, as interaction, collaboration, and community formation can strengthen emotional attachment and enjoyment (Griffiths, Davies, & Chappell, 2011).

However, most prior studies have focused on specific game genres, traditional online games, or mobile applications, with relatively limited empirical attention given to large-scale user-generated platforms such as Roblox. Existing research has extensively examined usability and user acceptance in information systems and digital applications (Davis, 1989; Davis, Bagozzi, & Warshaw, 1992), as well as experiential motivations and loyalty in online gaming contexts (Huang & Hsieh, 2011). Other studies have emphasized the role of hedonic value and experiential design in shaping user satisfaction and engagement in digital environments (Bridges & Florsheim, 2008). Nevertheless, these factors are often investigated in isolation rather than being integrated into a comprehensive analytical framework that simultaneously captures usability, experiential diversity, and social interaction.

The unique structure of Roblox, characterized by massive user-generated content, heterogeneous gameplay experiences, and highly diverse user communities, suggests that determinants of enjoyment may operate differently compared to conventional games. Recent studies on Roblox have primarily explored its educational potential, platform commodification, and social implications, rather than focusing on holistic user experience and enjoyment mechanisms (Alhasan, Alhasan, & Al Hashimi, 2023; Syas & Yahsy, 2023). From a continuance perspective, sustained engagement in digital platforms is closely linked to users' post-adoption evaluations and experiential satisfaction (Bhattacherjee, 2001). However, empirical evidence explaining how multiple experiential factors jointly shape perceived enjoyment in user-generated gaming platforms remains limited. This gap highlights the need for an integrated examination of the drivers of enjoyment in platforms such as Roblox.

Based on this gap, the present study investigates the influence of perceived ease of use, challenge, variety, and social interaction on perceived enjoyment among Roblox users. By empirically examining these relationships, this study aims to contribute to the development of conceptual understanding regarding user experience in digital gaming environments and to provide practical insights for platform developers and content creators in designing strategies that enhance user enjoyment and long-term engagement.

2. Literature Review

2.1. Perceived Ease of Use

Perceived ease of use (PEOU) originates from the Technology Acceptance Model (TAM), where it is defined as the degree to which a person believes that using a system would be free of effort (Davis, 1989). Although TAM was initially developed for workplace technologies, subsequent research demonstrates that ease of use remains influential in hedonic contexts as well.

In enjoyment-oriented systems, perceived ease of use contributes not only to functional efficiency but also to affective experience. van der Heijden (2004) argues that in hedonic systems, ease of use can directly influence perceived enjoyment rather than merely acting as a precursor to perceived usefulness. Similarly, Venkatesh and Davis (2000) emphasize that usability remains a stable predictor of user evaluations even after users gain familiarity with a system.

Within gaming environments, intuitive controls and accessible interfaces reduce cognitive load, allowing users to focus on immersive and entertaining aspects of gameplay. Empirical research in online gaming contexts confirms that ease of play significantly enhances perceived enjoyment and continuance intention (Chinomona, 2013; Huang & Hsieh, 2011). Thus,

perceived ease of use is expected to positively influence perceived enjoyment in user-generated gaming platforms.

2.2. Challenge in Digital Games

Challenge represents a fundamental element in game design. Crawford (2003) describes challenge as a condition in which players' skills are tested through obstacles or tasks requiring effort and engagement. From a psychological perspective, optimal challenge is closely related to arousal and curiosity (Berlyne, 1960).

Flow theory further explains that enjoyment emerges when the level of challenge matches an individual's skill level (Csikszentmihalyi, 1990). When challenge is too low, users experience boredom; when it is too high, they may experience frustration. Therefore, challenge does not automatically guarantee enjoyment; rather, its effect depends on balance and individual differences.

In highly heterogeneous platforms such as Roblox, users engage with diverse game genres and motivations. Consequently, perceived challenge may produce varying experiential outcomes across users. This suggests that the relationship between challenge and perceived enjoyment may not always be straightforward and warrants empirical examination.

2.3. Variety and Experiential Diversity

Variety refers to the availability of diverse content, themes, and experiential options within a digital environment. Berlyne (1960) argues that novelty and complexity stimulate curiosity and exploratory behavior. In digital systems, content diversity can enhance intrinsic value by reducing monotony and sustaining engagement (Jiang, 2021).

Chung and Tan (2004) highlight that perceived playfulness and experiential richness influence users' affective evaluations of online platforms. Similarly, Huang (2003) demonstrates that experiential design attributes shape emotional responses and engagement in interactive environments.

In user-generated platforms such as Roblox, variety emerges from the continuous creation of new games, themes, and interactive features by users themselves. This structural diversity enables players to switch between genres and experiences, thereby sustaining long-term enjoyment. Consequently, variety is expected to positively influence perceived enjoyment.

2.4. Social Interaction in Online Gaming

Social interaction constitutes a critical dimension of online gaming experiences. Griffiths, Davies, and Chappell (2011) describe online games as social spaces in which cooperation, communication, and shared experiences enhance emotional engagement. Social presence and interpersonal connection transform gameplay from a solitary activity into a collective experience.

Research in digital environments indicates that social features such as collaboration, community formation, and communication tools significantly strengthen satisfaction and loyalty (Cyr, Head, & Ivanov, 2006; Yi, 2024). In online gaming contexts, social engagement often serves as a key motivator for continued participation (Huang & Hsieh, 2011).

Roblox incorporates multiplayer environments, in-game chat systems, collaborative building tools, and community events. These features facilitate interaction among users across geographical boundaries. Therefore, social interaction is theorized to positively influence perceived enjoyment in user-generated gaming ecosystems.

2.5. Perceived Enjoyment

Perceived enjoyment refers to the extent to which using a system is perceived as pleasurable in its own right, independent of any performance-related outcomes (Davis et al., 1992). In digital gaming environments, enjoyment represents a central intrinsic motivation that drives user engagement, satisfaction, and continued participation. Unlike utilitarian systems that emphasize efficiency or task completion, online gaming platforms are primarily experience-oriented, making affective responses particularly significant in shaping user evaluations (van der Heijden, 2004).

Prior research demonstrates that perceived enjoyment plays a crucial role in predicting continuance intention and loyalty in interactive systems (Bhattacherjee, 2001; Huang & Hsieh, 2011). When users derive pleasure from interacting with a platform, they are more likely to sustain engagement and develop positive attitudes toward the system. In online gaming contexts, enjoyment is closely associated with immersive experience, emotional engagement, and intrinsic value.

Given that Roblox operates as a user-generated gaming ecosystem offering diverse gameplay formats and social interactions, perceived enjoyment functions as a key outcome variable that captures users' overall experiential evaluation of the platform. Understanding the antecedents of perceived enjoyment is therefore essential for explaining sustained engagement within such digital environments.

2.6. Empirical Studies and Research Gap

Existing research on Roblox has primarily focused on educational applications, creative development, and social implications. Studies highlight its role in innovative learning environments and student engagement (Alhasan et al., 2023; Zhai, 2024). Other research examines motivational aspects and educational impacts among school-aged users (Mubaroq & Yohamintin, 2025; Yuliastika et al., 2023).

While these studies provide valuable insights into educational and social dimensions, limited empirical attention has been directed toward examining Roblox as a hedonic user-generated gaming ecosystem from a user experience perspective. Moreover, prior research often investigates usability, motivation, or social interaction separately rather than integrating these constructs within a comprehensive analytical framework.

Accordingly, this study addresses the gap by examining how perceived ease of use, challenge, variety, and social interaction jointly influence perceived enjoyment among Roblox users across diverse contexts. By integrating technology acceptance theory, experiential design perspectives, and social interaction frameworks, this research contributes to a more holistic understanding of enjoyment in user-generated gaming platforms.

3. Research Method

This study employed a quantitative research design to examine the direct effects of perceived ease of use, challenge, variety, and social interaction on perceived enjoyment among Roblox users. A quantitative approach was selected to enable objective measurement of relationships among variables and systematic hypothesis testing (Hair et al., 2010). Data analysis was conducted using multiple linear regression with IBM SPSS Statistics, which is widely applied in behavioral and social science research to assess the simultaneous influence of multiple predictors on a dependent variable (Field, 2017; Pallant, 2020).

Population and Sampling

The research population comprised individuals from various countries who had prior experience playing Roblox. Respondents were required to meet specific eligibility criteria: having played Roblox at least once, being between 12 and 30 years of age, and completing all questionnaire items. The selected age range reflects the dominant demographic profile of Roblox users, which largely consists of adolescents and young adults, thereby enhancing the representativeness of the findings for the platform's primary user segment.

A non-probability sampling strategy was applied by combining convenience sampling and purposive sampling, complemented by snowball distribution. Convenience sampling enabled efficient access to respondents through existing networks, while purposive sampling ensured that only participants meeting the predefined criteria were included in the analysis (Etikan, Musa, & Alkassim, 2016). Snowball distribution was employed to broaden participant reach by encouraging respondents to share the survey link with peers who were also Roblox users (Biernacki & Waldorf, 1981).

Data were collected through an online questionnaire administered via Google Forms and distributed through personal networks and Roblox-related Discord communities. Although responses were obtained from participants across multiple countries, including Indonesia, the Philippines, Thailand, Mexico, Brazil, the United States, and Germany, only eligible responses were retained for analysis. Data collection was conducted over an approximately three-month period. Participation was voluntary, and respondents were informed that their responses would remain anonymous and confidential, consistent with common ethical standards in survey research (Saunders, Lewis, & Thornhill, 2019).

The minimum sample size was determined using the indicator-based estimation guideline proposed by Hair et al. (2010), which recommends a minimum of five to ten observations per indicator in multivariate analysis. With a total of 19 measurement indicators, the minimum required sample size was calculated by multiplying the number of indicators by ten, resulting in a minimum of 190 respondents, which was satisfied in this study.

Measurement Instrument

Data were gathered using a structured questionnaire measured on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). A seven-point scale was selected to enhance response sensitivity and allow respondents to express more nuanced perceptions (Cox III, 1980). Prior psychometric studies have demonstrated that scales with a higher number of response categories tend to exhibit stronger reliability and validity compared to shorter scales (Chang, 1994; Preston & Colman, 2000).

The constructs examined in this study included perceived ease of use, challenge, variety, and social interaction as independent variables, and perceived enjoyment as the dependent variable. Measurement indicators were adapted from established studies in technology acceptance, intrinsic motivation, and digital experience research, with minor contextual adjustments to reflect the characteristics of the Roblox platform (Davis, 1989; Davis, Bagozzi, & Warshaw, 1992; Huang & Hsieh, 2011; Bridges & Florsheim, 2008). This adaptation process supports content validity by grounding the instrument in validated theoretical frameworks.

Validity and Reliability Testing

Instrument validity was examined using item–total correlation analysis based on Pearson correlation coefficients generated from IBM SPSS Statistics. An item was considered valid

when its correlation coefficient exceeded the critical value and its significance level was below 0.05, indicating that each indicator was able to represent the intended construct (Field, 2017).

Reliability testing was conducted using Cronbach's alpha to evaluate the internal consistency of each construct. A Cronbach's alpha value of 0.70 or higher was adopted as the minimum acceptable threshold for behavioral and social science research (Nunnally & Bernstein, 1994; Hair et al., 2010). Only indicators that met both validity and reliability criteria were retained for further regression analysis, ensuring the robustness and accuracy of the measurement instruments.

Data Analysis Procedure

Before conducting regression analysis, classical assumption tests were performed to verify that the data met the requirements for multiple linear regression, including tests of normality, multicollinearity, and heteroscedasticity (Field, 2017; Tabachnick & Fidell, 2013). Subsequently, multiple linear regression analysis was applied to examine the influence of perceived ease of use, challenge, variety, and social interaction on perceived enjoyment. This method allows the estimation of the relative contribution of each independent variable while controlling for the effects of other predictors in the model (Hair et al., 2010; Pallant, 2020).

4. Results and Discussion

4.1. Results

A total of 190 respondents participated in this study. The majority of respondents were male (75.79%), while female respondents accounted for 24.21%. The age distribution was relatively balanced, with 49.47% of respondents aged between 13 and 21 years and 50.53% aged between 22 and 30 years.

Participants came from diverse national backgrounds. Respondents from Indonesia represented the largest single-country group (19.47%), followed by participants from the Philippines and Thailand, each accounting for 8.42%. Smaller proportions of respondents were from Mexico (7.37%) and Germany (6.32%), while the remaining respondents were classified as "Others" (50.00%), indicating a broad international representation within the sample.

Regarding gaming devices, respondents were allowed to select more than one option. Mobile devices were the most commonly used platform (53.68%), followed by PCs (38.95%). Tablets or iPads (27.89%), laptops (23.16%), and consoles (14.21%) were also reported, suggesting that many respondents access games across multiple devices rather than relying on a single platform.

In terms of daily playing time, more than half of the respondents reported playing games for approximately 3–6 hours per day (56.32%). Around 27.89% of respondents played for 1–3 hours per day, while smaller proportions reported playing for more than 6 hours (13.68%) or less than 1 hour per day (2.11%).

Table 1. Respondent Demographics

Characteristics	Category	Frequency (n)	(%)
Gender	Male	144	75.79
	Female	46	24.21
	Total	**190**	**100%**
Age	13 – 21 years	94	49.47
	22 – 30 years	96	50.53
	Total	**190**	**100%**

Nationality	Indonesia	37	19.47
	Philippines	16	8.42
	Thailand	16	8.42
	Mexico	14	7.37
	Germany	12	6.32
	Others	95	50
	Total	**190**	**100%**
Device Used for Gaming	Mobile	102	53.68
	PC	74	38.95
	Laptop	44	23.16
	Tablet/Ipad	53	27.89
	Console	27	14.21
Playing Time per Day	<1 hour	4	2.11
	1 – 3 hours	53	27.89
	3 – 6 hours	107	56.32
	>6 hours	26	13.68
	Total	**190**	**100%**

Source: Processed Data (2025)

Overall, the sample represents a relatively young and internationally diverse group of gamers, many of whom spend several hours per day playing and access games through multiple devices.

Table 2. Descriptive Statistics

Variable	Items	Mean	Std. Deviation
Perceived Ease of Use	4	6.13	0.92
Challenge	3	6.04	1.06
Variety	3	6.15	0.97
Social Interaction	4	6.08	0.95
Perceived Enjoyment	5	6.17	0.91

Source: Processed Data (2025)

Descriptive statistics were calculated to examine the overall tendency of respondents' perceptions toward each construct. As presented in Table 2, all variables demonstrate relatively high mean scores, ranging from 6.04 to 6.17 on a seven-point Likert scale, suggesting generally positive evaluations. Perceived enjoyment recorded the highest mean (M = 6.17), followed by variety (M = 6.15) and perceived ease of use (M = 6.13). Social interaction also showed a high average score (M = 6.08), while challenge had the lowest mean among the constructs (M = 6.04), although it still reflects strong agreement. The standard deviation values ranged between 0.84 and 1.12 across items, indicating a moderate level of response variability. Overall, these findings suggest that respondents tend to perceive Roblox as easy to use, diverse in content, socially engaging, and generally enjoyable.

The validity of the measurement instruments was assessed using Pearson correlation between each indicator and its corresponding construct. An item is considered valid if the correlation coefficient exceeds 0.30 and the significance value is below 0.05. The results show that all indicators across perceived ease of use, challenge, variety, social interaction, and perceived enjoyment have correlation coefficients ranging from 0.705 to 0.840 with

significance levels below 0.001. These findings indicate that all measurement items are valid and appropriately represent their respective constructs.

Table 3. Validity Test Results

Variable	Indicator	Pearson Correlation (r)	Sig. (p-value)
Perceived Ease of Use	PEOU1	0.785	< 0.001
	PEOU2	0.705	< 0.001
	PEOU3	0.731	< 0.001
	PEOU4	0.787	< 0.001
Challenge	CH1	0.808	< 0.001
	CH2	0.827	< 0.001
	CH3	0.840	< 0.001
Variety	VAR1	0.795	< 0.001
	VAR2	0.795	< 0.001
	VAR3	0.815	< 0.001
Social Interaction	SI1	0.821	< 0.001
	SI2	0.773	< 0.001
	SI3	0.746	< 0.001
	SI4	0.819	< 0.001
Perceived Enjoyment	PE1	0.822	< 0.001
	PE2	0.779	< 0.001
	PE3	0.750	< 0.001
	PE4	0.781	< 0.001
	PE5	0.782	< 0.001

Source: Processed Data (2025)

Reliability analysis was conducted using Cronbach's alpha to assess internal consistency. The results showed that all constructs exceeded the recommended threshold of 0.70. Specifically, perceived ease of use achieved a Cronbach's alpha of 0.734, challenge 0.765, variety 0.722, social interaction 0.795, and perceived enjoyment 0.841. These findings confirm that the measurement scales are reliable and suitable for subsequent analysis.

Table 4. Reliability of Measurement Scales

Variable	Number of Items	Cronbach's Alpha
Perceived Ease of Use	4	0.734
Challenge	3	0.765
Variety	3	0.722
Social Interaction	4	0.795
Perceived Enjoyment	5	0.841

Source: Processed Data (2025)

The normality of residuals was assessed using the Kolmogorov–Smirnov test, which indicated that the residuals were normally distributed ($p > 0.05$). Multicollinearity diagnostics revealed that variance inflation factor (VIF) values ranged from 2.008 to 3.279 and tolerance values exceeded 0.10, confirming the absence of multicollinearity. Furthermore, heteroskedasticity testing using the Glejser method showed that all predictor significance

values were greater than 0.05, indicating that heteroskedasticity was not present. These results confirm that the regression model satisfies the classical assumptions.

Multiple linear regression analysis was employed to examine the effects of perceived ease of use, challenge, variety, and social interaction on perceived enjoyment. The model demonstrated a strong fit, with an R value of 0.843 and an R^2 value of 0.711, indicating that approximately 71.1% of the variance in perceived enjoyment is explained by the independent variables. The adjusted R^2 value of 0.705 further confirms the robustness of the model.

The overall regression model was statistically significant ($F = 113.932$, $p < 0.001$), indicating that the proposed model provides a good explanation of the observed data.

Table 5. Results of Multiple Linear Regression Analysis

Model	Standardized Coefficient (β)	t-value	p-value
Perceived Ease of Use	0.245	3.834	< 0.001
Challenge	0.045	0.808	0.420
Variety	0.359	5.024	< 0.001
Social Interaction	0.299	4.710	< 0.001

Source: Processed Data (2025)

Table 4 presents the standardized regression coefficients and significance values for each predictor. The results indicate that perceived ease of use has a significant positive effect on perceived enjoyment ($\beta = 0.245$, $p < 0.001$). Variety also exhibits a significant positive influence on perceived enjoyment ($\beta = 0.359$, $p < 0.001$). Similarly, social interaction demonstrates a significant positive effect on perceived enjoyment ($\beta = 0.299$, $p < 0.001$).
In contrast, challenge does not show a statistically significant effect on perceived enjoyment ($\beta = 0.045$, $p = 0.420$).

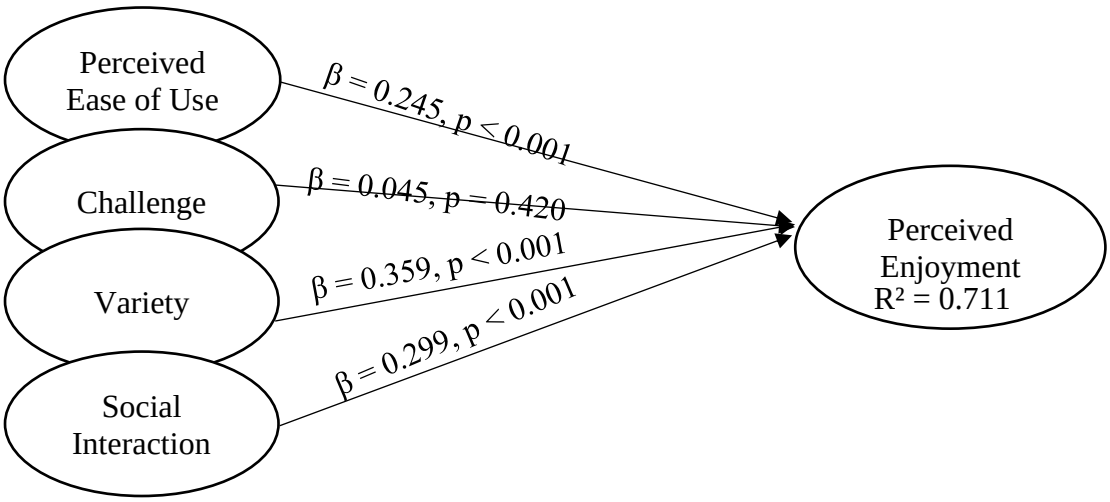

Figure 1. Research Model with Standardized Path Coefficients
Source: Processed Data (2025)

Figure 1 presents the research model with standardized coefficients and p-values obtained from the regression analysis. The visualization highlights that perceived ease of use, variety, and social interaction significantly influence perceived enjoyment, whereas challenge does not

show a significant effect. Overall, the model demonstrates strong explanatory power with an R^2 value of 0.711

4.2. Discussion

The This study examined the influence of perceived ease of use, challenge, variety, and social interaction on perceived enjoyment in the context of Roblox. The results indicate that perceived ease of use, variety, and social interaction have significant positive effects on perceived enjoyment, whereas challenge does not demonstrate a statistically significant effect. These findings highlight how usability, content diversity, and social engagement shape users' enjoyment in a user-generated gaming platform.

Perceived Ease of Use and Perceived Enjoyment

The significant relationship between perceived ease of use and perceived enjoyment aligns with the foundational logic of the Technology Acceptance Model introduced by Davis (1989), which explains that systems perceived as easy to use reduce cognitive effort and foster more positive user experiences. In hedonic systems, ease of use does not merely facilitate functional efficiency but also enhances intrinsic satisfaction. Expanding this view, van der Heijden (2004) argues that in enjoyment-oriented systems, perceived ease of use directly contributes to perceived enjoyment rather than acting only as an indirect determinant of behavioral intention.

Empirical evidence in gaming contexts supports this relationship. Chinomona (2013) demonstrated that ease of play significantly predicts perceived enjoyment and continuance intention among mobile game users. Similarly, Venkatesh and Davis (2000) emphasize that perceived ease of use remains a stable determinant of user evaluation even as users gain experience with a system. These findings collectively reinforce the notion that usability maintains long-term relevance for positive user experience.

Within Roblox, where users span wide age groups and technical backgrounds, intuitive interfaces and simple interaction mechanisms likely reduce entry barriers and learning costs. This allows players to explore content freely and focus on entertainment rather than operational complexity. The present findings therefore confirm that usability remains a fundamental driver of enjoyment even in complex, user-generated digital ecosystems.

Challenge and Perceived Enjoyment

Contrary to expectations, challenge did not show a significant effect on perceived enjoyment. One possible explanation relates to the heterogeneity of Roblox users. Roblox hosts a wide range of games, from casual and creative experiences to more complex and competitive gameplay. Users may engage with the platform for different purposes, such as socializing, creativity, or relaxation, rather than seeking high levels of difficulty. As a result, perceived challenge may not consistently translate into enjoyment across all user segments.

Another explanation may be that optimal challenge varies greatly among individuals. While challenge can enhance engagement when it matches users' skill levels, excessive or insufficient difficulty may reduce enjoyment. In a highly diverse platform like Roblox, the aggregated perception of challenge may become diluted, making its overall effect statistically insignificant. This finding suggests that challenge alone may not be a dominant determinant of enjoyment in open, user-generated gaming ecosystems.

In addition to its statistical non-significance ($p = 0.420$), the standardized regression coefficient for challenge ($\beta = 0.045$) indicates a negligible effect size. This suggests that although respondents generally perceive the presence of challenge in the game, its practical contribution to perceived enjoyment is minimal when considered alongside other predictors

such as ease of use, variety, and social interaction. Therefore, challenge may function as a complementary rather than a primary driver of enjoyment within the Roblox ecosystem.

Variety and Perceived Enjoyment

Variety emerged as the strongest predictor of perceived enjoyment in this study. This finding highlights the importance of content diversity and experiential novelty in sustaining user interest. Jiang (2021) argues that perceived interactivity and novelty enhance intrinsic value by stimulating curiosity and continuous engagement, particularly in digital entertainment environments. When users are exposed to diverse content options, they are more likely to explore, personalize their experiences, and avoid boredom.

In the context of social gaming, Gonçalves et al. (2023) emphasize that platforms offering broad interactive possibilities and varied game experiences tend to retain user attention more effectively. Roblox exemplifies this structure through its massive library of user-generated games that differ in mechanics, themes, and social dynamics. Players can easily switch between genres and styles, which allows them to adapt their gameplay to mood, social context, or personal preference.

The strong effect of variety in this study suggests that enjoyment is closely linked to the platform's ability to continuously provide new and diverse experiences. Rather than relying on a single type of gameplay, Roblox benefits from its open ecosystem, where creators continuously introduce fresh content. This dynamic variety appears to sustain long-term enjoyment and engagement among users.

Social Interaction and Perceived Enjoyment

Social interaction also demonstrated a significant positive influence on perceived enjoyment. The importance of social dimensions in online gaming has been widely documented. Griffiths, Davies, and Chappell (2011) describe online games as social spaces where interaction, cooperation, and shared experiences contribute strongly to emotional satisfaction and player engagement. Social connections can transform gameplay from an individual activity into a collective experience, amplifying enjoyment.

Further evidence is provided by Yi (2024), who found that community interaction and social communication significantly enhance user satisfaction and emotional attachment in mobile online games. Roblox supports similar mechanisms through multiplayer environments, in-game chat features, collaborative building tools, and community-driven events. These features enable users to form friendships, cooperate on tasks, and express creativity collectively.

The significant relationship observed in this study indicates that social engagement plays a central role in shaping perceived enjoyment on Roblox. Enjoyment is not solely derived from gameplay mechanics but also from interpersonal interaction and shared digital experiences.

Theoretical and Practical Implications

From a theoretical perspective, this study supports the integration of technology acceptance perspectives with gaming experience and social interaction theories. The influence of perceived ease of use aligns with the usability logic proposed by Davis (1989), while the effects of variety and social interaction reflect intrinsic motivation and social presence perspectives discussed by Jiang (2021) and Griffiths et al. (2011). This combined view suggests that enjoyment in user-generated platforms is shaped by both system usability and experiential richness.

Practically, the findings suggest several concrete directions for platform developers and game creators. To strengthen perceived ease of use, designers may simplify navigation structures, reduce onboarding complexity, and provide adaptive tutorials tailored to different age groups and experience levels. Given the strong influence of variety, platform managers should support continuous content innovation by enhancing creator tools, organizing thematic events, and utilizing recommendation algorithms that expose users to diverse game genres. In terms of social interaction, implementing collaborative missions, community-based reward systems, customizable social spaces, and effective moderation mechanisms may further foster peer engagement and emotional attachment. Rather than relying primarily on increasing game difficulty, developers may consider offering flexible gameplay options that allow users to adjust levels of challenge according to their preferences. These practical strategies indicate that enjoyment in user-generated platforms can be intentionally designed through usability refinement, dynamic content management, and socially oriented platform architecture.

Limitations and Future Research

Several limitations should be acknowledged. The cross-sectional nature of the data restricts causal interpretation, and self-reported responses may introduce perceptual bias. Although the sample included participants from multiple countries, the distribution across regions was uneven. Future studies may adopt longitudinal designs, segment users based on motivation or experience, and incorporate additional constructs such as immersion or flow to deepen understanding of enjoyment in digital gaming environments.

5. Conclusion

This study examined the influence of perceived ease of use, challenge, variety, and social interaction on perceived enjoyment in the context of Roblox. The findings indicate that perceived ease of use, variety, and social interaction have significant positive effects on perceived enjoyment, while challenge does not demonstrate a significant influence. These results confirm that user enjoyment in a user-generated gaming platform is primarily shaped by system usability, diversity of content, and the quality of social engagement rather than by gameplay difficulty alone. From a practical perspective, platform developers and content creators are encouraged to prioritize intuitive interface design, continuous content innovation, and features that facilitate meaningful social interaction in order to enhance player satisfaction and sustained engagement. From an academic perspective, future research may expand this model by incorporating additional experiential or psychological variables and by applying alternative methodological approaches to further enrich the understanding of enjoyment dynamics in digital gaming environments.

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