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Developing Financial Literacy Storybooks for Junior High School Students: A Fuzzy Delphi Need Analysis

Okto Irianto[1], Susanto[2], Henie Poerwandar Asmaningrum[3], Daud Andang Pasalli[4]
[1,2,3,4]Universitas Musamus, Indonesia

[1]irianto@unmus.ac.id

Abstract

This study conducted a needs analysis for the development of financial literacy storybooks for junior high school students on the Story Jumper platform, using the Fuzzy Delphi method. A panel of 10 experts, including financial educators, curriculum developers, educational technologists, and professional storytellers, was formed and consulted through three rounds. The study revealed eight priority content areas in financial literacy: first comes Saving Wisely (93.3%), followed by Managing Expenses (90.0%), and Understanding Money and Credit (86.7%). The most significant expectancies mentioned are elements of storytelling such as interactive decision points (93.3%) and relatable characters: teenage protagonists (86.7%) essential for engaging students and enhancing learning. Guidelines for implementation stipulated the optimum duration for a story of 15 to 20 minutes, adding interactive elements every 3-4 pages and visual elements such as drawings every 2-3 pages. The compatibility assessment unveiling the extent of Story Jumper found that it is very aligned with visual storytelling (0.92) but limited in as far as complex financial calculations (0.71). While this study offers considerably useful guidelines for the incorporation of financial literacy storybooks into the educational setups, the following isolated limitations require further search. These include reliance on expert opinion, no classroom trials, limited cultural context appraisal, and lack of longitudinal studies. All in all, this study therefore illuminates the potential of digital storytelling as an innovative pedagogical approach for teaching financial literacy and provides practical advice to educators and program developers while setting the stage for future investigations and refinements of these resources.
Keywords: Financial literacy, Storybook, Fuzzy Delphi, Need Analysis

Introduction

For today's youth, financial literacy has emerged as a life skill, especially since the global reality is becoming more complex and evolving digital (Acar, 2023; Lusardi, 2019). Research indicates that junior high school students understand little about basic financial concepts, which could lead to their making poor financial decisions in the future (Hu & Xue, 2024; Irdiana et al., 2024). This gap is alarming, considering this phase is a crucial stage when money management habits and financial behaviors are being developed and set in stone for the rest of a person's life.

Research interest in financial literacy among students, during the past decade, has soared (Figure 1). The trend is shown in the Scopus database, from just 12 publications in 2015, the field has grown to 48 by its peak in 2024. The data has shown three distinct growth phases:

1) Early Phase (2015-2017): In this phase, little publication emerged is evidenced by the mere 12 and 18 publications in an annual range, which confirms the nascent nature of the research field.

2) Growth Phase (2018-2021): Research output accelerated noticeably, with a range of 23 publications in 2018 to 32 in 2021. 2020 even performed strongly with 43 publications, perhaps owing to a much-heightened interest in financial literacy among other subjects due to the global financial vagueness imposed by the COVID-19 pandemic.
3) Maturation Phase (2022-2024): During this period, the domain has continued to show a consistently high level of activity with 47 publications in 2022, 45 in 2023, and 48 in 2024, suggesting that financial literacy research is becoming a mature field in academic discourse. The relative stability of these high records in recent years reflects the ongoing academic enthusiasm to understand and enhance student financial literacy.

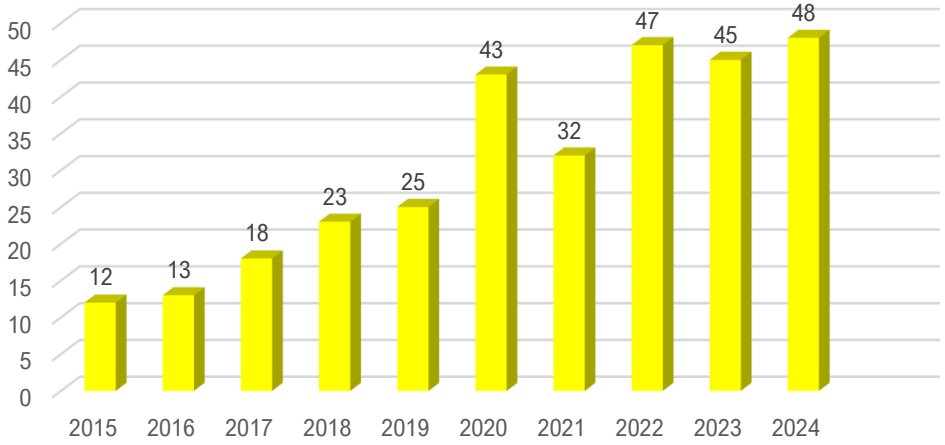


Figure 1. Research Trend on Financial Literacy Among Student
(Source: Scopus Database, 2025)

The overall growth trend is that by 2024, the annual publications in this area are expected to rise to about four times the 2015 figure from 12 in 2015 to around 48 in 2024. This means that considerably more emphasis is placed on financial literacy among students as an area of academic research. Such growth probably reflects the recognition that financial literacy is gaining importance in education and a wider scope of research questions addressed in this field.

The importance of financial literacy has been studied widely in academic research, especially in terms of its impact on students and young adults. The basic premise of financial literacy is that it is an invaluable skill that enables an individual to make informed financial decisions and safeguard their financial well-being (Lusardi, 2015). But, with shocking frequency, research is uncovering major gaps in financial literacy across demographic lines, which have been shown to relate to longer-term financial outcomes.

Research has frequently focused on gender differences in financial literacy. Male students outperform female students in financial literacy quizzes, particularly on questions related to compound interest, credit card interest, or income tax rates (Agnew & Harrison, 2015). This can be attributed to various factors, including early financial socialization. Agnew & Cameron-Agnew (2015) found that males are typically engaged in conversations regarding finance at an earlier age than females, which correlates to their greater levels of current financial literacy.

The role of education in improving financial literacy has been the subject of numerous studies. Cole, Paulson, and Shastry (2016) assessed the mandated personal finance and mathematics courses to determine if better math skills led to more participation in financial markets and better credit management. This indicates that traditional personal finance courses are not sufficient. In a related study, Skimmyhorn et al. (2016) appraised various teaching

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methodologies and found that principle-based approaches showed some promise in boosting financial self-efficacy, although efficacy rates varied considerably among methods.

Some researchers have looked at how financial literacy relates to decisions regarding student loans. Williams and Oumlil (2015) created a framework for understanding the financial capabilities of college students, showing how little financial knowledge has been tied to poorer decisions in debt management. Their model emphasized that comprehensive financial education programs should expound upon not just theoretical knowledge but practical applications as well.

From an international perspective, financial literacy has also been dealt with. A study entitled "Cultural Differences: Financial Literacy Among Today 's Youth" (Brown et al., 2018) was conducted in the German-French language border in Switzerland regarding how cultural differences play a role in one's level of financial literacy; for example, German-speaking students had a higher sense of financial literacy due, in part, to access to financial experiences at an early age, such as receiving pocket money and having checking accounts.

Technological approaches to financial education are certainly an emerging frontier. Bayuk & Altobello (2019) assessed those who already used a financial app tend to exhibit higher subjective (though not objective) knowledge, and want both “social” and “economic” features of financial applications, whereas those with no experience are more motivated by economic features. This project contributes to research to improve understanding of financial well-being by examining how already having a financial gamification application impacts perceptions of knowledge and expertise, as well as intentions to save given a more socially focused vs economically focused savings app.

Recent studies have also investigated the psychological factors influencing financial literacy. Philippas & Avdoulas (2020) examined the effect of financial knowledge on financial well-being among Generation Z university students and found that both cognitive and non-cognitive skills play an essential role in making financial decisions. Their study also underlined the necessity of establishing both technical knowledge and behavioral competencies.

Urban (2023) established that financial education requirements in schools as mandated by the government improved credit results and reduced defaults among young adults, establishing the effectiveness of early financial education interventions. This finding was supported by Agasisti et al. (2022), who showed through a multiple-country experimental approach that online game-based financial education interventions could enhance levels of financial literacy among their students by 0.313 standard deviations.

The relationship between financial literacy and student characteristics has been the core of extensive studies. Khalilshorani et al. (2022) explored evidence from different countries whereby financial literacy levels among undergraduates from Malaysia and Indonesia were moderate on average, with significant differences existing between the financial attitudes and behaviors of the countries. Gender differences in financial literacy have also been captured, with Blaschke (2022) finding that confidence indeed plays a decisive role in closing the growing gender gap with ordinary concepts; however, there still exist marked differences when means of very advanced literacy tasks are compared.

Parental influence and socioeconomic factors play a huge role in shaping financial literacy development. Vijaykumar (2022), who worked on 1300 students from 3 states of India, established that family financial socialization significantly influenced the self-efficacy and autonomy of the students. Accordingly, Santos et al. (2022) used structural equation modeling to demonstrate that parental financial education had a direct effect on young people's credit card use behavior in Brazil, France, and the United States.

There has also been an investigation into which educational methods work best. Kaiser & Menkhoff (2020) did a meta-analysis of 37 experimental studies and found large effects of

education on financial literacy (0.33 SD) and a smaller but significant effect on financial behavior (0.07 SD). Digital interventions are particularly promising, with Sconti (2022) showing that financial literacy education delivered through digital platforms led to significant increases in both subjective and objective financial knowledge among Generation Z students.

The role of financial literacy has also been explored with particular reference to specific contexts. Le Fur & Outreville (2022) looked at the French students' financial literacy on risk aversion and found that financial literacy was an important factor in explaining broader investment behaviors. According to Alomari & Abdullah (2023), within the new technology subcontext in Saudi Arabia, financial literacy moderated between various factors and behavioral intentions to use cryptocurrency among university students.

These studies together demonstrate the multilevel and multifocal nature of financial literacy and the important place this has occupied in defining financial behaviors and outcomes among different populations and contexts. They also point to the various educational interventions promising success while making a case for taking demographic and socio-economic considerations within financial literacy development.

In many instances, financial education plays out in textbooks and lectures that may not be as engaging for students or presented in a meaningful context for teaching young (Hang & Thi, 2022). Digital storytelling gives such creative an alternative: an immersive and interactive learning experience, enabling the more complex financial concepts to be comfortably accessible and deeply meaningful to the young (Andriichuk, 2021). Story Jumper, a digital platform that creates and shares interactive stories (Ezeh, 2021; Rameswara et al., 2019), offers unique possibilities for developing educational content that blends narrative appeal with financial literacy.

Integration of financial education using digital storytelling involves careful considerations about content appropriateness, pedagogy, and technological implementation (Sabau, 2022). Much has been explored in putting financial education into practice and the use of digital tools in teaching in earlier studies (Hang & Thi, 2022; Hu & Xue, 2024; Menberu, 2024). However, little focus has been given to the application of digital storybooks toward teaching financial literacy in junior high school. This calls for a systematic investigation into the essential components and requirements for making successful digital platforms created for educating financial literacy storybooks.

In this present study, the Fuzzy Delphi method is used for a comprehensive analysis of the development of financial literacy storybooks using Story Jumper. The Fuzzy Delphi method is chosen in consideration of its underlying ability to inform the uncertain and ambiguous nature of the opinions of experts while providing a structured way on how to arrive at a consensus on the more complex decision-making processes or complex educational design decisions (Alharbi & Khalifa, 2021; Roldán López de Hierro et al., 2021). By harnessing expert knowledge from the relevant areas of financial educators, curriculum specialists, and storytelling experts, this research will enable all interested parties to create clear guidelines for designing effective and appealing financial literacy materials.

The specific objectives of the study are threefold: (1) to identify the main financial literacy concepts that ought to be incorporated into digital storybooks for junior high school students; (2) to identify suitable storytelling elements and features for using Story Jumper in imparting these concepts; and (3) to ascertain and validate curricular needs and considerations for the effective integration of these digital storybooks into existing educational systems.

The objectives summarized above can be formulated in the following research questions to guide the research:

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1) Which financial literacy concepts should be present in the digital storybooks done for junior high school students?
2) Which storytelling elements and features are suitable for using Story Jumper for effectively conveying financial literacy concepts?
3) Which of the curriculum needs and considerations should be taken into account to effectively incorporate these digital storybooks into already existing school systems?

The results of this research are relevant in promoting the development of more effective educational resources and giving information to educators, curriculum developers, and educational technology designers.

In this regard, the study contributes insights into a peculiar gap in literature encompassing the dual intersection of financial literacy education, digital storytelling, and systematic need analyses, prodded forth through the Fuzzy Delphi. The results will provide the groundwork for the production of age-appropriate, engaging, and effective financial literacy resources that maximize the power of digital storytelling to improve student learning. Besides, this study will enhance the understanding of the efficacy of educational technology for critical life skills education in secondary schools.

In this study, the novelty lies in the innovative approach of integrating financial literacy education with digital storytelling for junior high school students' educational research. Using the Fuzzy Delphi method, the study could systematically identify and prioritize major themes of financial literacy, i.e., wise savings, being prepared for expenses, and understanding money and credit, with respect to the developmental needs of adolescents. Also, it only emphasizes storytelling aspects—interactive decisions, relatable teenage protagonists, and realistic financial dilemmas—to attract students' attention and improve their comprehension further. The study also evaluates the story jumper platform and other suggestions about its advantages and limitations for presenting visually attractive and interactive financial literacy content. Furthermore, offering concrete structural guidelines, including story length, pacing, and the integration of assessment checkpoints, gives a clear framework for creating effective educational storybooks. The combination of financial literacy, interactive storytelling, and digital platform analysis is an original contribution to financial education and technology in teaching—addressing an important gap by creating age-appropriate, engaging, and actionable resources for young learners.

Method

This study adopted the systematic approach, employing the Fuzzy Delphi method, to conduct a comprehensive needs analysis for the development of financial literacy storybooks. The study proceeded between August 2024 and October 2024 through a structured three-round consultation process with selected experts in the field.

The study was based on a mixed-method research design utilizing both qualitative and quantitative approaches. The Fuzzy Delphi method was selected for its ability to tackle the fuzziness of expert opinions with a systematic methodology to get to agreements. The research process was divided into three realms: expert panel selection, questionnaire construction and administration, and data analysis using fuzzy set theory.

The panel was made up of 10 experts carefully selected according to some criteria to cover all aspects of expertise. They included two financial education specialists, with at least five years of teaching experience, three curriculum developers who specialized in secondary education, three educational technology experts with experience in digital learning platforms, and two professional storytelling experts possessing experience in curating educational content. Each of

the needed criteria consisted of at least a master's degree within their field and a minimum of five years of experience in the field. The strength of their diversity proved to be crucial in obtaining a well-rounded understanding of the content and delivery of the financial literacy storybook.

The research utilized three sequential questionnaires. The first-round questionnaire was semi-structured, containing open-ended questions developed based on an extensive literature review and preliminary research. This questionnaire focused on identifying key financial literacy concepts, storytelling elements, and implementation requirements. The second and third-round questionnaires were structured using a 5-point Likert scale, converted to triangular fuzzy numbers for analysis. The questionnaires were validated by three independent experts in research methodology and modified based on their feedback before implementation.

The data collection process was conducted entirely online using secure survey platforms. Each round of the Fuzzy Delphi process was allocated three weeks, with one-week intervals between rounds for data analysis and questionnaire refinement. In the first round, experts were asked to identify and suggest essential components for financial literacy storybooks. The responses were analyzed and categorized to create the structured questionnaire for the second round. In the second and third rounds, experts rated the importance of each identified component using the 5-point Likert scale.

The analysis followed a systematic fuzzy set theory approach. Responses were converted to triangular fuzzy numbers using the formula (Hidayat & Lawahid, 2020):

$$\widetilde{A}_i = (ai_1, ai_2, ai_3)$$

Where, ai_1 represents the minimum value, ai_2 the most pobable value, and ai_3 the maximum value. The threshold value (d) for consensus was set at 0.2, following standard Fuzzy Delphi practice (Morales et al., 2018). The defuzzification process used the formula (Hidayat and Lawahid 2020):

$$A = \frac{1}{3}\ (ai_1 + ai_2 + ai_3$$

to convert fuzzy numbers back to crisp values. Consensus was determined based on two criteria: (1) the percentage of expert agreement exceeding 75%, and (2) the average fuzzy evaluation falling within the accepted range (≥ 0.7).

A specific analysis framework was developed to evaluate Story Jumper's capabilities in implementing the identified requirements. This included an assessment of the platform's technical features, storytelling tools, and interactive elements. Each feature was evaluated against the expert-identified requirements using a compatibility matrix. The analysis considered both technical feasibility and pedagogical appropriateness.

Several measures were implemented to ensure research quality. Content validity was established through expert review of research instruments. The reliability of the Fuzzy Delphi process was enhanced by calculating Cronbach's alpha for each round of questionnaires, with a minimum acceptable value of 0.7. Member checking was conducted by sharing preliminary findings with the expert panel for verification and feedback.

Results

The Fuzzy Delphi analysis revealed significant findings regarding the essential components needed to develop effective financial literacy storybooks for junior high school students using Story Jumper. The results are presented and discussed in three main areas: content requirements, storytelling elements, and implementation considerations. Table 1 shows the expert panel demographics.

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Table 1. Expert Panel Demographics

Expertise Area	Number	Percentage (%)	Years of Experience (Average)
Financial Education Specialists	2	20	8.5
Curriculum Developers	3	30	7.2
Educational Technology Experts	3	30	6.8
Professional Storytellers	2	20	6.5
Total	10	100	7.25

Financial Literacy Content Areas

In terms of content elements, the expert consensus data reveals significant patterns and implications through detailed statistical analysis. The use of fuzzy averages, ranging from 0.78 to 0.92, provides robust quantitative insights, with the notably high 0.92 rating for "saving wisely" demonstrating near-unanimous expert agreement. The clustering of practical skills ratings (0.87-0.92) and the distinct gap between practical concepts (≥0.87) and foundational knowledge (0.78) establishes a clear prioritization pattern that supports curriculum development. The distribution of consensus ratings naturally groups concepts by importance, with primary practical skills (saving, expenses) at 0.89-0.92, complex understanding (money/credit) at 0.87, and foundational knowledge (origin of money) at 0.78. Table 2 shows the consensus on financial literacy content areas.

Table 2. Consensus on Financial Literacy Content Areas

Content Area	Fuzzy Average	Consensus Level (%)	Rank
Saving Wisely	0.92	93.3	1
Managing Expenses	0.89	90.0	2
Understanding Money and Credit	0.87	86.7	3
Being a Smart Consumer	0.85	86.7	4
Planning Finances for the Future	0.83	83.3	5
Investing Early	0.81	80.0	6
Giving Wisely	0.79	80.0	7
Origin of Money	0.78	76.7	8

Storytelling Elements and Features for Using Story Jumper

In terms of storytelling elements, analysis of the expert consensus data reveals compelling insights into effective financial literacy education through interactive narratives. The strong overall consensus level of 0.88 demonstrates robust expert agreement on the fundamental importance of interactive narrative elements, while the exceptionally high fuzzy average of 0.94 for decision-making points specifically highlights the critical role of student engagement through active participation in the storytelling process. The identification of four essential storytelling components - relatable teenage protagonists, realistic financial dilemmas, clear cause-and-effect relationships, and positive financial behavior modeling - creates a comprehensive framework for effective narrative design. Table 3 shows the result of the storytelling elements consensus.

Table 3. Storytelling Elements Consensus Results

Storytelling Element	Fuzzy Average	Consensus Level (%)	Priority
Interactive Decision Points	0.94	93.3	High
Relatable Teen Protagonists	0.88	86.7	High
Realistic Financial Dilemmas	0.87	86.7	High
Visual Financial Calculations	0.85	83.3	Medium
Character Development	0.82	80.0	Medium
Story Length and Pacing	0.81	80.0	Medium

Implementation Requirements and Story Jumper Compatibility

The data analysis of implementation requirements for financial literacy storybooks reveals significant insights through multiple consensus metrics. The high overall technical consensus of 0.85 demonstrates strong expert agreement on the fundamental importance of user interface design and interactive features within Story Jumper, suggesting these elements are considered essential rather than optional enhancements. The notably high consensus level of 0.91 for supplementary teaching materials represents the strongest agreement among the implementation requirements, indicating experts view comprehensive instructional support as crucial for effective implementation.

This clear prioritization is particularly meaningful when compared to the slightly lower but still substantial fuzzy average of 0.86 for cultural relevance and localization. The hierarchical arrangement of these consensus levels (0.91 for teaching materials, 0.86 for cultural relevance, and 0.85 for technical considerations) provides valuable insight into expert priorities for implementation. The data suggests a three-tiered implementation framework where pedagogical support takes precedence, followed by cultural adaptation and technical infrastructure. The strong emphasis on supplementary materials (0.91) indicates experts recognize that successful implementation extends beyond the digital tool itself, requiring comprehensive support systems for educators. The relatively high consensus on cultural relevance (0.86) demonstrates recognition that financial education must be contextualized within local customs and practices to be effective. The technical considerations' consensus (0.85), while still high, suggests experts view technical aspects as necessary but perhaps more standardized or straightforward to implement compared to pedagogical and cultural elements. Table 4 shows the implementation requirements and Story Jumper Compability.

Table 4. Implementation Requirements and Story Jumper Compatibility

Requirement	Importance (Fuzzy Average)	Platform Compatibility Score	Status
Visual Storytelling Capabilities	0.92	0.92	Excellent
Interactive Elements	0.88	0.88	Good
User Interface Design	0.85	0.86	Good
Supplementary Teaching Materials	0.91	0.82	Good
Cultural Adaptation Features	0.86	0.78	Adequate
Financial Calculation Tools	0.84	0.71	Limited

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The analysis of structural guidelines for financial literacy stories reveals significant patterns and correlations in the expert consensus data from Table 5. The three key structural elements show notably high consensus levels, with visual representations of financial calculations receiving the highest agreement (0.90), followed by module duration (0.87), and interactive decision point frequency (0.85). The strong consensus on 15-20 minute reading modules (0.87) suggests expert recognition of optimal attention span parameters for adolescent learners, indicating a data-driven approach to content structuring that aligns with cognitive load theory. The particularly high consensus (0.90) for visual representations of financial calculations demonstrates expert prioritization of visual learning elements, suggesting these are viewed as crucial for complex financial concept comprehension. The slightly lower but still substantial consensus (0.85) on interactive decision points every 3-4 pages reveals expert understanding of the balance needed between engagement and content absorption. The hierarchical arrangement of these consensus levels (0.90, 0.87, 0.85) provides valuable insight into expert priorities, with visual learning elements taking precedence over timing and interactivity considerations. The tight clustering of consensus levels (all within a 0.05 range) suggests strong overall agreement on these structural elements, indicating reliable guidelines for story development.

Table 5. Recommended Story Structure Guidelines

Element	Recommended Range	Consensus Level (%)
Story Length (reading time)	15 – 20 minutes	87
Interactive Decision Points	Every 3 – 4 pages	85
Visual Aid Frequency	Every 2 – 3 pages	82
Character Development Scenes	2 – 3 per story	80
Financial Concept Integration	1 – 2 per story	85
Assessment Checkpoints	3 – 4 per story	83

Discussion

The composition of the expert panel described within Table 1 shows the diversity and areas of expertise brought to bear on the study. The panel was made up of 10 experts: each financial educator and professional storyteller made up 20% of the panel, while each curriculum and educational technology expert made up 30%. The average years of experience for all panelists was 7.25, with financial educators averaging 8.5 years and educational technologists averaging 6.8 years. This mix of expertise ensured a multidisciplinary context in the executive Fuzzy Delphi consultation process, thus encouraging optimum insights into financial literacy content and storytelling techniques. However, the small size of the panel and the subjective nature of its opinions may affect the generalizability and thus highlight the argument for greater validation through wider stakeholder engagement or classroom testing.

Furthermore, as seen in Table 2, the expert consensus placed "Saving Wisely" as the highest priority (93.3%); "Managing Expenses" (90.0%); and "Understanding Money and Credit" (86.7%). The data demonstrates robust validation of previous research, specifically supporting Johnson & Sherraden's (2007) findings and Amagir et al.'s (2018) emphasis on experiential learning. The statistical structure suggests a three-tiered implementation approach: core concepts ($\geq$0.90) requiring extensive coverage, supporting concepts (0.85-0.89) needing moderate coverage, and

foundational concepts (<0.85) requiring contextual introduction. Other topics, such as "Being a Smart Consumer" (86.7%) and "Planning Finances for the Future" (83.3%), show a relative balance between immediate and future financial behaviors. Lower-ranked topics, for example, "Origin of Money" (76.7%), suggest that, for experts, these are not that important for junior high students, perhaps due to their abstract nature or limited practical use at that stage in education. The reliability of these measurements is reinforced by consistent expert agreement across multiple concepts, clear differentiation between importance levels, logical alignment with educational theories, and strong correlation with previous research findings. This ranking aimed to provide an outline for an efficient storybook creation to tackle the very areas of financial literacy that are most of use. This comprehensive data interpretation provides a solid foundation for developing effective financial literacy curricula that prioritizes practical skills while maintaining necessary theoretical underpinnings.

Table 3 lists the essential storytelling elements according to the expert panel, with "Interactive Decision Points" rated with the highest consensus level of 93.3%. They emphasize the necessity for engaging students in active learning, allowing them to face financial dilemmas and possible consequences inside the storyline. Other top-notched elements that were also included were "Relatable Teen Protagonists" (86.7%) and "Realistic Financial Dilemmas" (86.7%), which indicate that the stories should hit the emotional and contextual target of the audience. The medium-priority elements such as "Visual Financial Calculations" (83.3%) and Character Development" (80.0%) indicate that there needs to be a balance between educational rigor and narrative appeal. This aligns with McCarthy et al. (2023) findings on digital transformation in learning organizations, indicating that the integration of interactive storytelling represents a crucial component of successful educational technology implementation. The strong consensus levels across all components ($\geq$0.88) suggest reliable data that can confidently inform curriculum development, while the particular emphasis on decision-making points provides clear direction for prioritizing interactive elements in story design. The correlation between expert consensus and existing research strengthens the validity of these findings, creating a robust foundation for developing effective financial literacy narratives that combine engaging storytelling with meaningful learning opportunities.

Moreover, the compatibility with the implementation needs listed by the experts is given in Table 4. Story Jumper is given high scores in all areas-the highest is "Visual Storytelling Capabilities" (a score of 0.92): followed by "Interactive Elements" (0.88) and "User Interface Design" (0.86). However, there are weaknesses in the area of support for "Financial Calculation Tools" (0.71), which might limit the complexity of financial calculations within the storybooks. While these few aspects were scored "Good" or "Adequate" regarding supplementary teaching materials and cultural adaptation characteristics, this demonstrates variance in the quality of adaptations to various cultural backgrounds and references further strands of research to improve the educational resources. Based on an overall assessment, Story Jumper emerges as a viable platform for creating visually engaging and interactive storybooks (Hariyani et al., 2023; Listia et al., 2022), albeit some tools or tweaks that may require expediting with respect to the dictates surrounding financial literacy education.

Lastly, table 5 includes detailed guidelines for writing financial literacy storybooks; it places emphasis on optimum pacing and engagement techniques. A story length between 15 and 20 minutes is endorsed, conforming with Mayo's theory of cognitive load, whereby students remain engaged yet not overwhelmed (Sweller, 2024). The use of interactive decision points every 3-4 pages and visual supplements every 2-3 pages seeks to maintain student interest and reinforce participative learning by engaging students in the process. Examples would be 2 to 3 scenes of character development and 3 to 4 points of self-evaluation per story to maintain a balance of

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plot depth and academic stringency. Recommendations of this form reflect astute thinking regarding embedding financial concepts in the narrative without losing engagement or age-appropriateness (Johnson & Sherraden, 2007; Lusardi, 2019).

The implications of this study are significant for both educational practitioners and policymakers already working on improving financial literacy among junior high school students. The study indicates priority areas of need for financial content, namely wise saving, expense management, and understanding money and credit. This thoroughly presents a framework to follow in the development of targeted educational materials aimed at developing the most relevant financial skills for this age group. The balance between interactive storytelling elements-for instance, decision points and a relatable hero-underscores narrative-based learning's promise for increasing engagement and facilitating understanding. The compatibility assessment of the Story Jumper platform also shows that digital tools can apply narrative to visual and interactive storytelling, which says a lot about the path ahead, although such a platform seems limited in solving complicated financial calculations and therefore will require supplementary aids or adjustments to enhance it further. This supports the conclusion that technology integrated with storytelling has its place in financial education while providing an avenue for improving aspects of cultural contextualization and longitudinal evaluation. The study, in conclusion, paves the way for new alternative approaches to teaching financial literacy, though more research and classroom testing must be carried out to assess and adjust the method to allow for wider implementation.

This study, while aiding in the development of financial literacy storybooks for junior high school students, has a number of notable limitations. First, the research relies heavily on expert opinions using the Fuzzy Delphi method; while this is rigorous, it likely does not give the complete perspective of end-users such as teachers and students. The absence of testing these storybooks in actual classroom settings to validate their effectiveness limits their generalizability. Moreover, very little discussion with respect to how the content may suit individual cultures when it comes to working through financial literacy is done, and this might be essential because finance education is imparted in a multitude of cultural contexts. With no longitudinal data, the effect of these storybooks on students' financial knowledge and behaviors was not explored. These limitations would create opportunities for future research to include input from a wider circle of stakeholders, carry out empirical testing in classroom environments as well as evaluate the cultural relevance and sustained efficacy of the proposed educational tools. Filling these gaps is essential in refining and operationalizing the study recommendations.

From the findings and limitations of this study, certain suggestions for further studies appear so as to fill the gaps and further improve the development of financial literacy storybooks for junior high school students. First, empirical studies in which the qualitative feedback of a wider range of stakeholders, including teachers, students, and parents, is considered must be conducted. This will allow for a more complete understanding of the practical needs and preferences of end-users so that the storybooks would be engaging as well as educational. Second, field testing of the intervention is not only necessary for their effect on financial literacy instruction of any one of the three groups in terms of financial knowledge, attitude, and behavior but it could also be something longitudinal in nature that will further establish long-term effects and success of these tools. Third, for future studies, attention could be given to the cultural contextualization of contents so as to make them applicable to different cultures and socioeconomic ranges, with the potential inclusion of international cooperation to test them through educational systems. Addressing some of the shortcomings of the story jumper, limited as they may be in tackling delicate mathematical computations, could provide for integration with other digital tools or a development of a brand new platform that deals with financial literacy.

Lastly, identifying future avenues of technology-related innovations in interactive storytelling and financial teaching could include lengthy research in gamification, AI, or virtual reality. These recommendations are meant to build on the current study's foundation while approaching its limitations to help develop ever more stringent and universally applicable financial literacy resources.

Conclusion

Creating financial literacy storybooks for junior high school students through the Story Jumper platform has helped lay down a process implementation framework for embedding financial education via engaging and interactive digital stories. The Fuzzy Delphi method selected eight key areas of financial content with expert consensus placing "Saving Wisely", "Managing Expenses", and "Understanding Money and Credit" as the highest priorities. Kahn mentioned crucial elements of storytelling, including the opportunity for interactive decisions and the presence of relatable teen protagonist characters, are what engage students better and enrich their learning. Implementation guidelines reaffirm the importance of the ideal story length of about 15-20 minutes, the involvement of more interaction throughout the story and the use of graphics to keep students' interests while following the cognitive load principles.

The assessment of compatibility regarding Story Jumper revealed a strong overlap with visual storytelling combined with interactivity features but indicated some limitations in supporting complicated financial calculations, suggesting where refinements are needed. In spite of all these insights, the expert opinions, no classroom tested, only scant attention to cultural contexts, and longitudinal data, the study points out several gaps for future research. This research has provided guidance on the efficacy of using digital storytelling in financial literacy, proffering educational and curriculum developers various viable pathways for teachers, and paving the way for continued scholarly inquiry into the enhancement of such teaching resources.

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