

**INCREASING FINANCIAL LITERACY WITH “MOMA” MONEY MANAGEMENT LEARNING MEDIA IN VOCATIONAL HIGH SCHOOLS*****MENINGKATKAN LITERASI KEUANGAN DENGAN MEDIA PEMBELAJARAN “MOMA” MONEY MANAGEMENT DI SEKOLAH MENENGAH KEJURUAN***

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**Abstract**

Financial literacy is one of the essential life skills that must be possessed by every individual, especially vocational students. However, financial learning media used in schools tend to be conventional and not interactive. Therefore, innovation is needed in the form of interactive learning media that can present relevant, interesting, and applicable learning experiences. This research is development research (R&D) that aims to improve the financial literacy of Vocational High School students through the development of "MOMA" Money Management learning media. The product feasibility test was conducted by material experts, media experts, teachers, and students. Data collection was done through interviews and questionnaires. The data collection instruments used were interview guidelines, expert validation questionnaires, teacher response questionnaires, and student response questionnaires. The feasibility of the learning media produced was analysed using the conversion of 5 quantitative categories. The result of this research is an android game-based learning media "MOMA" Money Management in learning financial literacy Vocational High School. The learning media “MOMA” is proven to be effective in improving students' understanding of the basic concepts of financial management. The learning media is considered feasible by material experts, media experts, teachers, and students. This media is also adaptive and easily accessible.

**Keywords:** Financial literacy, media learning, MOMA.

**ABSTRAK**

Literasi keuangan merupakan salah satu keterampilan hidup yang penting dan harus dimiliki oleh setiap individu, khususnya siswa Sekolah Menengah Kejuruan (SMK). Namun, media pembelajaran keuangan yang digunakan di sekolah cenderung konvensional dan kurang interaktif. Oleh karena itu, dibutuhkan inovasi dalam bentuk media pembelajaran interaktif yang dapat menyajikan pengalaman belajar yang relevan, menarik, dan aplikatif. Penelitian ini merupakan penelitian pengembangan (R&D) yang bertujuan untuk meningkatkan literasi keuangan siswa SMK melalui pengembangan media pembelajaran "MOMA" (Money Management). Uji kelayakan produk dilakukan oleh ahli materi, ahli media, guru, dan siswa. Pengumpulan data dilakukan melalui wawancara dan kuesioner. Instrumen pengumpulan data yang digunakan meliputi pedoman wawancara, kuesioner validasi ahli, kuesioner tanggapan guru, dan kuesioner tanggapan siswa. Kelayakan media pembelajaran yang dihasilkan dianalisis menggunakan konversi dalam 5 kategori kuantitatif. Hasil dari penelitian ini adalah media pembelajaran berbasis gim Android "MOMA" Money Management dalam pembelajaran literasi keuangan di SMK. Media pembelajaran “MOMA” terbukti efektif dalam meningkatkan pemahaman siswa terhadap konsep dasar manajemen keuangan. Media ini dinilai layak oleh ahli materi, ahli media, guru, dan siswa. Media ini juga adaptif dan mudah diakses.

**Kata kunci:** Literasi keuangan, media pembelajaran, MOMA.



## **INTRODUCTION**

Financial literacy is the ability to understand financial conditions and financial concepts and to change knowledge appropriately into behaviour (Pulungan & Febriaty, 2018). In the context of the modern economy, where financial products and services are increasingly complex, financial literacy becomes a crucial skill to be mastered, particularly by the younger generation. The mastery of financial literacy allows individuals to understand financial concepts, such as budgeting, saving, investing, and debt management, enabling them to make informed decisions in their financial lives.

For students, financial literacy holds several important benefits. Abdurrahman and Oktapiani (2020) emphasize that students must have financial intelligence to navigate personal finances effectively. This knowledge helps students develop the skills needed to analyse and evaluate financial information critically, thus facilitating the ability to make sound financial decisions. Financial literacy not only enhances personal financial management but also builds a foundation for lifelong economic well-being.

Financial literacy also serves as a protective factor against financial fraud and exploitation. Engels et al. (2020) found that individuals with higher financial literacy have a greater ability to detect fraudulent schemes and protect themselves from being deceived. Similarly, research by Andreou and Philip (2018) showed that students with a strong grasp of financial literacy are better equipped to avoid fraudulent investments, contributing to financial security and stability.

Despite its importance, research shows a concerning trend of low financial literacy among the younger generation. Studies by several experts, such as Agarwalla et al. (2015), Allgood and Walstad (2013), Lusardi et al. (2011), and Van Rooij et al. (2011), have consistently found a lack of adequate financial knowledge among young people. The condition is particularly evident in Indonesia, where a study by Ahmad (2019) reported that the financial literacy rate is only 38.03%. The Financial Services Authority (OJK) of Indonesia (2022) confirmed that this low literacy level reflects the insufficient financial knowledge of the Indonesian population, particularly the younger generation, which can hinder their ability to optimize financial resources for productive purposes.

Low financial literacy can have far-reaching consequences on decision-making in everyday life. According to Ningtyas (2019), individuals with limited financial knowledge may struggle with managing personal finances, leading to poor budgeting, excessive debt, and limited savings. This situation can perpetuate financial difficulties, making it challenging for individuals to achieve long-term financial stability.

The data from the Ministry of Education, Culture, Research, and Technology of Indonesia show that there are 1.63 million vocational high school graduates in 2021, with 57.49% entering the workforce immediately. These young workers, who already earn their own income, often lack sufficient financial management skills and knowledge. As financial independence increases, so does the need for effective financial literacy education to build a strong foundation for sound financial management.

Effective financial literacy education can help individuals achieve various financial goals, including saving for the future, managing debt responsibly, investing wisely, and preparing for emergencies. To improve financial literacy, it is essential to develop targeted educational programs and learning media (Asyadi & Handoko, 2017). Developing financial literacy learning materials for use in schools can be an effective approach, as highlighted by Satya Adi and Sulistyorini (2021). In particular, the integration of technology, such as android-based learning media, has shown promise in enhancing students' financial literacy (Melati & Hakim, 2023).

Several studies have explored innovative approaches to improving financial literacy.



Sitorus and Sadjiarto (2022) demonstrated that the use of interactive learning media like SIKU effectively increased the financial literacy of students at SMA Negeri 3 Salatiga. Meanwhile, Sari et al. (2022) developed sharia Augmented Reality (AR) applications for elementary school students, which successfully improved their knowledge of sharia finance. Additionally, Candra Sari et al. (2022) utilized financial literacy storybooks, which enhanced students' understanding of honesty, discipline, and money management.

Although these studies have shown positive outcomes, their application in the context of vocational high school students faces challenges, particularly regarding accessibility and cost. The high price of augmented reality products makes it difficult for widespread adoption in vocational education. Therefore, there is a need for cost-effective, accessible, and engaging financial literacy learning media tailored to the needs of vocational high school students.

The financial learning media used in SMK is still conventional, less interesting, and not contextualized with the needs and characteristics of SMK students who are more visual, active, and familiar with technology. Therefore, innovation is needed in the form of interactive learning media that not only conveys financial concepts theoretically, but is also able to present relevant, interesting, and applicable learning experiences. This research is important and urgent to conduct because the development of “MOMA” learning media is expected to be a concrete solution in bridging the gap between students' financial literacy needs and the availability of effective learning media. Considering these gaps, this research aims to develop effective and efficient financial literacy learning media accessible through the Google Play Store, enabling teachers and students to access learning materials anytime and anywhere. The primary motivation for this study is to create a financial literacy learning platform that leverages android technology to enhance financial literacy among vocational high school students. This research aims to develop innovative and impactful learning media.

The novelty of this research is to develop specific learning media for vocational students. This research also produces integration of simulation and interactivity in financial literacy. With a visual and technological approach, this learning media can improve financial behaviour. This study not only seeks to contribute to financial literacy education but also aims to support the broader agenda of developing financially literate and responsible future generations capable of navigating the complexities of the financial world.

## **METHODS**

This research is a Research & Development using the Borg & Gall development model. This development model was chosen because it provides a systematic framework for developing android-based learning media that aims to improve vocational students' understanding of financial literacy. The Borg & Gall development model is a systematic and tiered research and development model. This model consists of 10 steps, namely 1) research and information collecting 2) planning 3) develop preliminary form of product 4) preliminary field testing 5) main product revision 6) main field testing 7) operational product revision 8) operational field testing 9) final product revision 10) dissemination and implementation.

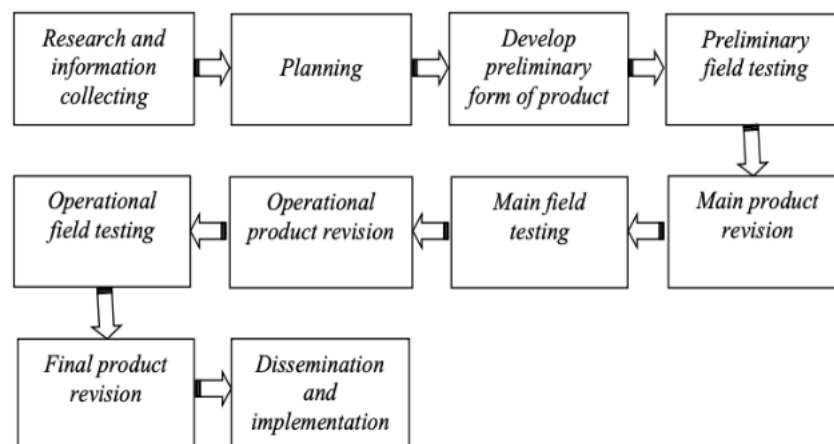


Figure 1: Steps of the Borg & Gall model

The Borg & Gall development model is a systematic framework that has been widely used by researchers and developers to design and develop various educational products. Originally proposed by Walter R. Borg and Meredith Damien Gall in the 1980s, the model was aimed at creating research-based products that are empirically validated and practically applicable. Over time, the Borg & Gall model has been employed in multiple educational research contexts, including curriculum development, instructional material design, and technology-enhanced learning tools.

Despite its extensive application and popularity, the original model has faced some criticisms. Several researchers have pointed out that the model can be overly complex and time-consuming. The detailed and rigorous nature of the stages often makes it challenging for practitioners to apply it in limited timeframes or resource-constrained environments. Moreover, the model is sometimes viewed as rigid and less adaptable to specific needs, particularly when addressing unique educational contexts or learner diversity. Additionally, the original model did not sufficiently emphasize the importance of evaluation and user feedback, leading to a lack of iterative improvement based on actual user experiences.

Recognizing these limitations, Borg and Gall revised their development model in 2003 to address the critiques and improve its applicability. The revised version is more simplified, flexible, and adaptive to various research and development contexts. One of the significant improvements made in the revised model is the emphasis on continuous evaluation and user feedback. This focus allows developers to create more effective, efficient, and user-centered educational products. The Borg & Gall development model consists of six systematic steps that guide researchers and developers from the initial planning stage to the final implementation and evaluation. Each stage is essential in ensuring the development of a valid, practical, and effective educational product.

1. Planning

In this initial phase, researchers establish the objectives of the research or development project. This includes identifying the needs of the target users, formulating research questions or hypotheses, and creating a comprehensive research or development design. Additionally, this stage involves gathering preliminary information through literature reviews, surveys, interviews, or observations to understand the problem's scope and develop an informed product concept.

2. Preliminary Product Development

Based on the findings from the planning phase, researchers create a prototype or design of the product. This could be in the form of a textbook, learning module, game-based



application, or any other instructional material. The product design must align with the research objectives and address the identified needs of the target audience.

3. Preliminary Product Testing

In this stage, the initial product is developed and tested for validation. Validation typically involves both media and material experts who evaluate the product's content quality, accuracy, relevance, and technical aspects. Feedback obtained during this phase is crucial for refining the product.

4. Product Revision

After validation, the product undergoes preliminary testing with a small group of users to gather practical feedback. This feedback helps identify weaknesses, misconceptions, or usability issues. The aim is to make necessary improvements before broader implementation.

5. Product Testing Revision

This phase involves analyzing data from user trials to identify areas that need further revision. The product is tested for effectiveness and practicality. If the product meets the set validity and reliability standards, it proceeds to the final stage.

6. Implementation and Evaluation

The final phase is the implementation of the product on a larger scale. The product is used by end users through formal instruction, training, or dissemination. Evaluation is conducted to assess the product's long-term impact, scalability, and sustainability.

Overall, the revised Borg & Gall model is more responsive to practical needs and emphasizes continuous evaluation and feedback to improve product quality. The structured yet flexible approach makes it suitable for diverse educational research and development projects.

## **FINDINGS AND DISCUSSION**

Financial literacy is a crucial skill that students need to possess to manage personal finances wisely and achieve financial goals effectively. In today's complex economic environment, financial literacy has become a fundamental skill that extends beyond understanding basic arithmetic or simple budgeting. It involves a comprehensive understanding of how money works, how to generate income, plan expenses, save for the future, invest wisely, and manage debt effectively. Mastering financial literacy enables students to understand income sources, recognize factors that influence net salary, and develop strategies for achieving financial prosperity. This understanding is crucial in helping students prepare for real-world financial challenges, such as balancing their expenses, preparing for emergencies, and making informed decisions about investments. Moreover, having knowledge about saving budgets, insurance, risk, return, liquidity, investment, taxes, inflation, and debt management are essential competencies that the younger generation needs to navigate a rapidly changing financial landscape.

The development of the "MOMA" Money Management Android-based learning media aims to bridge the gap between theoretical knowledge and practical application by providing an interactive, engaging, and accessible learning platform. Unlike traditional financial literacy programs that rely heavily on lectures or textbook-based learning, the MOMA application incorporates game elements, scenario-based learning, and problem-solving tasks that cater to students' interests and preferences. As digital natives, students are more likely to engage with learning platforms that leverage technology and present financial concepts in a relatable and interactive manner. To ensure the quality and effectiveness of the "MOMA" learning media, product validation was conducted by four validators: media experts, material experts, and two learning practitioners. The material expert validator assessed the accuracy and relevance of the content, resulting in a validation score of 4.29 on a scale of 1 to 6, indicating that the material





meets educational standards. The media expert validator focused on the technical aspects, interactivity, and user-friendliness, assigning a score of 4.46 on a scale of 1 to 5, which reflects a high level of feasibility. Additionally, the learning practitioners evaluated the product's applicability in a classroom setting and its potential to engage students effectively, yielding a score of 4.81 on a scale of 1 to 6.

The product's effectiveness was also measured through student testing, which showed that 76.19% of the students scored above the Minimum Completeness Criteria (KKM). This significant result suggests that the "MOMA" Money Management Android game-based learning media is not only valid in terms of content and design but also effective in enhancing students' understanding of financial literacy concepts. The improvement in student performance underscores the potential of integrating game-based learning strategies in financial education. Amid the challenges of low financial literacy among the younger generation, as evidenced by studies like those of Lusardi et al. (2011) and Ahmad (2019), the "MOMA" application offers an innovative and practical solution. The inclusion of game-based learning elements creates a more interactive and enjoyable experience, allowing students to learn independently and apply their knowledge in simulated real-world situations. By integrating financial content with game mechanics, the MOMA application helps students develop critical thinking, decision-making, and problem-solving skills essential for financial independence. The "MOMA" Money Management Android-based learning media serves as a valuable educational tool that not only imparts financial knowledge but also cultivates essential life skills. It demonstrates that interactive, technology-based learning can be an effective method to address the issue of low financial literacy among students, preparing them to make sound financial decisions and achieve long-term financial stability.

Table 1. Indicator Financial Literacy

No	Indicator
1	Recognize sources of income
2	Understand the factors that affect net salary
3	Explain how to prosper and meet financial goals
4	Understand saving budget
5	Understand insurance
6	Analyze risk, return and liquidity
7	Evaluate investment alternatives
8	Analyze the effect of taxes and inflation on investment returns
9	Analyze the advantages and disadvantages of debt
10	Explain the purpose of a credit history and recognize debtor rights
11	Describe ways to avoid or remedy debt problems
12	Know the basic laws of consumer protection in credit and debt
13	Able to make financial records
14	Understand balance sheet, profit and loss, and cash flow statements

Based on the indicators presented, it can be concluded that the scope of financial literacy in this study covers various fundamental aspects necessary for effective financial management. The indicators emphasize the understanding of income sources and the factors influencing net salary, which are crucial for proper budgeting and personal financial planning. Furthermore,



the ability to explain strategies to achieve financial goals and manage savings highlights the importance of setting financial objectives and maintaining discipline in savings behaviour.

The findings of this study highlight the critical role of financial literacy in shaping financial decision-making and overall financial management skills among students. Understanding sources of income, budgeting, investment evaluation, and debt management are crucial competencies for achieving financial well-being. As stated by Azima and Rahmawati (2024), financial literacy significantly influences an individual's ability to make informed financial choices, which can lead to better financial outcomes. The ability to recognize financial risks and analyse the effects of taxes and inflation on investment returns is also essential for long-term financial stability. The results of this study align with previous research, which emphasizes that improved financial literacy positively correlates with individuals' ability to achieve financial goals and reduce financial vulnerabilities.

The understanding of insurance and risk management, including the analysis of risk, return, and liquidity, as well as the evaluation of investment alternatives, reflects a deeper comprehension of financial instruments essential for wealth building. Additionally, analysing the impact of taxes and inflation on investment returns demonstrates a critical awareness of external factors that affect financial growth.

In terms of debt management, the indicators stress the importance of understanding the pros and cons of debt, recognizing debtor rights, and being knowledgeable about consumer protection laws. These aspects are vital for avoiding excessive debt and managing financial obligations responsibly. Furthermore, the ability to create financial records and understand essential financial statements such as balance sheets, profit and loss statements, and cash flow statements signifies the technical proficiency needed for financial analysis and decision-making. Overall, the indicators show a comprehensive approach to financial literacy, aiming to equip individuals with the necessary skills to navigate complex financial scenarios, make informed financial decisions, and achieve financial independence.

The results of the expert assessment are used as an assessment of the validity of the product. There are 4 validators, namely media expert validators, material expert validators, and 2 learning practitioner validators. The material expert validator gave an assessment score of 4.29 with an average on a rating scale of 1 to 6 for the product developed. The following are the results of the material expert validation analysis.

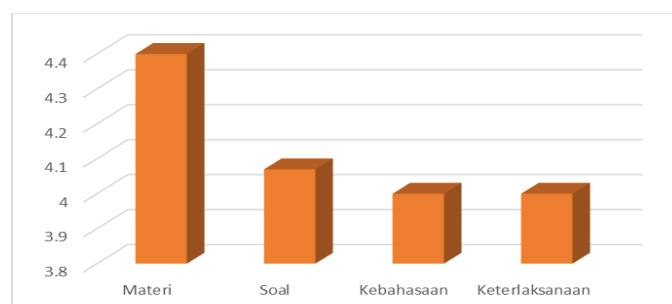


Figure 2. Graph of Material Expert Validation Results

Media expert validators gave an assessment score of 4.46 to the product, reflecting a high level of agreement on a rating scale of 1 to 5. This score indicates that the media developed is generally perceived as effective, functional, and suitable for its intended purpose in enhancing financial literacy among vocational high school students. The high rating demonstrates the credibility and quality of the “MoMa” learning media, particularly in addressing critical instructional components such as clarity of information, user interface design, interactivity, and alignment with the learning objectives. The validation process itself was rigorous, involving



multiple rounds of evaluation to ensure consistency and eliminate potential biases. Experts were asked to evaluate key dimensions, including visual appeal, ease of navigation, logical structure, and the appropriateness of financial content for the target audience. The strong average score of 4.46 also signifies that the media successfully balances educational content with engaging design elements, which is crucial for sustaining student attention and promoting active learning. However, despite the overall positive outcome, expert feedback also identified areas that could be further refined—such as enhancing the depth of interactive components or simplifying certain visual elements to improve cognitive accessibility. These insights are invaluable for guiding iterative development and ensuring that the media remains adaptive, inclusive, and impactful as a long-term educational tool. The following section outlines the detailed results of the media expert validation analysis, highlighting both the product's strengths and the potential enhancements needed to maximize its pedagogical effectiveness.

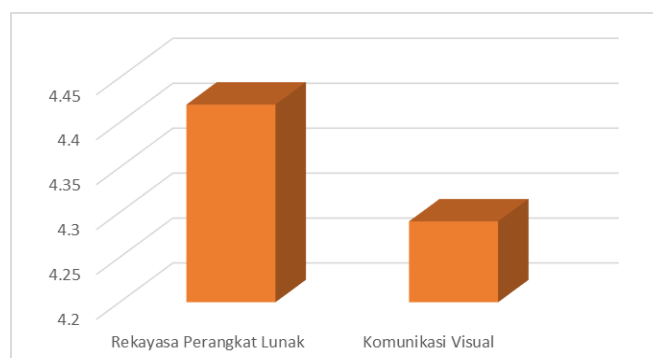


Figure 3: Graph of Media Expert Validation Results

Learning practitioner validators assigned an assessment score of 4.81 on a rating scale of 1 to 6 for the developed products, indicating a highly positive evaluation. This score reflects the practitioner's perception of the product's relevance, usability, and effectiveness in enhancing accounting learning outcomes. The evaluation process involved a thorough examination of the product's content, instructional design, and applicability in real-world learning environments. These assessments provide valuable insights for further refinement, ensuring that the product meets educational standards and effectively supports learners. The following are the detailed results of the accounting learning practitioner validation analysis, highlighting strengths and identifying potential areas for improvement.

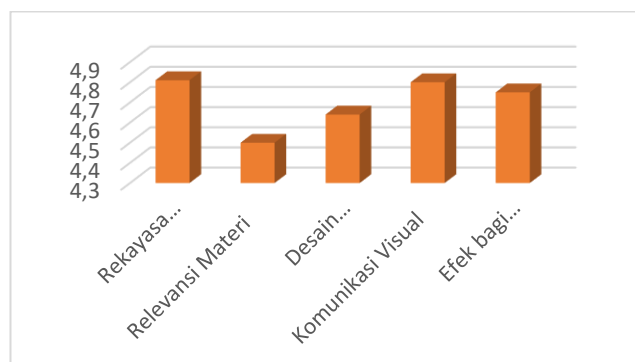


Figure 4. Chart of Accounting Learning Practitioner Validation Results

Based on the assessment of material expert validators, media experts, and accounting learning practitioners, the product is deemed appropriate and suitable for use in learning. The evaluation process included a thorough review of content accuracy, instructional relevance,





media design quality, and practical applicability. Each group of validators provided valuable feedback to enhance the product's effectiveness and ensure it meets the learning objectives. The positive assessment from these experts suggests that the product can support effective learning experiences and facilitate better understanding of accounting concepts. This comprehensive validation strengthens the credibility of the product.

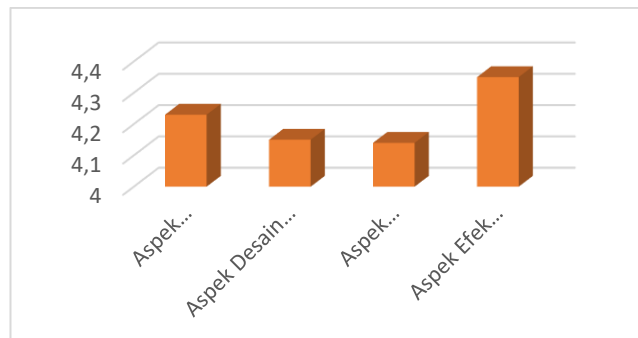


Figure 5. Graph of Student Validation Results

### Product Quality

Based on the results of product validation that has been carried out, the learning media developed received an assessment in the category of feasible by material experts of 4.29, received an assessment in the category of very feasible by media experts of 4.46, and received an assessment in the category of very feasible by learning practitioners of 4.81. So that the product is said to meet the quality of validity. This is in accordance with the opinion of Djamas et al. (2018: 68) which says that when material experts and media experts assess the product in the minimum feasible category, the product has validity quality.

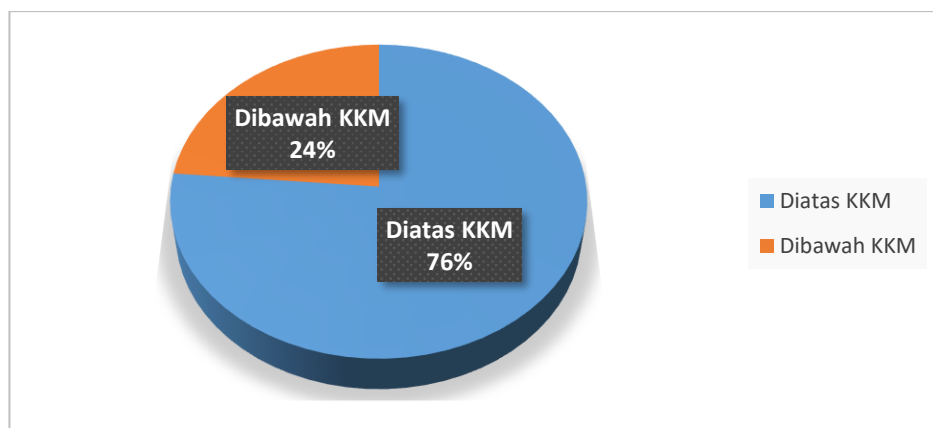


Figure 6: Learning Media Effectiveness Graph

Students who scored above the KKM were 48 students out of 63 students or 76.19%. So, it can be said that the learning media based on the android game "MOMA" Money Management can improve student understanding. Subhash & Cudney (2018: 29), Hwang et al. (2015; 23), and Tomic & Divjak (2011: 28) said that using games in teaching can improve learning outcomes and student learning effectiveness. Thus, the product meets the quality of effectiveness. Based on the results of product trials and the final product review that has been submitted, it can be said that the learning media based on the android game "MOMA" Money Management developed is a quality product. "MOMA" Money Management android game-based learning media has validity and effectiveness criteria.



### **Product Characteristics**

The product can be played offline. The developed product contains text, image, animation, and sound content. The storage space that must be provided to install the MOMA APK is 45 Mb. The developed product has educational characteristics, namely combining the concept of games and providing financial literacy material. The product can be used by students to learn independently.

### **CONCLUSION**

The development of "MOMA" Money Management learning media can improve financial literacy in Vocational High Schools. The overall average result data obtained from observations showed that there was an increase in the average aspects of students' financial literacy from 67.08% to 83.92%. Vocational High School students also have financial literacy skills in terms of, wise use of financial products, saving, and distinguishing needs and wants.

Based on the daily records of students in class XI of SMK Negeri 1 Depok, it shows positive changes in students' understanding of financial literacy, the use of financial products, and investment. Students are excited in the financial literacy learning process with the application of "MOMA" Money Management learning media. Students do not get bored quickly during financial literacy learning. Students can listen to the material explanation from the teacher and can express opinions or comments to the teacher and friends so that two-way communication is established.

Based on daily notes, it also shows an increase in students' understanding of financial literacy. There is an increase in student participation in the learning process, decreasing the number of students who are sleepy during financial literacy learning. Based on the questionnaire regarding the application of "MOMA" Money Management learning media, it shows that students are happy and excited when working on levelled games with financial literacy material.

Based on the results of the discussion that has been presented, the resulting product can be concluded as follows:

1. The product produced is in the form of android game-based learning media "MOMA" Money Management in learning financial literacy. The "MOMA" Money Management application has a capacity of 45 Mb. This application can be run online and offline, can be accessed anytime and anywhere.
2. The products produced from the development stage were assessed by material experts in the appropriate criteria, with a score of 4.29 out of a maximum score of 5. Media experts gave an assessment score of 4.46 out of a maximum score of 5. Accounting learning practitioners gave a score of 4.81 from a maximum score of 5. This assessment was given by 4 validators, namely material experts, media experts, and 2 accounting learning practitioners. The learning media is assessed by students in very feasible criteria, with a score of 4.33 out of a maximum score of 5. So that from the aspect of validity, the resulting product is considered valid.

### **Suggestion**

Future research can develop more in-depth financial literacy learning media on the competence of financial literacy products. Future research should prepare better and make better time management in observation. Future research can expand and increase the number of research samples.

As described in the final product review section, the products resulting from this research and development have valid quality. The suggestions given for product utilization are as follows:

1. The limited number of samples, namely 2 Vocational High Schools, can be reproduced and expanded for further research.



2. Teachers and students can use the share it and mi drop applications to share applications with others. It is better to check the availability of Wi-Fi at school to speed up the installation process of the "MOMA" Money Management learning media on students' smartphones.
3. To see the overall student score, teachers can record student scores manually.
4. Before using the product in class, teachers need to pay attention to the specifications of students' smartphones whether they are suitable for using the "MOMA" Money Management learning media, namely Android OS at least Froyo 2.1.

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