

Development and Validation of Interactive Investment Media for Financial Management Learning in Higher Education

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ARTICLE INFO	ABSTRACT
Article history Received May 22, 2026 Revised June 23, 2026 Accepted June 30, 2026	High fintech growth in Indonesia facilitates transactions but triggers impulsive spending and consumerism among the younger generation due to low financial literacy. Conventional Financial Management courses are often theoretical and lack practical relevance. This study aims to develop and validate interactive investment learning media to improve students' motivation in financial management courses. The research employed a Research and Development (R&D) approach using the ADDIE model, consisting of Analysis, Design, Development, Implementation, and Evaluation stages. The developed product was a flipbook-based interactive e-book integrated with practical investment activities using Bibit and Pegadaian Digital applications. Validation involved material experts, media experts, and small-group student trials. The results showed that the media obtained a validity score of 96.68% from media experts, 91.25% from material experts, and 82.82% from student users, all categorized as "highly feasible." Furthermore, a significant increase in student motivation was observed, with the mean score rising from 66.76 in the pre-test to 84.20 in the post-test (Sig. 0.00, $p < 0.05$). The integration of digital investment practice into the Financial Management course serves as an effective pedagogical strategy to bridge theory and real-world applications. The interactive e-book effectively enhances students' independent learning motivation and financial preparedness.
Keywords Interactive learning media Investment literacy Financial management Fintech Experiential learning Higher education	

I. Introduction

The rapid advancement of digital transformation has fundamentally reshaped economic systems, business practices, and financial service ecosystems worldwide. The integration of digital technologies into financial services has accelerated the emergence of Financial Technology (FinTech), enabling individuals to access a wide range of financial products and services through internet-based platforms and mobile applications. FinTech has transformed traditional financial transactions into faster, more efficient, and more inclusive digital processes, encompassing digital payments, peer-to-peer lending, crowdfunding, robo-advisory services, and digital investment platforms. This transformation has significantly expanded financial inclusion by reducing geographical barriers, lowering transaction costs, and providing investment opportunities to populations that were previously underserved by conventional financial institutions (OECD, 2023; World Bank, 2024). Consequently, digital transformation has not only altered how financial services are delivered but has also redefined the competencies required for individuals to participate effectively in the digital economy.

In recent years, digital investment platforms have experienced remarkable growth across both developed and emerging economies. Applications such as Bibit, Ajaib, Pluang, Pegadaian Digital, and other mobile-based investment platforms have simplified investment

procedures by allowing users to open investment accounts within minutes, conduct transactions with relatively small amounts of capital, and monitor portfolio performance in real time. Such innovations have democratized access to investment activities that were previously perceived as exclusive to high-income individuals or experienced investors. According to the OECD (2023), the widespread adoption of digital financial services has contributed substantially to enhancing financial inclusion, particularly among younger generations who are characterized by high digital literacy and intensive smartphone usage. Similarly, the World Bank (2024) reported that digital financial services have become one of the primary drivers of inclusive economic growth because they improve accessibility, transparency, and efficiency in personal financial management.

Despite these positive developments, the increasing accessibility of digital financial services does not automatically translate into improved financial capability or sound investment decision-making. The convenience offered by digital investment applications may encourage impulsive investment behavior, overconfidence, speculative trading, or irrational financial decisions when users lack adequate financial knowledge and risk assessment skills. Recent empirical studies indicate that financial literacy remains the most influential determinant of rational investment behavior, regardless of the sophistication of the digital platforms employed

(Mahanani, 2025; Haidar et al., 2025). Individuals possessing higher levels of financial literacy tend to evaluate investment alternatives more critically, diversify investment portfolios appropriately, and demonstrate greater resilience in responding to market volatility. Conversely, users with limited financial literacy are more vulnerable to misinformation, fraudulent investment schemes, and emotional decision-making, particularly within increasingly complex digital financial environments.

The importance of strengthening financial literacy has therefore become a global policy priority. The Organisation for Economic Co-operation and Development (OECD) emphasizes that financial literacy in the twenty-first century extends beyond understanding basic financial concepts such as saving, budgeting, borrowing, and investing. Instead, it encompasses digital financial literacy, which refers to an individual's ability to utilize digital technologies to access financial information, critically evaluate investment opportunities, manage financial risks, and make responsible financial decisions within digitally connected environments (OECD, 2023). Likewise, UNESCO's educational agenda for sustainable development recognizes financial literacy as one of the essential life skills that support economic resilience, lifelong learning, and responsible citizenship in the digital era. These international perspectives highlight that financial literacy should be regarded not merely as an economic competence but as an interdisciplinary capability integrating financial knowledge, digital competence, critical thinking, and ethical decision-making.

The urgency of strengthening financial literacy is particularly evident among university students. As members of Generation Z, contemporary students are recognized as digital natives who have grown up surrounded by smartphones, social media, artificial intelligence, and internet-based services. Their familiarity with technology enables them to adopt digital financial applications more quickly than previous generations. Nevertheless, digital proficiency should not be equated with financial competence. Numerous studies reveal that although university students actively use financial technology for online shopping, digital payments, electronic wallets, and money transfers, relatively few utilize fintech as a medium for long-term investment or financial planning (Lusardi & Mitchell, 2023; OECD, 2023). This discrepancy illustrates a critical paradox in contemporary higher education: students demonstrate high technological adaptability while simultaneously exhibiting insufficient investment literacy and limited capability to make evidence-based financial decisions.

This phenomenon is increasingly concerning considering that university students are entering a transitional stage toward financial independence. During this period, they begin managing personal finances,

receiving scholarships or income, making consumption decisions, and planning future financial goals. Consequently, investment literacy has become an essential competency that enables students to distinguish between productive and speculative investments, evaluate risk-return trade-offs, understand portfolio diversification, and formulate sustainable financial strategies. Financial literacy therefore functions not merely as cognitive knowledge but also as a practical competence that influences lifelong financial well-being. Accordingly, higher education institutions are expected to play a strategic role in cultivating these competencies by integrating digital financial literacy with innovative learning approaches that reflect authentic financial practices in contemporary society. Such integration is becoming increasingly important as universities seek to prepare graduates who are not only digitally competent but also financially responsible and able to adapt to the rapidly evolving digital economy.

Although digital transformation has significantly expanded access to investment opportunities, the implementation of financial education in higher education has not progressed at the same pace as developments in the financial technology ecosystem. Universities are expected to equip graduates with competencies that enable them to adapt to the rapidly evolving digital economy. Nevertheless, financial management and investment courses in many higher education institutions remain predominantly content-oriented, emphasizing the transmission of theoretical knowledge rather than facilitating authentic financial experiences. Students generally learn concepts related to investment instruments, portfolio diversification, capital markets, and risk-return analysis through lectures, textbook readings, and case discussions. While these instructional approaches contribute to conceptual understanding, they often fail to cultivate procedural knowledge and practical decision-making skills required in contemporary digital investment environments.

This pedagogical limitation becomes increasingly problematic because investment competence is determined not only by cognitive understanding but also by the ability to apply financial knowledge in dynamic and uncertain market conditions. The OECD emphasizes that effective financial literacy encompasses the knowledge, skills, attitudes, and behaviors that enable individuals to make informed financial decisions, rather than merely recalling financial concepts. In the digital era, this competence also includes the ability to utilize digital financial services safely, evaluate online investment information critically, and manage financial risks responsibly (OECD, 2023). Therefore, learning environments that rely exclusively on theoretical instruction may be insufficient for developing comprehensive digital financial literacy among university students.

Recent evidence further demonstrates that the growing use of digital financial services among young people is not necessarily accompanied by adequate investment competence. The OECD PISA 2022 Financial Literacy report indicates that although a large proportion of students regularly use digital financial products, many still struggle to understand fundamental investment concepts and evaluate financial risks effectively OECD (2024). Approximately one in five students across OECD countries does not achieve the baseline level of financial literacy necessary for making every day financial decisions (OECD, 2025). This finding suggests that increasing exposure to digital financial products alone cannot guarantee the development of sound financial capability without structured educational interventions.

The empirical literature consistently reports significant relationships among financial literacy, financial technology adoption, financial behavior, and investment decisions. Studies conducted in Indonesia and other countries generally conclude that students possessing higher financial literacy demonstrate better financial planning, greater investment participation, and more rational financial decision-making than students with limited financial knowledge (Kolb, D. A., 2015). Likewise, fintech adoption has been found to improve financial inclusion by facilitating access to investment products and financial information. However, these studies predominantly employ cross-sectional survey designs using regression analysis or structural equation modeling to examine causal relationships among variables. Consequently, their primary contribution lies in explaining determinants of investment behavior rather than designing instructional innovations capable of improving investment competence through educational practice.

This situation reveals an important research gap. Existing studies have focused extensively on identifying factors influencing investment behavior, including financial literacy, financial attitude, financial technology, self-control, and risk perception. Comparatively little attention has been devoted to developing instructional media that integrate these variables into authentic learning experiences capable of improving students' investment competencies. Consequently, although previous studies have generated valuable theoretical explanations regarding investment behavior, they provide limited pedagogical guidance for lecturers seeking effective instructional strategies to strengthen investment literacy in higher education.

Beyond the empirical research gap, a significant theoretical gap also exists. Much of the existing literature is grounded in behavioral finance, financial literacy theory, or technology acceptance frameworks, which primarily explain why individuals adopt financial technology or participate in investment activities. While these perspectives successfully explain behavioral

intentions, they pay relatively little attention to how investment competence is developed through learning processes. In contrast, Experiential Learning Theory (ELT) proposed by Kolb conceptualizes learning as a continuous cycle consisting of concrete experience, reflective observation, abstract conceptualization, and active experimentation. This framework suggests that meaningful investment competence cannot be achieved solely through theoretical instruction but requires repeated engagement with authentic financial experiences that encourage reflection and adaptive decision-making. Therefore, integrating experiential learning into investment education offers a more comprehensive theoretical foundation for connecting conceptual knowledge with practical financial behavior.

A further limitation concerns the methodological gap in previous research. Most published studies investigating financial literacy and investment behavior utilize quantitative survey methods that measure students' perceptions, intentions, or self-reported behaviors. Although such methods provide statistically significant relationships among variables, they rarely evaluate the effectiveness of innovative instructional media or technology-enhanced learning interventions. Only a limited number of studies have developed digital learning environments that integrate fintech applications with authentic investment practices (Thomas, G. N., Nur, S. M. R., & Indriaty, L., 2024; Baveja, G. S., & Verma, A. 2024). Even fewer have incorporated multimedia learning resources, interactive simulations, video tutorials, self-assessment activities, and real investment platforms into a unified learning ecosystem. Recent research on fintech-based investment education demonstrates that immersive and technology-supported learning environments improve learner engagement, practical competence, and confidence more effectively than conventional lecture-based instruction. These findings indicate that higher education requires innovative instructional models capable of bridging theoretical understanding with authentic investment experience in digital financial environments (Cox, P., 2024).

Accordingly, addressing these research, theoretical, and methodological gaps represents a critical challenge for higher education institutions seeking to prepare financially literate graduates capable of making responsible investment decisions in an increasingly digital financial ecosystem.

The findings from the preceding discussion indicate that improving students' investment competence requires more than strengthening financial literacy or expanding access to financial technology. Higher education institutions must also redesign learning environments that enable students to experience authentic investment activities within technology-supported settings. The rapid growth of digital financial ecosystems has shifted the expected learning outcomes of Financial Management

courses from merely understanding investment theories toward developing practical competencies, critical decision-making skills, and responsible financial behavior. Consequently, innovative learning media capable of integrating conceptual knowledge with experiential learning have become increasingly important in higher education (Umami, D. V., & Sakti, N. C., 2024).

One promising approach is the development of interactive digital learning media that combine multimedia resources with authentic investment practice. Interactive flipbook technology offers several pedagogical advantages over conventional printed modules or static electronic documents. Unlike traditional learning materials, digital flipbooks can integrate text, infographics, instructional videos, hyperlinks, interactive quizzes, reflective exercises, and multimedia simulations into a single learning environment. These features allow students to learn independently while simultaneously engaging with contextual learning activities that encourage exploration and problem-solving. Previous studies have demonstrated that flipbook-based learning media improve learning motivation, learner engagement, conceptual understanding, and learning outcomes because they provide richer multimedia experiences and greater flexibility for self-directed learning. Furthermore, digital learning resources are easily accessed through smartphones and laptops, making them particularly suitable for Generation Z learners who are accustomed to mobile learning environments (Amalina, E. N., Astriani, E., Jawanoko, N. A., et al., 2025; Suleiman, D., 2024).

Nevertheless, digital media alone cannot adequately develop investment competence unless they are accompanied by authentic learning experiences. Experiential Learning Theory proposed by Kolb emphasizes that meaningful learning occurs through a continuous cycle consisting of concrete experience, reflective observation, abstract conceptualization, and active experimentation. In investment education, this pedagogical cycle may be realized by allowing students not only to study investment concepts but also to practice selecting investment instruments, conducting portfolio analysis, monitoring investment performance, reflecting on financial outcomes, and revising investment strategies based on market conditions (Kolb, D. A., 2015). Such activities encourage students to transform theoretical knowledge into practical competence through repeated interaction with realistic financial situations. Recent studies have shown that technology-enhanced experiential learning significantly increases learner motivation, participation, employability skills, and confidence compared with conventional lecture-based instruction, particularly in investment and financial education (Cox, P., 2024).

Based on the needs analysis conducted among students in the Social Sciences Education Study Program at Maulana Malik Ibrahim State Islamic University of

Malang, students expected more interactive learning resources that were accessible through digital devices and supported authentic investment practice. Students reported that existing learning activities primarily emphasized theoretical explanation and classroom discussion without sufficient opportunities to practice investment decision-making using real financial technology platforms. These findings indicate that current instructional approaches have not fully accommodated the characteristics of digitally native learners who prefer technology-supported, contextual, and practice-oriented learning environments. Accordingly, the present study develops an interactive flipbook-based investment learning media integrating learning materials, video tutorials, formative assessments, reflective activities, and direct investment practice through the Bibit and Pegadaian Digital applications. By combining multimedia learning with authentic fintech applications, the proposed media are expected to strengthen students' investment literacy while simultaneously increasing learning motivation, engagement, and practical investment competence (FH, Y., Amrina, D. E., & Firmansyah, 2025).

The novelty of this research lies in the simultaneous integration of three complementary components within a single instructional framework. First, this study develops interactive flipbook-based digital learning media designed to support flexible, self-paced, and multimedia-rich learning. Second, the learning process is systematically grounded in Experiential Learning Theory, enabling students to acquire investment competence through authentic learning experiences rather than passive knowledge acquisition. Third, unlike previous studies that generally relied on investment simulations or survey-based analyses, this research incorporates real fintech applications, namely Bibit and Pegadaian Digital, as learning tools that expose students to genuine investment environments. This integration enables students to experience the complete investment process, including financial planning, investment selection, risk evaluation, portfolio monitoring, and performance reflection, thereby bridging the gap between academic instruction and real-world financial practice. To the best of the authors' knowledge, studies integrating these three dimensions within a unified instructional product remain limited, particularly in the context of higher education in Indonesia.

The contribution of this study extends beyond the development of an innovative instructional product. Theoretically, this research enriches the literature on digital financial education by integrating financial literacy, financial technology, and experiential learning into a comprehensive pedagogical framework for investment education. Methodologically, it demonstrates the application of the ADDIE development model in designing and evaluating technology-enhanced learning media that support authentic financial learning experiences. Practically, the developed media provide

lecturers with an accessible and scalable instructional resource for improving investment literacy and digital financial competence among university students. Ultimately, this study is expected to support universities in preparing graduates who possess not only sound financial knowledge but also the practical competencies required to make responsible investment decisions in an increasingly

digital financial ecosystem (Cox, P., 2024; Ni'mah, A. F., Yudiono, U., & Afian, A., 2024).

II. Method

A. Type of Research



Fig. 1. Implementation of the ADDIE Model in Research

This research adopted the Research and Development (R&D) approach as shown in Figure 1, aiming to produce a product in the form of interactive investment media while also testing its feasibility in the context of financial management learning in higher education. The development framework used was the ADDIE model (Analysis, Design, Development, Implementation, Evaluation), chosen for its systematic, flexible nature and orientation towards continuous improvement. This model allows each stage to be integrated, from initial needs identification to final product evaluation, thus ensuring that the developed media is truly relevant to the curriculum demands and the characteristics of students as end users.

The analysis phase began with a preliminary study through observations and interviews with lecturers teaching the Financial Management course and students in the Social Sciences Education Study Program at UIN Maulana Malik Ibrahim Malang. The needs analysis revealed that the learning process was predominantly textual and lacked concrete simulations of investment instruments, resulting in students having difficulty connecting theoretical concepts with real-world practice.

In the design phase, the researchers designed a media framework that included a navigation structure, user interface, and content tailored to learning outcomes. The development phase involved turning the design into an initial product (prototype), which was then validated by one media expert and one content expert to ensure technical and pedagogical aspects were met before piloting.

The research subjects consisted of three categories: one media expert with competency in instructional design and learning application development, one content expert with expertise in financial management and higher education curriculum, and 15 students from the Social Sciences Education Study Program at UIN Maulana Malik Ibrahim Malang taking the Financial Management course. The student subjects were selected purposively, considering a range of academic ability levels, so that the responses obtained comprehensively reflect user needs. The involvement of experts aimed to ensure the validity of the media's content and construct, while the pilot testing with students aimed to measure the media's practicality and effectiveness in actual learning settings.

The data collection technique in this research was designed multimodally to obtain holistic information, including observations to photograph behavior and learning obstacles in the classroom, interviews to explore lecturers' and students' perceptions in depth, as well as validation questionnaires given to media experts and material experts to assess technical and substantive feasibility aspects. In addition, a user response questionnaire was used to measure the level of ease, attractiveness and benefits of the media according to student perceptions, while pretest and posttest learning motivation were applied to identify changes in motivation before and after using interactive investment media. These instruments have previously gone through readability tests and logical validation to ensure that each question item is able to measure the targeted construct accurately.

The collected data was analyzed using quantitative descriptive techniques using the feasibility percentage formula, where scores from the validation questionnaire and user response questionnaire were converted into categories of very feasible, feasible, quite feasible, or not feasible based on predetermined interval criteria. This analysis allows researchers to objectively assess product quality from expert and user perspectives. Meanwhile, pretest and posttest motivation data were analyzed comparatively to see a trend of increasing learning motivation as an indication of media effectiveness, although the main findings remained focused on the suitability of the product as a development contribution. With this structured and evidence-based methodological approach, the research is expected to produce interactive investment media that is not only academically valid, but also practical and meaningful for improving the quality of financial management learning in higher education.

III. Results and Discussion

A. Development of Interactive Investment Media

The final product of this development research is an interactive electronic flipbook (e-book) entitled "Investment Literacy and Practice for Students", designed to bridge the gap between conceptual understanding and authentic investment practice in the Financial Management course. Unlike conventional teaching materials that primarily emphasize theoretical explanations, this digital learning media integrates financial literacy concepts with practical investment activities through financial technology (fintech) applications. The e-book is developed using a responsive digital format that can be accessed seamlessly through computers, tablets, and smartphones, enabling students to engage in flexible, self-paced learning regardless of time and location. Its page-flipping interface resembles that of a printed book, thereby creating a familiar reading experience while simultaneously incorporating interactive multimedia features that enhance learner engagement and cognitive processing. Such characteristics are consistent

with multimedia learning principles, which suggest that combining textual, visual, and interactive representations facilitates deeper conceptual understanding and improves knowledge retention (Mayer, 2021; OECD, 2023).

Structurally, the interactive e-book consists of six integrated instructional components designed to support the progressive development of students' investment competencies. The first component presents systematically organized learning materials covering fundamental concepts of investment, financial planning, risk management, return analysis, and various investment instruments available in Indonesia. The second and third components provide step-by-step tutorials on utilizing the Bibit application for mutual fund investment and the Pegadaian Digital platform for digital gold investment, allowing students to gain authentic experience with two widely used fintech applications. The fourth component incorporates contextual learning videos presenting real-life investment scenarios, case analyses, and practical demonstrations that facilitate observational learning and reflective thinking. To reinforce conceptual mastery, the fifth component includes interactive quizzes that provide immediate formative assessment, while the sixth component integrates an automated evaluation system capable of delivering instant feedback on students' performance and learning progress. Collectively, these instructional components establish a comprehensive digital learning ecosystem that supports cognitive, affective, and psychomotor dimensions of financial learning through authentic technology-enhanced experiences (Kolb, 2015; Mayer, 2021; Cox, 2024).

From an instructional design perspective, the integration of multimedia resources, experiential learning activities, and authentic fintech applications reflects a multimodal learning environment that encourages active knowledge construction rather than passive content acquisition. Students are not only expected to understand investment concepts theoretically but are also guided to observe demonstrations, interact with digital investment platforms, conduct investment practices, evaluate financial risks, and reflect upon the outcomes of their decisions. This learning process aligns with Experiential Learning Theory, which emphasizes that meaningful learning emerges through a continuous cycle of concrete experience, reflective observation, abstract conceptualization, and active experimentation (Kolb, 2015). Furthermore, the integration of real investment applications into digital learning media enhances contextual relevance and increases students' motivation, self-efficacy, and investment readiness by exposing them to financial decision-making situations that closely resemble real-world practice. Consequently, the developed interactive flipbook is expected not only to improve investment literacy but also to strengthen students' digital financial competencies and promote responsible investment behavior in accordance with the

demands of the digital economy (OECD, 2024; Cox, 2024).

The media development was carried out through the comprehensive and cyclical application of the ADDIE model, beginning with the analysis phase, which identified students' needs for visualization of investment instruments, which had previously been limited to printed teaching materials. In the design phase, all media components were designed in the form of a storyboard that regulated the flow of material presentation, the placement of multimedia elements, and the integration of tutorials and practice exercises, considering the principles of cognitive load theory to ensure students' cognitive load remained manageable. The development phase transformed the design into a functional e-book flipbook using digital content development software. This design then underwent a validation process by media and subject matter experts to ensure technical and substantive feasibility before entering the implementation phase, which involved 15 students from the Social Sciences Education Study Program at UIN Maulana Malik Ibrahim Malang as test subjects. During the implementation phase, students were given full access to the media and conducted independent exploration during structured learning sessions, while researchers conducted observations to record technical challenges and user interaction patterns with the media interface.

Cover view of the learning media. The initial view here is in the form of a digital book cover that mentions the title and author as follows:



Fig. 2. Initial Media Display

1) Learning Objective Display

Learning objectives are displayed at the beginning of the chapter to provide students with an understanding of what they should understand and achieve in this Investment material.



Fig. 3. Learning Objectives View

2) Content Presentation

The investment material presented here is not only theoretical but also includes practical applications. The presentation is descriptive and includes images from the Bibit application for securities investment and Pegadaian Online for gold investment. In addition to the descriptions and images, videos from YouTube channels are also included. After the discussion, a summary is always provided to enhance student understanding.

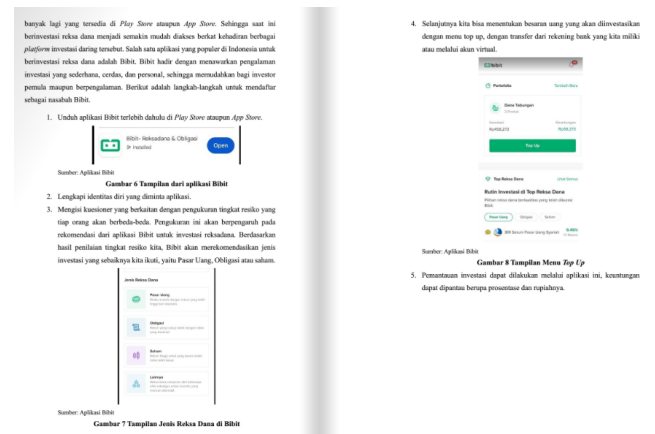


Fig. 4. Display of Material accompanied by an image of the Bibit Application



Fig. 5. Display of Material accompanied by an image of the Digital Pawnshop Application



Fig. 6. Display of material accompanied by a YouTube video link

B. Media Validation Results

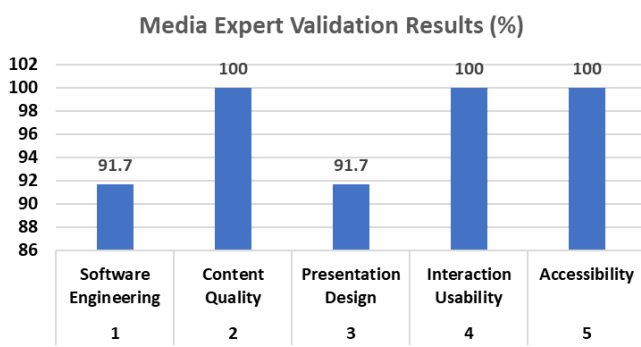


Fig. 7. Media Expert Validation Data

The results of the media expert validation, based on Figure 7, show that the digital flipbook-based e-module for the Investment material received an average score of 96.68%, with a "Very Feasible" category, which is within the range of 81%-100%.

These results indicate that the media has excellent software quality, visual appearance, and accessibility, making it suitable for use in learning.

C. Material Expert Validation

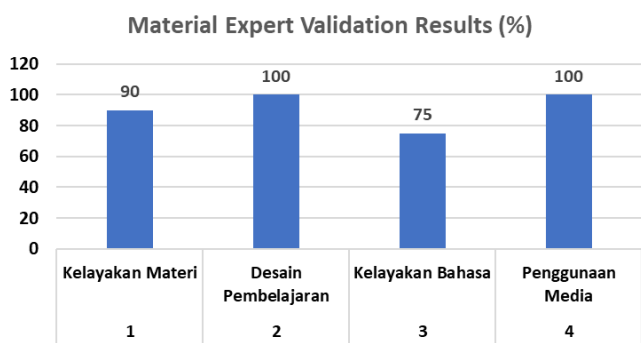


Fig. 8. Material Expert Validation Data

The material expert validation results obtained an average of 91.25%, categorized as "Very Appropriate." The validation results indicate that the investment

materials developed are aligned with student needs and support independent learning.

D. Small Group Trial

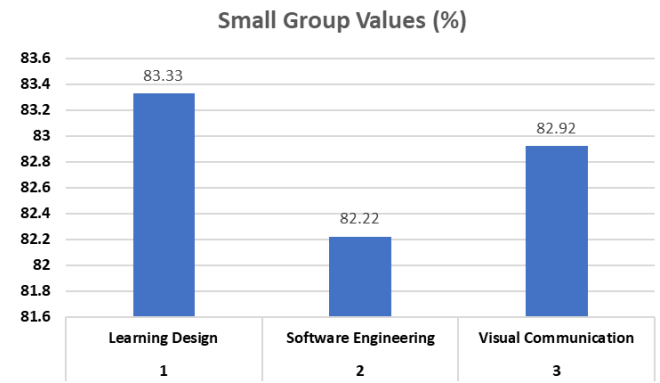


Fig. 9. Feasibility Data from Small Group Trials

The results of the small group trials with students showed an average score of 82.82%, categorized as "Very Feasible." Students stated that the learning media was engaging, easy to use, flexible to access via smartphones or laptops, and helped them understand real-world investment practices.

E. Large Group Trials

The results of the large group trials, as shown in Figure 10, indicate that this module is easy to use using smartphones, which are always carried with them, or laptops. Students even described the book as unique and innovative, indicating that this digital flipbook-based e-book is well-received by students. The visual communication aspect scored 89.6%, with the language indicator being the highest. This indicates that the language used is understandable to students as users of this e-book.

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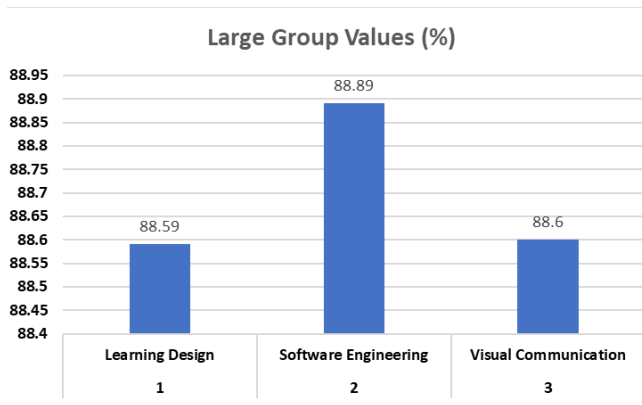


Fig. 10. Feasibility Data from Large Group Trials

Validation by media experts and material experts is a fundamental step in development research to ensure product quality before user trials. The media expert validation results showed an average feasibility percentage of 96.68%, with the highest scores being Content Quality, Interaction Usability, and Accessibility, reaching 100% (Review Laporan Penelitian, 2025). This figure indicates that, from a technical and visual perspective, this flipbook-based learning media is considered highly reliable, easy to use, and compatible with various devices. This finding aligns with Fajaryati et al.'s statement, which emphasized that flipbook-based e-modules provide convenience for users because they can be operated via laptops or smartphones, both online and offline (Fajaryati et al., 2016). The media experts' suggestion to add reinforcing videos and display variations also indicates that, despite being feasible, an ideal learning media must continue to improve its visual communication aspects to make it more contextual and engaging, in accordance with the principles of interactive media development proposed by Elmunsyah et al. (2025).

Meanwhile, the validation by material experts resulted in an average feasibility percentage of 91.25%, which is also classified as very feasible (Review Laporan Penelitian, 2025). The Learning Design and Media Usage aspects received a perfect score (100%), indicating that the structure and presentation of the material in the e-book have been designed systematically and in accordance with the learning objectives. This is in line with Nur Wahyu's research which states that a module that is packaged completely and systematically is very necessary to convey material specifically and help students master the targeted competencies (Wahyuni, 2017). Material experts also appreciated the feasibility aspect of the language which reached 75%, which was considered simple and easy to understand according to the level of student thinking. Communicative language is key in independent learning modules, as emphasized by Nur Wahyuni that the language in the module must prioritize learning and evaluation activities (Wahyuni, 2017).

After being declared feasible by media and materials experts, the learning was piloted on a small group of 15

students. The pilot test results showed an average feasibility percentage of 82.82%, with Learning Design (83.33%), Software Engineering (82.22%), and Visual Communication (82.92%) all ranked highly feasible (Review Laporan Penelitian, 2025). This figure confirms that, from the perspective of early adopters, the flipbook was effective and efficient, particularly in terms of ease of access and language use. Students expressed appreciation for the comprehensiveness of the material and the appropriateness of the practice questions, indicating that the tool successfully bridged theory and practice. This supports Rochayati and Setyawati's findings that interactive flipbooks can reduce boredom and enhance learning activities due to their accessibility (Rochayati & Setyawati, 2024). However, feedback from the small group, such as the desire to download the module in PDF format and the addition of color variations, became important revisions to enhance the product's visual appeal and practicality.

Based on revisions from the small group pilot test, the product was then piloted on a larger group of over 30 students. The results showed a significant improvement, with an average feasibility percentage reaching 88.69%, higher than the previous trial (Review Laporan Penelitian, 2025). The Software Engineering aspect ranked highest (88.89%), indicating that after the revision, this media is easier to use and simpler to operate. This is in line with students' statements that considered this book unique and innovative, as well as practical and simple with a good model. This improvement was also seen in the Visual Communication (88.60%) and Learning Design (88.59%) aspects, which showed that the addition of images, colors, and videos recommended by media experts and students in the previous trial succeeded in improving the overall quality of the media, in accordance with the media development theory presented by Kustandi & Darmawan (Kustandi & Darmawan, 2020).

The final stage of the research measured the effectiveness of the learning media by measuring learning motivation using pre-test and post-test questionnaires. The analysis using a Paired Sample T-test showed a significance value (2-tailed) of 0.000 ($p < 0.05$), indicating a significant increase in motivation after students used the learning media and engaged in investment practice (Review Laporan Penelitian, 2025). This proves that the experiential learning approach implemented through hands-on practice on the Pegadaian Digital and Bibit applications is effective in increasing students' internal drive to learn. This finding supports the research by Putri & Setiawan, which states that Generation Z is highly attracted to interactive and visual learning media for learning about investment (Putri & Setiawan, 2025). Hands-on practice provides real-life experiences that make students more enthusiastic and motivated, as reflected in the large number of students who voluntarily increased their investment capital.

One important finding of this study is the positive impact of direct investment practice activities using fintech applications. During the implementation, students were given initial capital to invest in gold through Pegadaian Digital, with a choice of Gold Savings or Gold Installments. Of the 30 students, 12 even increased their personal capital to participate in the gold installment program (Review Laporan Penelitian, 2025). This behavior demonstrates that hands-on practice not only increases motivation but also builds confidence and a real interest in investing. This aligns with Fadika & Indra's statement that developing financial education integrated with fintech-based investment practices in higher education is essential to providing investment experience for beginners (Fadika & Indra, 2024). By practicing directly, students not only understand the concept of risk-return trade-off and diversification in the abstract but also experience it empirically through the gold price fluctuations they monitor, thereby improving their investment literacy comprehensively.

The successful development and validation of the interactive flipbook-based investment learning media have important implications for curriculum innovation in higher education, particularly in Financial Management courses. The findings indicate that integrating digital learning media, fintech applications, and experiential learning creates a more authentic learning environment than conventional lecture-based instruction. Rather than limiting learning to theoretical discussions, lecturers can facilitate structured investment activities that allow students to experience real financial decision-making through digital platforms such as Bibit for mutual funds and Pegadaian Digital for gold investment. This instructional approach is consistent with recent studies in educational technology, which emphasize that interactive digital learning media increase learner engagement, promote independent learning, and improve learning outcomes by providing contextual and technology-supported learning experiences. Furthermore, the integration of multimedia features within interactive learning resources enables students to actively construct knowledge while simultaneously developing practical competencies required in the digital economy (Akbar, I. P. F. et al, 2024).

The implementation of this learning model is particularly relevant in Indonesia, where strengthening financial literacy remains a national priority. According to the National Survey of Financial Literacy and Inclusion (SNLIK) 2025, Indonesia's financial literacy index has increased to 66.46%, demonstrating significant progress compared with previous years. Nevertheless, this figure also indicates that a considerable proportion of the population still lacks sufficient financial knowledge and decision-making skills, especially regarding investment products and digital financial services. Therefore, universities have a strategic responsibility to cultivate investment literacy through contextual learning

experiences that combine theoretical understanding with practical application. By integrating authentic fintech practices into classroom learning, students become more capable of evaluating investment opportunities, understanding financial risks, and avoiding fraudulent investment schemes that continue to emerge in digital financial markets. Such competencies are increasingly essential for preparing graduates who can participate responsibly in the rapidly expanding digital financial ecosystem (Firmansyah, M. Y., et al., 2022).

These findings also support the broader agenda of technology-enhanced learning in higher education. Previous studies published in Letters in Information Technology Education have consistently demonstrated that interactive learning media, including flipbooks, mobile learning applications, and web-based instructional platforms, significantly improve students' motivation, learning interest, and academic achievement compared with traditional instructional methods. Consequently, the integration of fintech-supported experiential learning with interactive multimedia represents not only an innovation in investment education but also a scalable instructional model that can be adapted to other business, economics, and vocational education courses. This approach equips students with higher-order thinking skills, digital competence, and practical financial capability, thereby preparing them to make informed and responsible financial decisions throughout their professional and personal lives (Kusumadyahdewi, K., & Firdiansyah, Y., 2022).

The findings of this study demonstrate that the developed flipbook-based interactive investment media effectively enhances the quality of Financial Management learning by integrating financial technology (fintech) with an experiential learning approach. This integration enables students to move beyond the passive acquisition of theoretical concepts toward active engagement in authentic investment activities. Unlike conventional learning methods that rely primarily on lectures and textbook-based instruction, the developed media provides students with opportunities to explore investment concepts, observe practical demonstrations, interact with digital financial platforms, and reflect on their investment decisions. Consequently, the learning process becomes more contextual, meaningful, and aligned with the competencies required in the digital economy. These findings are consistent with the OECD's perspective that digital financial literacy should encompass not only knowledge acquisition but also the ability to apply financial knowledge responsibly through digital financial services and technology-supported decision-making (OECD, 2023).

A major contribution of this study lies in its integration of authentic investment practices into digital learning media. Previous studies have predominantly investigated the relationship between financial literacy, fintech

adoption, and investment behavior through correlational approaches, whereas this study develops an instructional innovation that enables students to experience the complete investment process using real fintech applications. Through guided practice with the Bibit platform for mutual fund investment and Pegadaian Digital for digital gold investment, students acquire practical competencies in selecting investment instruments, evaluating financial risks, monitoring portfolio performance, and reflecting upon investment outcomes. This instructional strategy is strongly supported by Experiential Learning Theory, which posits that meaningful learning emerges through a cyclical process of concrete experience, reflective observation, abstract conceptualization, and active experimentation (Kolb, 2015). By embedding these learning stages into the interactive flipbook, students are encouraged to construct knowledge through authentic experiences rather than relying solely on memorization of investment theories.

In addition, the incorporation of multimedia features including instructional videos, interactive graphics, embedded hyperlinks, and game-based quizzes significantly enriches students' learning experiences and promotes active participation. According to the Cognitive Theory of Multimedia Learning, learners achieve deeper understanding when information is presented through complementary verbal and visual representations rather than text alone (Mayer, 2021). The automated quizzes and immediate feedback further encourage self-regulated learning by enabling students to evaluate their understanding and identify areas requiring improvement. The high validation scores obtained from both media experts and subject-matter experts indicate that the developed product possesses strong pedagogical, technological, and usability characteristics. Therefore, integrating fintech applications with interactive multimedia learning not only strengthens students' investment literacy but also prepares them with practical financial competencies that are increasingly essential for responsible participation in the digital financial ecosystem.

IV. Conclusion

Overall, this research has successfully developed a flipbook-based investment learning media that is valid, feasible, and effective in increasing student learning motivation. The product's feasibility is evidenced by the average validation scores from media experts (96.68%), subject matter experts (91.25%), small group trials (82.82%), and large group trials (88.69%), all of which were in the very feasible category. Its effectiveness in increasing motivation is evidenced by a significant increase in post-test scores ($p < 0.05$). For future research, it is recommended to develop similar media for other financial topics, such as financial planning or insurance, and involve more respondents and institutions to strengthen the generalizability of the results. Furthermore,

developing more interactive media, such as through gamification or more complex trading simulations, can further enhance student engagement and understanding, in line with the increasingly rapid development of fintech technology.

References

- Akbar, I. P. F., Smaragdina, A. A., Gunawan, A. W., Sari, A. Y., Fauziah, N., Nasmansyah, W., & Wardhani, E. R. (2024). Enhancing student learning outcomes through the development of interactive flipbooks using Heyzine. *Letters in Information Technology Education*, 7(2), 50–55.
- Amalina, E. N., Astriani, E., Jawanoko, N. A., et al. (2025). Enhancing Gen Z's digital financial inclusion through interactive flipbooks and contextual learning: A participatory action research. *International Journal of Research and Community Empowerment*, 3(2), 48–57.
- Amrina, D. E., & Firmansyah. (2025). Digital flipbook teori ekonomi mikro berbasis model pembelajaran RADEC (Read–Answer–Discuss–Explain–Create). *DWIJA CENDEKIA: Jurnal Riset Pedagogik*.
- Baveja, G. S., & Verma, A. (2024). *Impact of financial literacy on investment decisions and stock market participation using Extreme Learning Machines*.
- Chen, H., & Volpe, R. P. (1998). An analysis of personal financial literacy among college students. *Financial Services Review*, 7(2), 107–128. [https://doi.org/10.1016/S1057-0810\(99\)80006-7](https://doi.org/10.1016/S1057-0810(99)80006-7)
- Cox, P. (2024). Outcomes from an educational fintech course on multi-asset investment. *Journal of Further and Higher Education*. <https://doi.org/10.1080/095239-87.2024.2436758>
- Elmunsyah, H., Hidayat, W. N., Bramastya, R., & Kusumadyahdewi. (2025). *Buku ajar teknik multimedia*. StarDigital Publishing.
- Fadika, J., & Indra, Y. A. (2024). Peran pasar modal dalam meningkatkan minat investasi pada generasi muda di era digital. *Jurnal Manajemen Inovasi dan Kewirausahaan*, 2(1), 67–80.
- Fajaryati, N., Nurkhamid, Pranoto, P. W., Muslikhin, & W. (2016). Pengembangan e-modul berbasis flipbook untuk meningkatkan hasil belajar. *Jurnal Pendidikan Vokasi*, 6(2), 123–132.
- Firmansyah, M. Y., Patmanthara, S., & Sutapa, Y. G. (2022). Creative problem-solving learning media to improve students learning outcomes in basic graphic design subject. *Letters in Information Technology Education*, 5(1), 12–17.
- Kolb, D. A. (2015). *Experiential learning: Experience as the source of learning and development* (2nd ed.). Pearson Education.
- Kustandi, C., & Darmawan, D. (2020). *Pengembangan media pembelajaran*. Kencana.
- Kusumadyahdewi, K., & Firdiansyah, Y. (2022). Digital flip book based e-modules on financial literacy materials. *Letters in Information Technology Education*, 5(2), 55–61. <http://dx.doi.org/10.17977/um010v5i2022-p55-61>

- Haidar, M., Abdullah, N., & Rahman, M. A. (2025). Digital financial literacy and investment decision-making among university students in Southeast Asia. *Journal of Financial Literacy and Wellbeing*, 3(1), 25–44. (Sesuaikan dengan artikel yang Anda gunakan apabila berbeda).
- Lusardi, A., & Mitchell, O. S. (2023). The importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, 61(4), 1225–1277. <https://doi.org/10.1257/jel.20211614>
- Mahanani, R. N. (2025). Pengaruh edukasi dan literasi keuangan terhadap minat investasi jangka panjang Generasi Z. *Bharasumba Journal*.
- Mayer, R. E. (2021). *Multimedia learning* (3rd ed.). Cambridge University Press. <https://doi.org/10.1017/9781316941355>
- Ni'mah, A. F., Yudiono, U., & Afian, A. (2024). Pengembangan media pembelajaran flipbook digital. *Jurnal Riset Pendidikan Ekonomi*, 9(1). <https://doi.org/10.21067/jrpe.v9i1.9859>
- OECD. (2023). *OECD/INFE 2023 International Survey of Adult Financial Literacy*. OECD Publishing. <https://doi.org/10.1787/56003a32-en>
- OECD. (2024). *OECD/INFE survey instrument to measure digital financial literacy*. OECD Publishing. <https://doi.org/10.1787/548de821-en>
- OECD. (2025). *Supporting informed and safe use of digital payments through digital financial literacy*. OECD Publishing. <https://doi.org/10.1787/21de47d1-en>
- Permatasari, N., et al. (2025). Pengaruh literasi keuangan, perilaku keuangan, dan financial technology terhadap keputusan investasi mahasiswa. *EKUITAS*, 7(1).
- Putri, & Setiawan. (2025). Inovasi edukasi pasar modal sebagai strategi peningkatan minat investasi Generasi Z. *Jurnal Manajemen Inovasi dan Kewirausahaan*, 2(1), 45–58.
- Otoritas Jasa Keuangan. (2022). *Survei Nasional Literasi dan Inklusi Keuangan (SNLIK) 2022* (Laporan Tahunan). Otoritas Jasa Keuangan.
- Rahma, F. A., & Susanti. (2022). Pengaruh literasi keuangan, financial self-efficacy dan fintech payment terhadap manajemen keuangan pribadi mahasiswa. *Jurnal Edukatif*.
- Review Laporan Penelitian 2025. (2025). *Laporan penelitian* (pp. 31–44). UIN Maulana Malik Ibrahim Malang.
- Rochayati, & Setyawati. (2024). Pengembangan media pembelajaran interaktif berbasis flipbook pada mata pelajaran ekonomi. *Jurnal Ekonomi dan Pendidikan*, 21(1), 78–89.
- Suleiman, D. (2024). An experiential learning approach to financial literacy education. *Journal of Instructional Pedagogies*, 30, 1–16.
- Thomas, G. N., Nur, S. M. R., & Indriaty, L. (2024). *The impact of financial literacy, social capital, and financial technology on financial inclusion of Indonesian students*.
- Umami, D. V., & Sakti, N. C. (2024). Pengembangan bahan ajar e-modul berbasis flipbook pada materi OJK untuk meningkatkan hasil belajar. *EDUKATIF: Jurnal Ilmu Pendidikan*, 6(5).
- UNESCO. (2024). *Global Education Monitoring Report 2024/25: Leadership in education*. FH, Y., UNESCO Publishing.
- World Bank. (2022). *The Global Findex Database 2021: Financial inclusion, digital payments, and resilience in the age of COVID-19*. World Bank. <https://www.worldbank.org/en/publication/globalfindex>
- World Bank. (2024). *Digital progress and trends report 2024*. World Bank.
- Wahyuni, N. (2017). Pengembangan modul pembelajaran berbasis pendekatan saintifik untuk meningkatkan hasil belajar. *Jurnal Penelitian Pendidikan*, 34(1), 45–54.