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Development of the "Khaira's FinLit Go" Game for Financial Literacy

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Abstract

Financial literacy defines an individual's capacity to effectively utilize knowledge and skills to make informed financial decisions aimed at attaining financial well-being. This study aims to develop an Excel-based educational game called Khaira's FinLit Go to enhance students' comprehension and awareness of financial management. The game's development employs an iterative approach, progressing through stages that include studying literature, needs assessment, prototyping, and further evaluation and improvement of features. This game entails the duties of lecturers or educators and the allocation of responsibilities within groups to foster an engaging and pleasurable learning environment. The end results indicate that the utilization of this game enhances participants' comprehension of individual and collective financial management.

Keywords educational game, excel, financial literacy, iterative method, quality education.

1. Introduction

Enhancing financial literacy is essential for attaining the fourth Sustainable Development Goal (SDG) regarding quality education, particularly target six on universal literacy and numeracy. Financial literacy has become an essential competency that society must acquire. The national financial literacy index for 2025 is 66.46%, reflecting a rise from 65.43% in 2024 (Ishaqi and Rini, 2025). Enhancing financial literacy is necessary for attaining the fourth Sustainable Development Goal (SDG) concerning quality education, particularly target six on universal literacy and numeracy. Financial literacy has become an essential competency that society must acquire. The national financial literacy index for 2025 is reported as 66.46%, reflecting an increase from 65.43% in 2024 (Ishaqi and Rini, 2025).

With technological progress, the utilization of technology-driven financial services (fintech), especially peer-to-peer lending and online loans, is on the rise in Indonesia. As of June 2024, the value of online loans was recorded at Rp66.79 trillion, rising dramatically to Rp80.02 trillion by March 2025, while the non-performing loan rate remained stable at 2.77% (Dwi & Ariyani, 2024; CNN Indonesia, 2025). Nevertheless, a troubling phenomena has arisen: a segment of debtors who deliberately fail to fulfill their loan obligations. The primary cause is the accrual of interest and penalties, resulting in the escalation of debt. Social media groups that explicitly campaign for default are becoming more common, exemplified by the Facebook group "Galbay" - an abbreviation of "Gagal Bayar" (Chaniago, H., and Kamal, 2025). Such behavior is not only unethical but also risks the borrower's reputation.

e-ISSN: 3026-4499
Vol. 3
21-23 Oktober 2025

Conversely, consumer behavior in society remains elevated. A considerable proportion of individuals acquire consumer goods using debt financing. This elevated consumption is also evident in the diminished savings and investment rates. Investment remains feasible even with restricted income, provided that financial management is executed judiciously. Investment vehicles can encompass gold, real estate, equities, fixed-income securities, and mutual funds. The most advantageous investments encompass not just financial resources but also knowledge, character, and mental fortitude (Baid, 2020). Self-development through education, analytical reasoning, robust character, and mental well-being constitutes a significant long-term investment. This is not merely a motivational slogan, but a genuine method that produces exponential returns, akin to the effect of compound interest.

Students, as the future generation of the nation, have significant potential to act as catalysts for change in promoting financial literacy across society. Nonetheless, the reality is that numerous students still possess insufficient financial literacy. This is seen in consumerist behavior, imprudent utilization of pay-later services, and limited engagement in knowledge investment activities such as purchasing textbooks, attending seminars, or enrolling in paid certification programs. The inadequate financial literacy in Indonesia, particularly among students, has raised concerns among various interested parties (Otoritas Jasa Keuangan, 2022).

Several efforts have been undertaken to tackle this issue, including outreach programs, seminars, and the incorporation of financial literacy into the university curriculum. Nevertheless, creative and engaging methods, such as the incorporation of instructional games, should be contemplated. Educational games have proven efficacy as a tool for conveying financial literacy concepts in an engaging and understandable ways.

Santos et al. (2024) have developed the Financial DreamScape game using the Unity game engine for young people aged 18 to 24. This game includes a series of engaging puzzles to learn key financial principles, educating players about important financial concepts such as budgeting, managing expenses, saving, and investing. Lisana et al. (2025) have also developed a financial literacy game for Generation Z and found that the game can improve financial knowledge and user satisfaction. The game utilizes software developed with Android Flamingo, designed for financial planning, cash flow, emergency funds, saving, and investment scenarios. Several previous studies have developed and implemented financial literacy games such as Financial Football and Money Magic. However, the game hasn't yet included important elements like debt management, educational investment, and giving alms. Additionally, the approach used is individualistic, without elements of collaborative learning or differentiated roles within the group.

The educational game that will be developed in this research is designed to integrate financial literacy, including debt literacy, spending literacy, investment literacy in financial assets, and also investment in knowledge. The cost of education is a form of investment. Knowledge can elevate a person's status, as stated in the verse of Allah SWT in Surah Al-Mujadilah (58):11: "Allah will elevate the status of those who believe among you and those who are given knowledge by several degrees."

e-ISSN: 3026-4499
Vol. 3
21-23 Oktober 2025

Currently, no research has developed learning media for financial literacy that utilizes a simple Excel-based game combined with a traditional game approach, which is rich in educational and contextual values. In fact, the experience of using traditional games like Monopoly® in a classroom setting can provide some insight into students' different personalities, such as the roles introverted and extroverted students play (Shanklin and Ehlen, 2017).

Oleh karena itu, penelitian ini akan mengisi celah tersebut dengan menawarkan alternatif pembelajaran yang inovatif dan bersifat kolaboratif. Tujuannya adalah untuk menumbuhkan dan mengembangkan literasi keuangan mahasiswa. Sasmito (2023) menyebutkan bahwa permainan tradisional dapat secara signifikan meningkatkan literasi peserta didik.

2. Literature Review

Financial literacy is a combination of knowledge, skills, and attitudes that every individual, including students, needs to possess in order to make wise financial decisions and achieve financial well-being. Financial literacy refers to a person's ability to process economic information and make sound decisions regarding financial planning, wealth accumulation, debt management, and retirement planning (Lusardi & Mitchell, 2014). Furthermore, financial literacy reflects an individual's capacity to understand and manage various financial aspects, ranging from planning and using financial products to making investment decisions and managing risk (Lusardi & Mitchell, 2014). Huston (2010) emphasises that financial literacy encompasses not only knowledge but also an individual's ability to effectively apply financial knowledge and skills in making decisions that impact financial well-being throughout life. This includes budgeting, spending, borrowing, saving, investing, and long-term financial planning. In a world filled with risks, making the right decisions is essential, especially for budgeting, saving, investing, spending, borrowing, future planning, and giving alms. Financial literacy has been proven to influence a person's investment and borrowing behaviour (Fachrudin & Silalahi, 2021). People with good financial literacy will have strategies to smooth out their income flow and tend to avoid using credit cards for basic needs like food and utilities (Atkinson & Messy, 2012).

Generally, financial literacy encompasses important aspects of financial planning, such as how to earn income, spend money wisely, save, invest—both in assets and self-improvement—donate or give alms, and prepare for unexpected expenses. In the Indonesian context, almsgiving can be given to the poor, individuals experiencing distress, disaster victims, or even in the form of gifts to online transportation drivers as a form of social solidarity (Fachrudin et al., 2022). The behaviour of donating and almsgiving is a manifestation of philanthropic culture in Indonesia (Fachrudin and Erlina, 2025).

One component of financial literacy is debt literacy, which is a person's ability to understand the types of debt, how interest works, and effective debt management strategies (Lusardi & Tufano, 2015). Individuals with high debt literacy are able to recognize debt payment due dates, calculate the cost of debt capital, manage installments according to income, and use debt only for essential needs, not for consumption alone. Good debt management reflects self-control and mature financial planning. Conversely, low financial literacy is associated with excessive debt

e-ISSN: 3026-4499
Vol. 3
21-23 Oktober 2025

or over-indebtedness (Galariotis & Monne, 2023), which can lead to financial difficulties.Game-Based Learning and Financial Literacy

In education, game-based learning has been used extensively to improve students' motivation, engagement, and comprehension of the subject matter (Gee, 2003). Five principles must be applied when learning through video games, according to Gee (2003) the principles of active and critical learning, design, semiotics, semiotic domains, and metalevel approaches to semiotic domains. The learning environment is designed to promote critical and active learning, provide a positive experience, emphasize the interrelation of various sign systems such as words, images, actions, and symbols as a complex system, encourage group participation and involvement, and require deep learning that includes reflective thinking—going beyond mere content understanding to encompass how that content relates to other fields. Game-based learning is quite successful at improving knowledge in various subjects, such as accounting (Hernandez et al., 2020) and financial literacy (Lisana et al., 2025).

Plass et al. (2015) explain that game-based learning cannot be explained from a single perspective, but requires a multi-disciplinary approach. There are four main theoretical foundations used : the cognitive foundation, which focusses on optimising cognitive thinking processes so that game players can build meaningful knowledge; the motivational foundation, which focusses on increasing learning motivation by creating enjoyable, challenging experiences that make players want to keep playing and learning; the affective foundation, which involves players' emotions, attitudes, and beliefs, which greatly influence the learning process and outcomes because it creates a deeper, more enjoyable, and meaningful learning experience; and the sociocultural foundation, which focusses on a rich and contextual social environment that encourages players to interact, collaborate, and apply cultural values in the learning process.

There are six main elements in game design for learning, namely game mechanics, visual aesthetic design, narrative design, incentive system, musical score, and content and skills (Plass et al., 2015). Game mechanics in this context means that there are activities players perform repeatedly in the game. Visual aesthetic design encompasses visual elements such as the look and feel of the game and its characters, which function cognitively and emotionally. Narrative design is the design of a storyline developed through features that provide contextual information for learning, connecting gameplay rules, characters, tasks, events, and incentives. The incentive system in a game encompasses various motivational elements aimed at encouraging players to compete with each other within the game. Incentives can take the form of scores (points), stars, badges, trophies, power-ups, and various other rewards. The musical score in a game is the background music used to guide players to specific important moments in the game, signal danger or opportunity, trigger positive or negative emotions, or indicate success or failure in a particular task. Content and skills in a game are the learning materials and skills designed to be taught through the game.

Using Excel in Interactive Learning. Excel is one of the most widely used software applications in interactive learning because it is flexible, accessible, and can be used to simulate various

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Vol. 3
21-23 Oktober 2025

financial scenarios (Al-Busaidi, 2012). Using Excel in financial simulations allows learners to understand financial concepts through hands-on practice, such as investment calculations, transaction recording, and portfolio analysis. Excel features like RANDBETWEEN can be used to easily roll dice, although you can also use physical dice, depending on the player's preference. Additionally, there's also an insert comment feature to add options to each box. The Excel display is also good for showing on a screen via an LCD or large TV in the classroom, which will make it easier for all participants to see than if using a manual game board.

Iterative Methods in Educational Game Development. Iterative methods in software development, including educational games, involve a cyclical process of designing, testing, evaluating, and refining the product (Sommerville, 2016). This approach is considered effective because it allows developers to adjust game features and mechanics based on user feedback, resulting in a game that is more tailored to the needs and characteristics of learners (Fullerton, 2014).

3. Research Method

The development of Khaira's FinLit Go uses an iterative method, which includes the following stages:

1. Determining the pedagogical concepts that must be conveyed by this game. This game must be able to convey financial literacy material well. A relationship between the players and the facilitator (lecturer/instructor) must exist so that the message of this game can be well understood by the players.

2. Ensuring that cognitive, psychomotor, and affective domains can be met in this game, such as how players analyse and evaluate each decision option to be made in this game, how the roles of other groups in this game demonstrate a role to influence players' decisions, and how each group responds to each other.

3. Identify needs - gathering information related to financial literacy indicators. Because the target players of this game are students, the financial literacy aspects included are those related to students, such as financial planning and how they plan to improve their self-capacity and career later on. Therefore, the decision to attend seminars and certifications is incorporated into this game. Insurance and retirement planning have not been included in this game for students because they are still dependent on their parents and do not yet have full-time jobs.

4. Observation and discussion - observing and discussing the behaviour of the community and students related to financial literacy.

5. Initial prototype design - creating initial designs for the game board, rules, and key features using Excel. 6. Limited testing: Involving a number of students in game simulations to observe players' attitudes, responses, and comments. Testing was conducted five times with different student groups and at different times.

7. Evaluation and Revision - analysing the results of the trial, improving less effective features, and adjusting game mechanics. Evaluation and revision are conducted each time a trial is

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Vol. 3
21-23 Oktober 2025

performed to perfect the design, number of game squares, roles of each group, and game mechanics of Khaira's FinLitGo.

8. Final Implementation - Launching the final version of the game for use in the learning process.

4. Finding and Discussion

Design and Mechanisms of Games. Khaira's FinLit Go is an Excel-based game designed to test and improve participants' financial literacy. The tagline for this game is: Fun. Smart. Financially Literate.

Gambar 1. Financial Literacy Gameboard



An overview of the gameboard

This gameboard has twenty-two squares: Start, Education, Shopping, Investing, Saving, Profit Sharing, Seminar/Course, Education, Misfortune, Borrowing, Windfall, Donate, Discount, Interest Expense, Investment Return, Emergency, Revenue, Certification, Competition, Birthday, Business, Prizes, and Business Profit. In order to move across the board in the given amount of time, the green and blue players alternately roll the dice. Each group's ultimate

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Vol. 3
21-23 Oktober 2025

portfolio is revealed by the Financial Tracker at the conclusion of the game. The players' debt, investment, shopping goods, seminar credentials, certifications, and other possessions are shown. The instructor or lecturer then goes over, assesses, and gives comments based on the choices made by the players during the game.

Organization of the Group. Two sizable groups - the Blue Group and the Green Group—play the game. Each of them is further separated into six smaller groups, namely : Blue Player, Blue Risky Advisor, Blue Financial Tracker, Green Player, Green Risky Advisor, and Green Financial Tracker.

Playthrough. An teacher or lecturer leads the game, and 30 minutes is the recommended amount of time to play. Every player rolls the dice, either by hand or with the use of Excel's dice roll function. FinBuddy is a pawn that travels over the 22 squares for each group. Each player begins with Rp 10,000,000,000 in capital at the "Start" tile. The player gains Rp 2,000,000 each time FinBuddy passes "Start" once more.

There are particular alternatives when the player land on a square:

- Investing: decide whether to purchase bonds, equities, or gold.
- Loss : suffer monetary losses.
- Windfall: get unanticipated profits.
- Start a business that turns a profit when the "Business Profit" square is reached.
- Saving: Put money into savings, which, when they reach "Profit Sharing," yield returns.
- Spend money on education or training by attending a seminar, course, or certification; this will pay off when you get to the "Revenue" square.
- Borrowing: obtaining a loan that has interest and must be repaid when "Interest Expense" occurs.
- Other squares (Loss, Donate, Shopping, Discount, etc.) have an impact on how much money is received or spent.

Decision-Making Processes. Long-term financial decisions are made by the Player group during conversations. For instance: Investing in stocks, bonds, or gold yields profits if they eventually appear on the "Investment Return" square. When they spend money on a competition, they can claim prizes at the "Prizes" square. If you borrow money, you will eventually have to pay interest.

The Player group is being influenced to make poor decisions by the Risky Advisor group. Based on the rules of the game, they receive prizes if their counsel is heeded. If the Players choose not to shop, for instance, Risky Advisors might convince them to do so.

The Financial Tracker keeps track of all financial transactions, including debts, assets, income, and expenses. The lecturer or instructor reviews each group's final portfolio when it is announced by the Tracker at the conclusion of the game.

e-ISSN: 3026-4499
Vol. 3
21-23 Oktober 2025

Learning Contemplations. Those who actively participated in financial decision-making expressed great enthusiasm for the adoption of Khaira's FinLit Go. The game's semi-traditional framework encourages teamwork in decision-making, which makes it captivating. Instructors and lecturers can utilize the results to teach and offer guidance on enhancing financial literacy. Notably, despite significant encouragement from Risky Advisors, participants frequently became so frugal that they refused to shop, even though they actually like to shop. This illustrates how ideal financial behavior and real human behavior diverge. The game also emphasizes virtues like self-investment and charity: Players who gave on a regular basis were occasionally spared from bad luck, demonstrating the idea that kindness might shield one from danger. Players frequently refused to spend money on seminars, books, or certifications because they did not understand that they were long-term investments in their own development. By going over these trends at the conclusion of the game, the instructor or presenter helps participants learn more about financial literacy, the difficulties of making decisions in real life, and the significance of saving, investing, and giving.

5. Conclusion

The Khaira's FinLit Go game, developed using an iterative method, has proven effective as a medium for financial literacy education. You can widely adapt this Excel-based game in educational settings, making modifications as needed. Using games in financial literacy learning can improve participants' understanding, skills, and awareness of managing their finances wisely. Players will also become aware of the consequences of their financial decisions. This game targets college students, so the decision-making options revolve around the world of young people, such as preparing for work, such as choosing to participate in certifications and seminars. This game has been registered under copyright number EC002025061457 on June 5, 2025. Further research can develop this game to target productive workers by incorporating options related to insurance and retirement planning.

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e-ISSN: 3026-4499
Vol. 3
21-23 Oktober 2025

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Seminar Nasional
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21-23 Oktober 2025

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