

# FINKNIGHT: An Educational Game for Character Building in Financial Literacy, Tax Compliance, and Charitable Acts

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## Keyword

*innovative, educational game, financial literacy, tax, charity, interactive learning*

## Abstract

Financial literacy, which is the basis for a person's financial behavior, is very important to instill in everyone. The reality shows that people already understand financial literacy, but only a few understand and apply it. Therefore, the development of educational games is necessary to help people to understand them in depth and apply them. FINKNIGHT is an innovative educational game designed to instill financial literacy skills and cultivate character traits related to financial management, tax compliance, and philanthropy. Through immersive gameplay, players are immersed in a virtual board where they must navigate financial challenges, fulfill tax obligations, and engage in charitable acts. By making decisions within the game environment, players learn the fundamentals of budgeting, saving, investing, and tax planning, while also understanding the ethical and social dimensions of financial behavior. FINKNIGHT integrates interactive scenarios, quizzes, and simulations to provide hands-on learning experiences that promote critical thinking and responsible decision-making. By gamifying financial education, FINKNIGHT aims to empower players with the knowledge, skills, and values necessary to achieve financial well-being and contribute positively to society. On the result, a tool called FINKNIGHT is a good tool which means that it can help people, especially students, in the learning financial literacy.

## INTRODUCTION

Character-driven behavior is a crucial aspect in the development of individuals who contribute positively to society. One of important dimension in building one's character regarding finance is financial literacy, awareness of tax obligations, and participation in acts of charity. Financial literacy includes an understanding of personal financial management, investment, debt management, and smart financial decision-making. Awareness of tax obligations is a commitment to fulfill tax obligations in accordance with applicable laws, while charitable actions include social contributions for the welfare of society. Both of these forms of smart financial decision-making in financial literacy.

Currently, only a few young people are aware of the importance of financial literacy. This is supported by the data released on the OJK website about the financial literacy survey in 2022 of 49.68%, including only 16.42% of the financial literacy index at the age of 20-29 years spread throughout Indonesia. These index numbers can be interpreted that knowledge and understanding of financial literacy is still very much needed. Many cases in the news and articles present cases of young people who are involved in online loan cases. One reason for this is the lack of understanding of financial literacy. In addition, there are many other cases related to the lack of understanding of financial literacy. In order to improve the financial literacy index, it is necessary to introduce and socialize it continuously. The low financial literacy index is at the age

of 20-29 years, where students are included in the age group. Therefore, it is necessary to educate students. One form of interesting education can use interesting learning media.

Learning media is defined as a tool used to convey messages or learning materials with the aim of facilitating and improving the effectiveness of the teaching and learning process (Arifin, 2017). Learning media includes various types of tools and resources used to facilitate the learning and teaching process. This media can help convey information, teach skills, and improve understanding. Learning media refers to a variety of tools, sources, and technologies used to convey information, facilitate learning, and support the teaching process. It helps convey subject matter to students, increases engagement, and makes it easier to understand complex concepts. The characteristics of learning media are conveying information, supporting the learning process, interactive and engaging, variety and diversity (Ruswandi & Badarudin, 2018). Learning media plays an important role in modern education by providing various ways to convey information and help students understand the material in a more effective way. Appropriate use of media can increase student engagement, facilitate understanding of concepts, and support the achievement of learning objectives.

Learning media as an interactive resource includes various tools and technologies that enable students' active involvement in the learning process. Interactive learning media are tools and technologies that allow users to interact directly with learning content. It not only conveys information but also engages students in activities that encourage exploration, experimentation and reflection. Interactive learning media plays an important role in modern education by offering a more dynamic and responsive learning experience. Interactive media are tools or resources that allow students to interact directly with the subject matter, thus creating a more active and effective learning experience. This media can be software, applications, or digital tools that allow content manipulation and real-time feedback (Miarso, 2014). Interactive media in a learning context includes all forms of media that provide interaction between the user and the learning material. This includes computer simulations, educational games, and learning applications that allow students to actively participate in the learning process (Arsyad, 2015).

One of the learning media as an interactive resource is educational games. Educational games are a type of game that has learning objectives as part of its design. It is designed to help players learn new knowledge or skills through fun and interactive activities. Educational games use game elements such as challenges, points, levels and feedback to achieve educational goals. Educational games are games designed to fulfill learning objectives by embedding game elements, such as interactive scenarios and feedback, to increase learner engagement and understanding (Kapp, 2012). Educational games are divided into two, namely learning games as games designed to teach certain skills or concepts. The second is simulation games as games that mimic real situations to enable experimentation and learning.

Educational games are games that integrate learning objectives with game elements, such as rules, challenges and feedback. They aim to facilitate learning in an engaging, motivating and interactive way, enabling learners to learn new concepts, improve skills and reinforce their knowledge in a fun context. The characteristics of educational games are that they have learning objectives. Educational games have clear learning objectives and are integrated in the game mechanics. Next is interactivity, which allows players to interact directly with content, overcome challenges, and solve problems. Third is feedback, which provides feedback that helps players understand their progress and correct mistakes. Fourth is motivation and engagement by using game elements such a points, levels, and challenges to players and increase engagement (Rusman, 2017).

In today's digital era, educational approaches using technology, especially educational games, have become an attractive alternative in introducing and internalizing complex concepts to the younger generation. Educational games offer an interactive, entertaining and motivating learning experience, thus changing attitudes and behaviors in a fun and effective way.

This research aims to explore the potential of educational games as a tool for character building through learning financial literacy, tax compliance, and charitable action. With a focus on the development of educational games, this research will also map how educational games can provide improvements in participants' attitudes, values, and behaviors related to these three dimensions.

Previous studies have shown that the use of games in educational contexts can increase learning engagement, strengthen concept understanding and encourage practical application in everyday life. However, few studies have specifically explored the development of educational games relating to character building in relation to financial literacy, tax compliance and charitable acts simultaneously.

Thus, this research is expected to make a significant contribution to the literature on the development of educational games in character education related to important aspects of financial and social life. The implications of this research are expected to inform the development of character education through digital technology, providing practical guidance for game developers, educators, and policy makers to design more effective and sustainable educational strategies

## **METHOD**

This research is a type of research and development. Research and development is one of the means for researchers in formulating the media to be developed so that the resulting product can be applied or implemented according to its usefulness. Leedy & Ormrod (2015) explain research and development is a systematic process that involves research to discover new knowledge and development to apply that knowledge in new products, processes, or systems. In the context of education and instructional design, R&D is often used to develop and evaluate new materials, methods, and technologies to improve the learning process. ADDIE is a model often used in instructional development and learning design. It provides a systematic framework for designing, developing, and evaluating learning materials. ADDIE is an acronym consisting of five main stages: Analysis, Design, Development, Implementation, and Evaluation. The existence of this model can be used for various forms of product development in the learning process such as learning strategies, learning methods, learning models, learning media and teaching materials (Dick et al., 2015). In this study, it is only limited to the development stage so that the product development is carried out up to the feasibility test from material experts and media experts.

- **Analysis**

It aims to determine training or learning needs, analyze audiences, and identify learning objectives by collecting data on audiences and their needs, analyzing learning objectives and desired outcomes, and assessing the learning context and available resources. The output of the analysis is a needs analysis report, learning objective specification, and audience profile.

- **Design**

Aiming at designing learning structure and content in accordance with the identified needs and objectives with the form of activities to outline learning materials, determine teaching strategies, methods, and media to be used, develop an assessment plan to measure the achievement of learning objectives, the outputs of the design are design plans, learning scenarios, and storyboards.

- **Development**

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- **Implementation**

It aims to disseminate learning materials to the audience and implement the training or teaching plan by organizing and running training or learning sessions, providing technical support and assistance to participants, and conducting training for teachers or facilitators if needed. The outputs of implementation are the execution of the learning program, documentation of the process, and initial feedback from participants.

- **Evaluation**

It aims to assess the effectiveness of learning materials and processes, and make continuous improvements by collecting and analyzing data on the success of the program, including feedback from participants and evaluation results, assessing the achievement of learning objectives and the effectiveness of teaching methods, and making revisions based on evaluation results to improve future programs. The output of the evaluation is an evaluation report, recommendations for improvement, and revised learning materials.

The ADDIE sequence and instrument grids of this research procedure adopt the ADDIE development model. Researchers decided to choose the ADDIE development model because this type of research is in accordance with the needs of researchers to be able to achieve a predetermined goal. The stages of implementing the ADDIE development model have a relationship between one step and another. Therefore, the use of this model needs to be implemented gradually and thoroughly to ensure the creation of an effective product. This development research procedure uses the ADDIE model, but this research stops at the development stage which will be continued at the implementation and evaluation stages. The following table includes steps and descriptions of activities in each development model:

**Table 1: ADDIE stages**

|  |   |
|--|---|
| <p><b>Analysis</b><br/>                     Conduct an analysis of learning activities and needs analysis of educational game-based learning media.</p>                                    | Analyze the problems of learning activities to find out and classify the problems faced in order to improve students' abilities.  |
| <p><b>Design</b><br/>                     Determine a design and choose the right model by looking at the design side, the concept side and creativity to support learning activities.</p> | <ol style="list-style-type: none"> <li>1. Designing an educational game design to facilitate design.</li> <li>2. Preparation of the design of the design in the form of educational games.</li> </ol>           |
| <p><b>Development</b><br/>                     Produce and validate the development of educational game-based learning media based on the initial design that has been made.</p>           | <ol style="list-style-type: none"> <li>1. Educational game learning media creation</li> <li>2. Feasibility test through validation from experts in terms of purpose, design, concept and creativity.</li> </ol> |

The testing procedure in this study was carried out with 2 tests, namely White-Box Testing, testing the buttons on the system and Black-Box Testing, testing the functions or processes that occur in the system. The data analysis technique that will be used in this research is quantitative data analysis technique. The data is obtained from the results of filling out a set of instrument tools in the form of a questionnaire given to experts to assess the feasibility of the developed system, then the data obtained is analyzed using the formula from McCall's quality to obtain the results of the feasibility test that has been determined into the feasibility category. The measurement scale used in this research is the Likert scale. Likert scale is a measurement method used to measure a person's opinion about social phenomena (Dewi, 2012). The measurement scale used can be seen in Table.

**Table 2: Likert Scale**

| Category  | Score |
|-----------|-------|
| Very Good | 5     |

|           |   |
|-----------|---|
| Good      | 4 |
| Fair      | 3 |
| Poor      | 2 |
| Very Poor | 1 |

Source: Purwanto, 2012

Furthermore, from the five categories, a scale is made. The division of the scale is done by paying attention to the location of the number range (Arikunto, 2015). So that the maximum expected condition is 100%. From this maximum condition, it is made so that each category has a percentage range between 1% value and 100% value divided equally so as to produce a system feasibility category as shown in the following table:

**Table 3: System Feasibility Categories**

| Category      | Score in Percentage |
|---------------|---------------------|
| Very Feasible | 81%-100%            |
| Feasible      | 61%-80%             |
| Fair          | 41%-60%             |
| Poor          | 21%-40%             |
| Very Poor     | >21%                |

Source: Purwanto, 2012

## RESULTS

### Preliminary Study Stage

The initial stage in this research is to review relevant concepts and theories. Based on the literature review that has been conducted, there are several previous studies that examined learning media. Mustafa (2021) explains that learning media is a tool that plays an important role in stimulating students' attention, activeness, and interaction during the learning process. The forms of learning media that can be used by teachers are video, audio, games, and so on. With an interesting presentation, the use of the above media will certainly increase the attention of students in listening to the subject matter being followed.

Seeing the importance of learning media, it is necessary to develop it so as to create interactive media for students. As stated by Ali (2009), interesting and interactive learning media will give a positive and meaningful impression of the learning done by students. This is because, they experience directly each learning process which ultimately increases their understanding of the subject topics discussed. Of the several forms of learning media, one that is interesting and can be developed is games. As is known, there are many types of games to support learning activities, some are based on mobile applications, websites, to physical objects.

Of the three types above, the most commonly used and quite simple to develop are games with physical objects, one of which is board games. Board game is a set of games with tools and parts that are placed, moved, moved and placed on a flat surface that has been marked and equipped with certain rules (Erlitasari, et al: 2016). In relation to learning media, board games are made according to the subject topics that students are studying. Currently, the relevant and applicable subject for board game media is economics. This is because economics covers topics that are very close to the lives of students and requires all of them to have practical skills. Therefore, the purpose of this research is to develop board game-based learning media on economics material, specifically for the topics of investment, taxes, and money.

### Product drafting stage

At the product draft stage, the main purpose of making and developing board game learning media is to create interactive and more interesting economic learning for students. Researchers gave the name for this board game as FinKnight which stands for "Fin", which is "Financial" and "Knight" which means knight. When combined, the meaning of this learning media is a financial

knight. This naming is not without reason because in the game, players or in this case focused on students, they must be able to strategize to achieve each existing mission. This board game design adopts the concept of a horse game in chess, where the player will move the horse pawn with the letter "L" rule to enter certain boxes so as to reach the finish and targets that have been set.

The FinKnight game can be said to be quite simple because it only uses a chessboard for the game. However, there is a slight modification to the checkerboard pattern, where the color is made brighter with a yellow-red combination, and a number of money is added along with the currency logo, including Rupiah, Euro, Pounds, US Dollar, Rupee, and Zimbabwe Dollar. Thus, there are provisions regarding the exchange rates of these foreign currencies against the Rupiah. Not only that, there are several special boxes that players can go through, namely investment, tax, alms, and expenses.

FinKnight also comes with several cards to play with, including Question Card, Investment Card, Tax Card, and Charity Card. First, the Question card, which contains questions about economic and accounting learning that can also be adjusted to the learning topic being studied. The purpose of this card is to hone the player's knowledge of economic learning as well as being a learning evaluation tool related to certain material topics. Then the second, Investment Card, this card is divided into two, the first contains news related to the condition of companies that go public, as it is known that news is one of the signals for investors to consider their investment decisions. The news card on the Investment Card can be selected randomly by the player, then after reading the card the player can make his investment decision, either investing with a small nominal or interested in investing a large nominal. The results of the investment are found on the second card which contains the companies listed in the initial news. This card contains the percentage of profit or loss experienced by the player as a result of the investment that has been made. The purpose of the Investment Card is to provide education for students about the importance of investment and the analysis process so that they can make a profit.

The next card is the Tax Card, which contains a thank you for fulfilling tax obligations with a certain nominal amount paid by the player as the responsibility of a good citizen. The tax is determined progressively, so the more money the player has, the greater the percentage of tax that must be paid. The tax percentage is set from 5% to 35%. Finally, there is a Charity Card, this is a card that contains an invitation to set aside some of the money that has been collected by the player to then be donated by 10%, or in this concept it is the same as tithing. This instills in students the character to share and not just focus on cultivating as much wealth as possible.

FinKnight can be played in two modes, solo and versus. For solo mode, the game is played by one player and only uses half of the board. While versus mode is played by two players and uses the entire board. Regarding the rules and targets of the game, solo mode and versus have one difference, namely versus mode allows capturing/ taking each other's opponents. The rest of the time, the way to play from both modes remains the same.

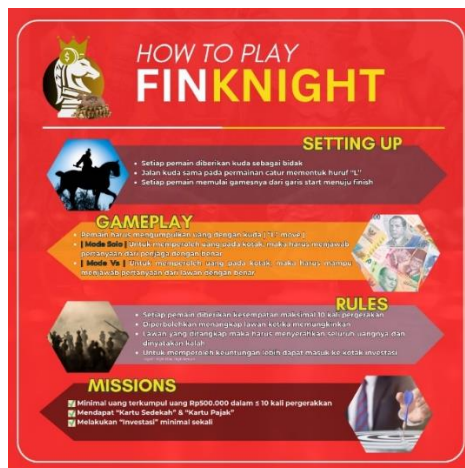
The game can start from the first row of squares on the chessboard. The square is freely chosen by the player as long as it remains on the first row. After that, players can strategize to determine the next steps with a total of ten (10) opportunities to move in the shape of the letter "L", like a horse on a chessboard. Along the way, players will encounter various challenges and opportunities that will affect the amount of money they have. These challenges include money boxes, investments, alms, and taxes. To get the amount of money on the box, players must be able to answer the Question Card first. In solo mode, the Question Card is submitted by the guard (can be a teacher or another student), then for versus mode it is submitted by the opponent. If the answer is correct, the player will get money. However, if you lose, you will not get the money. The game is played alternately for versus mode.

The ultimate goal of the FinKnight game is to collect a minimum of Rp500,000 in 10 moves. In addition, players are also required to make at least one investment during the game, pay tax obligations, and do alms. This aims to train students in strategy, specifically related to financial management, determining the highest currency exchange rate, investment decision-making, and

how to understand progressive tax calculations. Thus, given the comprehensiveness of the FinKnight learning game, the researcher believes it can provide a positive learning experience and equip students with practical economic skills in their immediate environment. The appearance of the FinKnight game is as follows.



Picture 1. Game FinKnight Logo



Picture 2. How to Play FinKnight



Picture 3. The rules of FinKnight

Picture 4. Game board of FinKnight



Picture 5. Question Card FinKnight

Picture 6. Investment Card (Berita) FinKnight



Picture 7. Investment Card (Hasil) FinKnight

Picture 8. Tax Card FinKnight



Picture 9. Charity Card FinKnight

**Table 4. Material Expert Validation Results**

| No. | Aspects            | Score | Percentage | Category      |
|-----|--------------------|-------|------------|---------------|
| 1   | Material Substance | 4,7   | 94%        | Very Feasible |
| 2   | Learning Design    | 3,9   | 78%        | Feasible      |
|     | Average            | 4,3   | 86%        | Very Feasible |

Table 4 shows that the material in FinKnight is included in the very feasible category. This can be seen in the average score of 4.3 or if it is represented by 86%. The material substance aspect is included in the very feasible category. While the learning design aspect is included in the feasible category. Important notes added by material experts to add a variety of questions that are more HOTS, so that students can practice their critical thinking skills. The second expert is a media expert. The results of media expert validation can be seen in table 5 below.

**Table 5. Media Expert Validation Results**

| No. | Aspects                        | Score | Percentage | Category |
|-----|--------------------------------|-------|------------|----------|
| 1   | Physical appearance            | 3,6   | 72%        | Feasible |
| 2   | Utilization of media functions | 3,2   | 64%        | Feasible |
|     | Average                        | 3,4   | 68%        | Feasible |

Based on the validation results above, FinKnight is included in the feasible category with an average score of 3.4 or a percentage of 68%. The media expert's validation consists of two aspects, namely physical appearance and utilization of media functions, which both get a decent category. The following results are accompanied by expert input, namely the need to add unique patterns to the horse pawns used so that they show their own uniqueness for the FinKnight game.

After the *board game* components and economic content have been developed, researchers will conduct initial testing to determine the suitability and effectiveness of the FinKnight *board game* as a learning medium. The results of this test will be used to make improvements and refinements before the implementation stage. With this development stage, it is hoped that FinKnight can become an effective economic learning media for students.

## DISCUSSION

The results showed that the development of board game-based learning media FinKnight can be an effective alternative learning media for economic subjects. The advantage of this FinKnight learning media is its ability to create interactive and interesting economic learning for students. Through this game, students will better understand the learning material because they not only learn economic theories, but can also apply them directly in situations similar to real life. This is supported by research conducted by Maryanti, E., Egok, A. S., & Febriandi, R. (2021) which shows that practical learning media can improve student learning outcomes.

One important aspect of FinKnight is its ability to train students' practical skills in economics, such as financial management, investment decision-making, and understanding of progressive taxation. By making investments, paying taxes, and giving alms in the game, students can learn how to manage finances wisely and responsibly. In addition, the use of thematic cards, such as Question Card, Investment Card, Tax Card, and Charity Card, can also help students to better understand the economic concepts being studied. Through the questions on the Question Card, students can hone their knowledge as well as get immediate feedback on their understanding.

The way to play FinKnight that presents a match or competition situation will bring a new learning atmosphere and spur students' enthusiasm for learning (Darmawan, 2016; Krasna, 2014; Hamzah, 2013). The material delivered using FinKnight is felt to provide more benefits in

the learning process, so that the objectives of deepening material related to economics are achieved. In addition, the positive impact of this game will also open up interactions between students who then train their communication skills.

## CONCLUSION

Based on the results of the research and discussion that has been presented, it can be concluded that the development of board game-based learning media with the title "FinKnight" on economic material is proven feasible and can effectively improve students' understanding and skills. This is indicated by the results of the validation test of material experts and media experts who fall into the category of very feasible and feasible. The average validation test of material experts was 4.3, while media experts gave a score of 3.4.

The FinKnight developed has several advantages to be applied to economic learning, including:

1. Provides interactive and interesting economic learning for students through the concept of board games that are easy to understand.
2. Train students' ability to manage finances, make investment decisions, understand tax calculations, and instill character values such as sharing and responsibility.
3. Provide a comprehensive learning experience related to economic topics such as investment, tax, and money.

Thus, the FinKnight board game can be an effective alternative learning media to improve students' understanding and skills in economics subjects. The development of innovative learning media like this is expected to continue to create a more enjoyable and meaningful learning atmosphere for students..

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