Transforming Play into Financial Learning: Non-Formal Educational Insights from GTA V Online

Wildan Ifkarun Nadhif Adz-Dzakky[1], Eko Suroso[2]

[1,2]Indonesian Language and Literature Education, Muhammadiyah University of Purwokerto, Indonesia

ABSTRACT

Digital games are increasingly recognized as potential tools for non-formal learning, including enhancing financial literacy and social skills. This study was conducted to explore how Grand Theft Auto V Online, as a popular commercial game, can serve as a medium for non-formal education that facilitates understanding of digital economy concepts and financial literacy. Employing a qualitative approach with a descriptive design, the research involved participant observation where the researcher actively engaged as a player, supplemented by field notes and visual documentation as data collection techniques, analyzed through thematic analysis. The findings revealed that GTA V Online players engage in financial decision-making, management of virtual businesses, application of passive income strategies, and development of social skills through collaborative interactions. These results indicate that GTA V Online holds significant potential as a non-formal learning medium integrating entertainment with educational processes, although challenges remain regarding sensitive content and the necessity for appropriate pedagogical frameworks. This study contributes to expanding the understanding of commercial games as alternative educational tools while opening avenues for future research to quantitatively assess impacts and design more inclusive and safe pedagogical approaches.

Corresponding Author:

Wildan Ifkarun Nadhif Adz-Dzakky
Indonesian Language and Literature Education, Muhammadiyah University of Purwokerto, Indonesia
K.H. Ahmad Dahlan Street, Dukuhwaluh, Kembaran, Banyumas, Central Java, Indonesia
Email: wildanzakizaki@gmail.com

Introduction

Non-formal education (NFE) has become a crucial pillar in lifelong learning, offering flexible, contextual, and learner-centered opportunities beyond the confines of often rigid formal education systems (Botezatu, 2023; Safitri et al., 2024). NFE contributes significantly to building social capital in marginalized communities (Sabihee Shahid et al., 2022), strengthening character and moral education (Rejeki & Srisulistiowati, 2022), and creating inclusive learning environments for learners with special needs (Rivas & Pérez, 2022). Psycho-pedagogical theories such as cooperative learning and humanistic approaches, alongside psychological frameworks including behaviorism, constructivism, and socio-cognitive perspectives, shape our understanding of how individuals learn in non-traditional contexts (Botezatu, 2023). Despite its significant potential, NFE faces considerable challenges, including limitations in infrastructure, funding, institutional recognition, and consistency in implementation quality (Ríos-Ramírez, 2023).

At the same time, financial literacy has been increasingly recognized as an essential component of human capital, significantly affecting individuals' capacity to manage personal finances and contributing to broader economic well-being (Islam et al., 2022; Lusardi & Mitchell, 2013). Financial literacy encompasses not only theoretical knowledge but also practical skills and attitudes necessary for making prudent financial decisions, integrating cognitive, behavioral, and socio-economic dimensions (Ahamed, 2025; Islam et al., 2022). The Theory of Planned Behavior (TPB), for instance, highlights the influence of attitudes, subjective norms, and perceived behavioral control on financial decision-making (Gallegos et al., 2025; Tanri & Evi Marlina, 2022). However, literature also reveals significant gaps in financial literacy levels across demographic groups, which have become even more complex with the emergence of digital financial systems requiring new competencies to navigate online platforms (Ahamed, 2025; Clark, 2018). This situation underscores the urgency of exploring innovative approaches that can enhance financial literacy in a more inclusive and effective manner.

In recent decades, Game-Based Learning (GBL) has emerged as an innovative pedagogical approach proven effective in increasing motivation, engagement, and conceptual understanding among learners across various disciplines, including language education (Arzhangi & Ghanizadeh, 2025; Rajendran et al., 2024), legal studies (Montagu-Cairns, 2025), nursing (Chiao & Niu, 2024), and experimental sciences ((Syropoulos-Charisis & Syropoulos, 2024). Through immersive learning experiences, GBL has demonstrated its capacity to cultivate critical thinking, problem-solving, and creativity among learners (Peng, 2023). This approach aligns closely with experiential learning theory, which emphasizes active engagement, reflection, and practical application as essential pathways to deep learning (Anggreni, 2020; Kolb, 2015; Salimon, 2022). Nevertheless, the implementation of GBL presents challenges, such as the need for precise instructional design, technological limitations, and the requirement for

professional development among educators to ensure that game-based learning effectively aligns with educational goals (Mikrouli et al., 2024; Ward, 2022).

Although extensive research has explored financial literacy and the application of GBL, there remains a significant research gap regarding how commercial entertainment games, such as Grand Theft Auto V Online (GTA V Online), can function as non-formal educational spaces that organically foster financial awareness and understanding of digital economy concepts (Hariyono & Arviani, 2024; Hidayat et al., 2024; Rahman et al., 2021). Previous studies have predominantly focused on serious games or educational games specifically designed with explicit learning objectives (Ponticorvo et al., 2022; Raybourn et al., 2011), whereas the potential of commercial games, which are rich in complex economic mechanisms yet primarily intended for entertainment, has received limited attention as a medium for non-formal learning. In fact, GTA V Online offers a virtual ecosystem with a complex economic system, encompassing asset management, passive income strategies, and risk-based decision-making processes that reflect real-world economic dynamics (Zimmerman, 2009; Rasyid, 2022).

This study is designed to address this gap by examining how GTA V Online can transform gaming activities into meaningful financial learning experiences. This research is significant because it offers a novel approach to enhancing financial literacy through a medium that is popular and familiar to younger generations, while also contributing to academic discourse by expanding understanding of how digital environments, particularly commercial games, can be optimized as tools for non-formal education. The study also aspires to produce findings that not only enrich academic literature but also provide practical recommendations for educators, policymakers, and researchers interested in leveraging digital games as innovative educational media.

Methods

This study employed a qualitative approach with a descriptive design, deemed most appropriate for exploring the meanings and processes underlying players' experiences in utilizing Grand Theft Auto V Online (GTA V Online) as a medium for non-formal learning, particularly regarding financial literacy and understanding of the digital economy (Creswell, 2018). The qualitative approach was chosen because it enables researchers to collect in-depth data, understand participants' perspectives, and capture the complexity of social phenomena within real-life contexts (Denzin & Lincoln, 2018). The strength of this method lies in its capacity to reveal patterns of meaning that are often difficult to detect through quantitative approaches, especially when the research object involves rich social interactions such as economic activities in the virtual gaming world.

Data were collected through participant observation, where the researcher actively engaged as a player in GTA V Online to document various virtual economic activities, including asset management, business missions, and passive income strategies

conducted within the game. In addition to observation, the researcher maintained personal reflections in the form of field notes, recording experiences, decision-making analyses, and interpretations of the economic mechanisms encountered during gameplay. Visual documentation in the form of screenshots was also utilized as supporting data to validate findings and provide visual evidence of in-game activities under analysis (Jing & Xin-ying, n.d.). The collected data were subsequently categorized into themes related to financial literacy, digital economy, and non-formal learning processes occurring organically through player interactions within the game.

Data analysis was conducted using thematic analysis, involving stages of coding, categorization, and interpretation to identify patterns of meaning, dominant themes, and relationships between concepts emerging from the GTA V Online gaming experience (Braun & Clarke, 2019). Thematic analysis was selected for its flexibility and effectiveness in analyzing experiential qualitative data, allowing deeper interpretations of complex social phenomena (Nowell et al., 2017). To ensure ethical considerations, the researcher safeguarded the privacy of other players whose activities appeared in the game by anonymizing identities or usernames shown in screenshots and refraining from sharing any personal data of third parties without consent. This methodological framework is intended to facilitate the replication of the study by other researchers interested in exploring the role of commercial digital games as a medium for non-formal financial literacy education.

Result

Financial Decision-Making

This study found that one of the most prominent dynamics within GTA V Online lies in the players' active involvement in complex and diverse financial decision-making processes. Players are consistently engaged in determining the optimal timing to sell virtual business products, considering price fluctuations influenced by the actions of other players, and assessing the risk of potential sabotage or interference from virtual competitors. In practice, players often face situations where they must decide whether to sell quickly for immediate profits or wait for specific moments to achieve higher margins. These decisions frequently involve analyzing behavioral patterns of other players, observing transaction trends, and calculating the potential losses resulting from third-party interventions.

Moreover, players must make strategic choices regarding how to allocate their available capital. Some prefer to invest in upgrading business facilities, such as accelerating production processes or expanding storage capacities, while others choose to keep funds reserved for unforeseen expenses. This decision-making process fosters players' critical thinking, risk analysis, and consideration of multiple variables influencing profit or loss. Figure 1 displays the Sell Product menu screen in GTA V Online, showing

product sale prices, distribution costs, and the risks of interference from other players. This visual supports the finding that players are genuinely engaged in calculating risks and strategizing optimal timing for sales transactions.
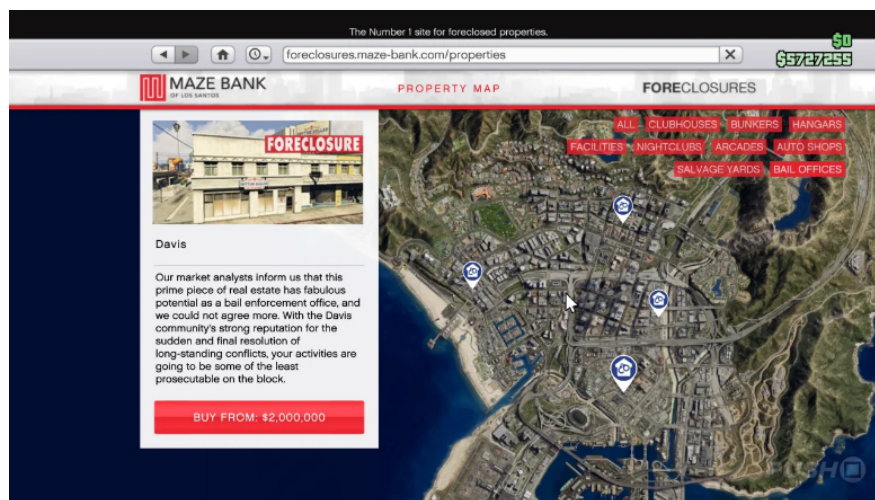

Figure 1. The Sell Product menu screen in GTA V Online, showing estimated sale prices, distribution costs, and potential profits.

Business Simulation and Financial Management

Another significant finding is how GTA V Online serves as a sophisticated and realistic business simulation platform. Players have opportunities to establish various types of virtual businesses, ranging from bunkers producing weapons, to nightclubs generating steady revenue, to security service companies offering protection services to other players. Each business type possesses unique characteristics, including specific initial capital requirements, daily operational costs, risks of raids by virtual authorities, and differing net profit margins. Through these simulations, players are compelled to manage supply chains, monitor cash flows, and make business decisions that directly impact the stability of their virtual finances.

Additionally, players learn the importance of business diversification as a strategy to mitigate risks. Many players choose not to rely solely on a single business but instead operate multiple enterprises to ensure stable income streams even when one business experiences disruptions. Figure 2 depicts the Night Club business dashboard, showing weekly total income, maintenance costs, and performance graphs. This visual reinforces the finding regarding the complexity of business simulations in GTA V Online and illustrates how players observe various financial indicators to optimize their profits. Managing these virtual businesses teaches essential principles relevant to real-world entrepreneurship, such as break-even analysis, calculating return on investment (ROI), and evaluating business strategies' effectiveness.
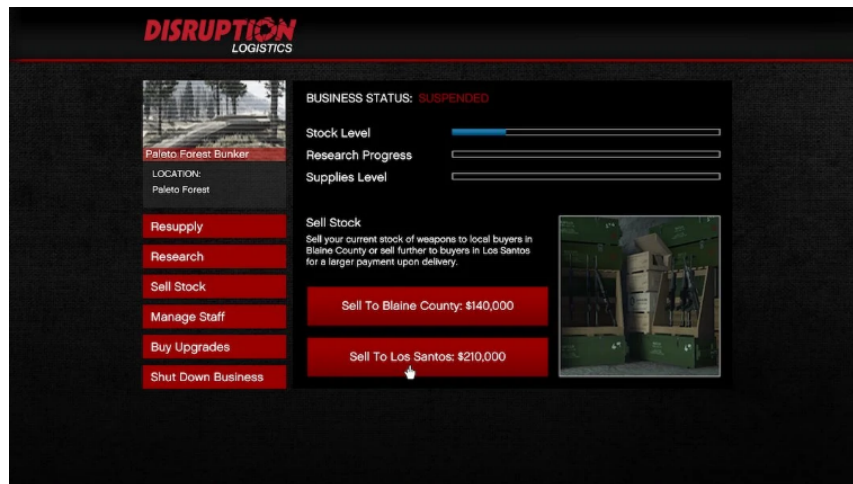
Figure 2. The Night Club business dashboard in GTA V Online, displaying weekly income, maintenance costs, and business performance graphs.

Passive Income Strategies

Another intriguing aspect uncovered in this research is how GTA V Online introduces the concept of passive income to its players. Within the game, certain businesses, such as nightclubs, generate regular profits automatically without requiring the player's active daily engagement. However, despite being categorized as passive, these businesses still demand substantial initial investments and periodic maintenance expenses to remain profitable. Players must calculate whether the maintenance costs are justified by the recurring profits generated over time.

This phenomenon educates players on the significance of creating residual income streams—a fundamental principle in modern financial literacy. Figure 3 shows the passive income report from the Night Club business, illustrating consistent income flows automatically generated by the business operations. This visual underscores how GTA V Online offers a tangible simulation of passive income concepts, raising players' awareness of long-term investment strategies. Players gain insights into how assets can generate profits even without direct involvement, and the importance of diversifying income sources as a strategy for coping with economic uncertainty.
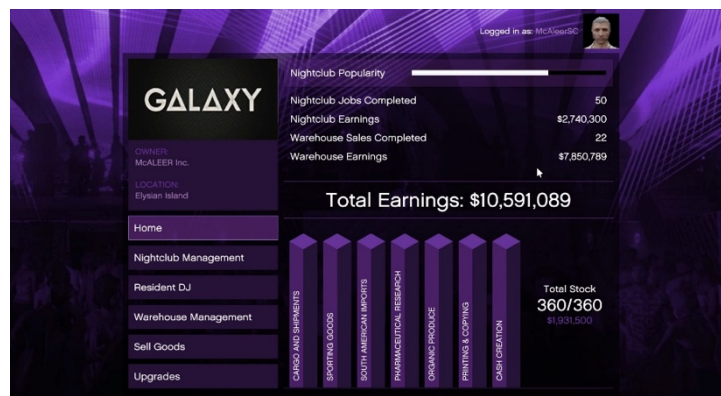

Figure 3. Passive income report from the Night Club business in GTA V Online, showing automatically generated recurring profits.

Social Skills in the Digital Economy Context

Beyond financial aspects, this research revealed that GTA V Online serves as a dynamic social learning environment rich in interactions. Players frequently engage in negotiations, collaborate in business missions, and devise joint strategies to navigate competition or overcome in-game challenges. These interactions train players in communication skills, collective decision-making, and adaptability in fast-paced and uncertain situations. The study recorded numerous instances where players conversed via chat or voice communication to coordinate strategies, assign roles, and negotiate how profits from business missions would be distributed.

More than mere social interactions, these experiences instill essential values such as trust, leadership, and solidarity within the context of the digital economy. If available, Figure 4 could depict in-game chat interactions among players discussing business strategies or profit-sharing agreements, serving as tangible evidence of how communication and negotiation skills are developed within the game. Overall, these findings demonstrate that GTA V Online holds significant potential not only as a medium for financial literacy education but also as a platform for nurturing social-emotional skills highly relevant in the modern digital economy. This strengthens the understanding that non-formal learning through digital games can create holistic educational environments integrating cognitive, emotional, and social dimensions simultaneously.

Discussion

The findings of this study reinforce the perspective that game-based learning (GBL) possesses significant potential for enhancing financial literacy through engaging, contextual, and profound experiences. Players' involvement in GTA V Online in making financial decisions, managing capital, and formulating investment strategies reflects the practical application of financial literacy principles in a virtual context. This is consistent with prior studies indicating that GBL effectively teaches financial concepts across various age groups, from young children to adults, due to its capacity to simulate real-life scenarios that foster critical thinking and decision-making (Fitriah et al., 2023; Ramli et al., 2023; Reuter et al., 2022). However, unlike educational games explicitly designed as instructional tools, GTA V Online demonstrates how commercial games can serve as unintended yet effective spaces for non-formal learning, filling a research gap that has previously received limited attention.

This research also discovered that GTA V Online is not merely a medium for entertainment but has evolved into a sophisticated business simulation environment that teaches relevant financial management skills applicable to real-world scenarios. Activities involving the management of virtual businesses, monitoring cash flows, and making decisions related to business diversification align with previous findings that emphasize the importance of practical experience in financial education (Oktaviani et al., 2024). GTA

V Online creates a learning environment that mirrors experiential learning practices, as outlined in Kristian Kiili's model, where direct experience, relevant challenges, and immediate feedback foster deeper understanding (Kiili, 2005). This indicates that integrating game mechanisms with reflective practices can effectively develop managerial skills even within a non-formal, digital setting.

Furthermore, the concept of passive income emerging from GTA V Online constitutes one of the study's most significant findings, aligning with modern financial literacy perspectives on the importance of diversifying income sources to ensure economic stability. Through automated business features, players are introduced to the notion of long-term investment thinking and strategies for building assets that generate residual income without constant active engagement. This finding expands existing evidence suggesting that GBL is not only effective in transmitting knowledge but also in shaping practical financial mindsets, as highlighted in literature emphasizing how direct, risk-free experiences can enhance understanding of financial concepts (Platz et al., 2021). However, employing commercial games as learning tools raises new questions about how to maintain educational objectives without blurring moral values, given the presence of violent or criminal themes in GTA V's content.

From a social perspective, this study underscores that GTA V Online serves as a rich learning space for developing social skills such as communication, negotiation, leadership, and collaboration. This supports literature indicating that digital games are not merely entertainment platforms but also vehicles for social-emotional learning, reinforcing interpersonal competencies within the context of the digital economy (Aranda & Sánchez-Navarro, 2008; Rooij & Dijk, 2017). Players engage in collaborative strategy formulation, role-sharing during business missions, and managing conflicts of interest, all of which mirror dynamics present in modern professional environments. Nonetheless, challenges remain in maximizing the educational potential of such games while minimizing exposure to inappropriate content, ensuring that learning experiences remain inclusive and equitable, as several studies have critiqued regarding limitations in access, gender representation, and pedagogical challenges in GBL (Virnanda et al., 2023; Voulgari & Yannakakis, 2019).

Although this study offers valuable contributions by illustrating how commercial games like GTA V Online can serve as non-formal learning tools, it is not without limitations. The research employed a qualitative approach, focusing on the researcher's observations as an active player, thereby limiting the generalizability of its findings. Additionally, the study did not incorporate in-depth interviews with other players, which could have provided diverse perspectives. Future research is recommended to explore how demographic characteristics such as age, gender, or educational background influence how players perceive financial learning within the game. Moreover, quantitative studies are necessary to measure the tangible impact of GTA V Online on players' financial

literacy levels. From a practical standpoint, these findings present opportunities for educators, policymakers, and content developers to consider leveraging commercial games as alternative educational media, while emphasizing the need for clear ethical and pedagogical frameworks to mitigate the risks associated with potentially inappropriate content.

Conclusion

This study concludes that Grand Theft Auto V Online holds significant potential as a non-formal learning medium capable of enhancing financial literacy and social skills through direct experiences within a complex and dynamic virtual economic environment. The findings demonstrate that players engage in financial decision-making, business simulations, passive income strategies, and social interactions that cultivate communication and collaboration skills, collectively fulfilling the research objective of exploring the educational function of commercial games beyond mere entertainment. This research contributes to the body of knowledge on game-based learning by expanding the understanding that commercial games can also serve as effective alternative educational tools. Nonetheless, the study acknowledges its limitations and recommends further research to investigate the quantitative impacts of such games on financial literacy and to develop safe and inclusive pedagogical frameworks for their use as non-formal learning media.

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