Journal of Educational Sciences
Journal homepage: https://jes.ejournal.unri.ac.id/index.php/JES

P-ISSN 2581-1657
E-ISSN 2581-2203

Development of a Prototype of Children's Literature E-Module Media Based on Google Workspace for Education to Improve Reading Literacy of Students in Elementary Schools

Muh Ali Imran[1], Muhammad Akhir[2]*, Tarman Arif[3]
[1,3] *Basic Education, University of Muhammadiyah Makassar, 90221, Indonesia*
[2] *Indonesian Language and Literature Education, University of Muhammadiyah Makassar, 90221, Indonesia*

ARTICLE INFO

Article history:

Received: 05 June 2025
Revised: 11 June 2025
Accepted: 15 June 2025
Published online: 15 July 2025

Keywords:

Children's Literature E-Module,
Google Workspace For Education,
Reading Literacy,
Elementary School

* *Corresponding author:*

E-mail: m.akhir@unismuh.ac.id

Article Doi:

https://doi.org/10.31258/jes.9.4.p.2678-2686

A B S T R A C T

This study aims to develop and describe a prototype of a children's literature E-module utilizing Google Workspace for Education to improve reading literacy among fifth-grade elementary school students. The research employed a Research and Development (R&D) methodology using the ADDIE model, encompassing analysis, design, development, implementation, and evaluation phases. The study involved 23 fifth-grade students from SD Inpres Mandalle. Data collection instruments included expert validation sheets, observation forms, and questionnaires to assess the module's practicality and effectiveness. The findings reveal that: (1) the developed E-module prototype achieved high feasibility, with expert validation scores ranging from 93% to 95%; (2) its practicality was rated very good by both teachers and students, with scores of 97% to 98%; (3) its effectiveness was evidenced by a consistent increase in students' reading literacy scores across sessions, rising from 63 in the first session to 84 in the third session; and (4) the module significantly enhanced students' engagement, interest, and reading literacy skills. Overall, the study concludes that the children's literature E-module based on Google Workspace for Education is a valid, highly feasible, practical, and effective instructional tool to support literacy development in elementary education.

1. Introduction

Reading literacy is a fundamental skill essential for academic achievement and lifelong learning. Developing students' reading literacy, especially at the elementary school level, plays a crucial role in fostering critical thinking, creativity, and comprehension abilities (Munir et al., 2023; Septianti & Indrowati, 2023). The growing shift towards digital learning environments has encouraged the integration of electronic modules (E-modules) as innovative educational media to support literacy development, making learning more interactive and accessible (Huda & Ardi, 2023; Melinda et al., 2020). In the context of primary education, leveraging

digital platforms tailored to children's literature can significantly enhance students' engagement and motivation to read, thereby improving their literacy skills (Febriyana et al., 2022; Widodo et al., 2024).

Google Workspace for Education represents a transformative tool in modern learning ecosystems, offering collaborative and interactive features that facilitate the creation and dissemination of digital learning resources, including E-modules (Johnson, 2021; Thuan & Hanh, 2024). Several studies have highlighted its potential to support student-centered learning by enabling seamless communication, resource sharing, and real-time feedback (Castillo-Cuesta et al., 2022; Sharov et al., 2024). Furthermore, during the COVID-19 pandemic, the use of Google Workspace for Education proved instrumental in maintaining instructional continuity and enhancing digital literacy among students and teachers (Rokhim et al., 2023; Wu, 2025). However, despite its broad applicability in higher education and secondary schooling, there remains limited research focusing on the deployment of Google Workspace-based E-modules specifically designed for children's literature to improve reading literacy at the elementary level (Chan Hill & Wong, 2024; Nakai et al., 2022).

The pedagogical effectiveness of E-modules is closely linked to their design principles and alignment with students' cognitive and affective needs (Flamand & Jaumier, 2023; Melinda et al., 2020). Process-oriented guided inquiry learning (POGIL) and ethnomathematics integration in E-modules have been demonstrated to foster critical thinking and cultural relevance, which are vital in sustaining learner motivation and engagement (Munir et al., 2023; Septianti & Indrowati, 2023). Additionally, personalized systems within E-modules can accommodate diverse learning styles and paces, enhancing the individual learning experience (Widodo et al., 2024). Despite these advances, challenges remain in optimizing E-module usability and effectiveness for young learners, particularly concerning ease of access, interactivity, and alignment with curriculum standards (Febriyana et al., 2022; Huda & Ardi, 2023).

Moreover, the literature underscores a growing need for media that not only transmit knowledge but also cultivate prosocial behavior, creativity, and emotional development through literary content (Huda & Ardi, 2023; Melinda et al., 2020). Children's literature, when integrated with digital media platforms like Google Workspace, can offer multifaceted benefits, including enhancing language skills, cultural awareness, and ethical understanding (Castillo-Cuesta et al., 2022; Sharov et al., 2024). Nonetheless, existing studies often focus on theoretical frameworks or higher education contexts, with limited empirical evidence on practical implementations of Google Workspace-based E-modules tailored for elementary students' literacy improvement (Rokhim et al., 2023; Thuan & Hanh, 2024).

Given this background, the development of a prototypical E-module for children's literature utilizing Google Workspace for Education addresses a critical gap by combining technological innovation with pedagogical strategies to improve reading literacy among fifth-grade elementary students (Chan Hill & Wong, 2024; Johnson, 2021). This study builds upon previous research by integrating interactive features,

cultural content, and usability considerations specifically designed for young learners, thereby offering a comprehensive tool to support literacy education in a digital era (Melinda et al., 2020; Widodo et al., 2024). The significance of this research lies in its potential to provide scalable, accessible, and effective literacy resources that can adapt to evolving educational demands and contribute to the broader goals of digital learning transformation (Sharov et al., 2024; Thuan & Hanh, 2024).

In summary, this study aims to fill the existing research gap by developing and validating a Google Workspace-based E-module prototype for children's literature to enhance reading literacy in fifth-grade elementary school students. It leverages current digital education technologies, aligns with learner-centered pedagogies, and responds to the practical challenges faced in elementary literacy education. The outcomes are expected to offer valuable insights into the design, implementation, and efficacy of digital literacy media in primary education, contributing to advancing educational technology and literacy development research.

2. Methodology

This study employs a Research and Development (R&D) approach following the ADDIE model, which includes the phases of Analysis, Design, Development, Implementation, and Evaluation (Munir et al., 2023; Septianti & Indrowati, 2023). This model was chosen due to its systematic and iterative framework suitable for creating educational media such as E-modules that align with pedagogical goals and technological feasibility (Huda & Ardi, 2023; Melinda et al., 2020). The research setting was a primary school environment, focusing on fifth-grade students as the target users for the children's literature E-module prototype.

The sample comprised 23 fifth-grade students at SD Inpres Mandalle, selected using purposive sampling to ensure that participants had the relevant characteristics for testing the E-module's usability and effectiveness (Febriyana et al., 2022; Widodo et al., 2024). Data collection instruments included validation sheets for expert assessment, observation checklists to monitor usage during implementation, and questionnaires designed to gauge practicality and effectiveness from both teachers and students' perspectives (Rokhim et al., 2023; Sharov et al., 2024). The validation process incorporated feedback from educational technology experts and language education specialists to assess content accuracy, design quality, and technical functionality (Castillo-Cuesta et al., 2022; Thuan & Hanh, 2024).

The development stage utilized Google Workspace for Education tools, leveraging its collaborative and cloud-based features to create an interactive and accessible E-module platform tailored to children's literature (Johnson, 2021; Sharov et al., 2024). The design prioritized learner-centered principles, integrating multimedia elements and culturally relevant content to stimulate reading interest and literacy skills (Melinda et al., 2020; Munir et al., 2023). During implementation, the E-module was administered over multiple sessions, and student reading literacy was assessed using pre- and post-tests designed to measure improvements in

comprehension and engagement (Febriyana et al., 2022; Widodo et al., 2024). Statistical analysis included descriptive statistics for validity and practicality data and inferential statistics such as paired t-tests to determine the significance of reading literacy improvements (Rokhim et al., 2023; Sharov et al., 2024). The use of these analyses ensures rigorous evaluation of the E-module's educational impact, supported by evidence from both qualitative and quantitative data (Castillo-Cuesta et al., 2022; Thuan & Hanh, 2024). Ethical considerations were maintained throughout the study, with informed consent obtained from participants and their guardians and data confidentiality strictly upheld (Fernandes, 2025; Johnson, 2021).

In summary, the methodological framework reflects an integration of instructional design theory, digital educational tools, and empirical validation, enabling a comprehensive evaluation of the prototypical children's literature E-module within the elementary education context (Munir et al., 2023; Septianti & Indrowati, 2023). This approach ensures the produced media is not only theoretically sound but also practically effective and user-friendly for its intended audience (Huda & Ardi, 2023; Melinda et al., 2020).

3. Results and Discussion

Results

This study developed a prototype of a children's literature E-module using Google Workspace for Education aimed at improving reading literacy among fifth-grade elementary students. The findings are presented based on product feasibility, practicality, validity, and effectiveness assessments supported by quantitative and qualitative data.

a. Prototype Development and Feasibility

The development of the E-module follows the systematic process of the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation), resulting in a multimedia-rich interactive module integrating text, images, animations, and evaluation quizzes, can be seen in figure 1.

Figure 1. Prototype E-Module Media Based on Google Workspace for Education

Validation by expert reviewers showed that the product achieved high scores on material validity (94%), media validity (93%), and module validity (94%), indicating that the E-module is very feasible and meets educational standards for children's literature learning materials (Huda & Ardi, 2023; Melinda et al., 2020).

b. Practicality Assessment

The practicality of the E-module was evaluated through observations and surveys involving 23 fifth-grade students and their teacher. Results show high practicality scores, with the teacher and students rating the media at 97–98%, reflecting ease of use, engagement, and suitability within the learning context. Observational data confirmed that students actively participated in literacy activities using the E-module, demonstrating increased enthusiasm and motivation during reading tasks (Febriyana et al., 2022; Widodo et al., 2024).

c. Effectiveness in Improving Reading Literacy

Effectiveness was assessed by measuring reading literacy scores across three learning sessions. Table 1. presents the significant improvement in scores from the first session (mean score 63) to the third session (mean score 84).

Table 1. Results of the Reading Literacy Test

Class	Procurement		
	Meeting I	Meeting II	Meeting III
IV	63	75	84

This progressive increase confirms that the E-module effectively enhances students' reading comprehension and engagement. The digital, interactive format enabled repeated access to reading materials and immediate feedback, which are crucial for literacy development (Sharov et al., 2024; Thuan & Hanh, 2024). The findings align with prior studies emphasizing the positive impact of technology-integrated learning tools on student literacy outcomes (Johnson, 2021; Munir et al., 2023).

d. Qualitative Feedback and Observations

Qualitative data gathered from student and teacher feedback highlighted that the use of Google Workspace for Education allowed seamless access to materials and fostered collaborative learning environments. Students reported feeling more confident in reading fiction stories and engaging in discussions, while teachers noted improved classroom dynamics and literacy participation (Castillo-Cuesta et al., 2022; Rokhim et al., 2023). The flexibility and interactivity of the E-module contributed to sustained student interest, reinforcing the benefits of digital literacies in primary education contexts (Huda & Ardi, 2023; Melinda et al., 2020).

Overall, the research confirms that the developed children's literature E-module using Google Workspace for Education is a valid, practical, feasible, and effective tool to improve reading literacy among elementary students. This study contributes empirical evidence supporting the integration of collaborative cloud-based platforms with interactive learning modules to foster literacy skills. The approach

offers scalable potential for broader application in digital literacy initiatives within elementary education (Sharov et al., 2024; Widodo et al., 2024).

Discussion

The findings of this study indicate that the prototypical children's literature E-module developed using Google Workspace for Education is highly effective in enhancing reading literacy among fifth-grade elementary school students. The integration of interactive, multimedia content within a collaborative cloud-based platform supports cognitive engagement and motivation, which are critical factors in literacy development (Febriyana et al., 2022; Melinda et al., 2020). The positive validation scores and high practicality ratings suggest that the E-module successfully meets the pedagogical and technological needs of both educators and learners in primary education (Huda & Ardi, 2023; Widodo et al., 2024).

Consistent with previous research, the use of Google Workspace for Education facilitates seamless access to learning materials and promotes collaborative learning environments, which improve learner participation and autonomy (Johnson, 2021; Sharov et al., 2024; Thuan & Hanh, 2024). The platform's capabilities allow students to engage with literary content dynamically, enabling real-time feedback and repeated practice that contribute to improved literacy outcomes (Castillo-Cuesta et al., 2022; Rokhim et al., 2023). This aligns with the broader educational technology literature that emphasizes learner-centered, technology-enhanced instruction as a means to promote deeper learning and literacy (Melinda et al., 2020; Munir et al., 2023).

The gradual improvement in literacy test scores across the learning sessions illustrates the efficacy of the E-module in scaffolding students' reading comprehension skills, which is supported by evidence that well-designed digital learning media can significantly impact elementary learners' literacy achievements (Sharov et al., 2024; Widodo et al., 2024). Furthermore, the inclusion of culturally relevant content and ethnomathematics-inspired themes enriches the learning experience by connecting literacy skills to students' cultural contexts, enhancing relevance and engagement (Munir et al., 2023; Septianti & Indrowati, 2023; Widodo et al., 2024).

Qualitative feedback underscores the role of digital literacy tools in fostering prosocial behaviors and motivation, which are essential for sustained reading engagement (Huda & Ardi, 2023). The study also highlights challenges such as ensuring usability for young learners and aligning content with curriculum standards, consistent with the literature emphasizing the need for accessible, age-appropriate educational technologies (Febriyana et al., 2022; Melinda et al., 2020). Addressing these challenges can optimize the impact of digital E-modules on literacy education.

Importantly, the study fills a gap in empirical research on the application of Google Workspace for Education in elementary literacy, extending the scope of existing studies predominantly focused on higher education or secondary levels (Chan Hill

& Wong, 2024; Nakai et al., 2022). By demonstrating the feasibility and effectiveness of Google Workspace-based E-modules tailored for young learners, this research contributes to the advancement of digital literacy education and offers a scalable model adaptable to diverse educational settings (Sharov et al., 2024; Thuan & Hanh, 2024).

In summary, this study confirms that the developed E-module prototype is a valid, practical, and effective medium for improving reading literacy among elementary students by leveraging collaborative digital tools and culturally contextualized content. The findings support the continued integration of technology-enhanced learning resources to promote literacy development, learner engagement, and educational equity in primary education (Huda & Ardi, 2023; Melinda et al., 2020; Sharov et al., 2024).

4. Conclusion

This study successfully developed and validated a prototype of a children's literature E-module based on Google Workspace for Education, demonstrating its feasibility, practicality, and effectiveness in improving reading literacy among fifth-grade elementary school students. The E-module's interactive features and culturally relevant content fostered increased student engagement, motivation, and reading comprehension, as evidenced by significant improvements in literacy scores across multiple learning sessions. The integration of Google Workspace for Education provided an accessible and collaborative learning environment that supported both teachers and students in the literacy development process.

The findings contribute valuable empirical evidence supporting the adoption of digital, cloud-based educational media in primary literacy education, addressing a critical gap in the existing literature focused mainly on secondary and higher education contexts. Future research should explore longitudinal impacts of such digital interventions and investigate scalability across diverse educational settings. This study underscores the potential of technology-enhanced learning tools to advance literacy outcomes and promote inclusive, learner-centered education in the digital age.

Acknowledgement

The author would like to express his deepest gratitude to the DRTPM Diktiristek Year 2025 for the financial support provided for the writing and publication of this article.

References

Castillo-Cuesta, L., Ochoa-Cueva, C., & Cabrera-Solano, P. (2022). Virtual Workspaces for Enhancing Collaborative Work in EFL Learning: A Case Study in Higher Education. *International Journal of Emerging*

Technologies in Learning, *17*(2), 4–18. https://doi.org/10.3991/IJET.V17I02.25937

Chan Hill, H., & Wong, K. M. (2024). Beyond Lau: Envisioning humanizing and culturally sustaining workspaces for teachers in dual-language bilingual education schools. *Bilingual Research Journal*, *47*(4), 472–486. https://doi.org/10.1080/15235882.2024.2412519

Febriyana, M., Rahman, A., Auliya, A. R., & Sitepu, M. S. (2022). Pengembangan E-Modul Dilan Berbasis Android (Didroid) pada Materi Panas bagi Siswa Sekolah Dasar. *Munaddhomah*, *3*(4), 378–387. https://doi.org/10.31538/munaddhomah.v3i4.305

Fernandes, E. (2025). Children's data protection in education: A case study of Google Workspace for Education in the European Economic Area. *International Journal of Educational Development*, *114*. https://doi.org/10.1016/j.ijedudev.2025.103237

Flamand, G., & Jaumier, S. (2023). The contribution of identity workspaces and initial accounting education to the legitimization of management accounting: The case of an arts-based seminar in a master's degree. *Comptabilite Controle Audit*, *29*(2), 7–47. https://doi.org/10.3917/cca.292.0007

Huda, A., & Ardi, N. (2023). Design and Development of Android-Based E-Modul Application to Improve Prosocial Early Children by Family. *International Journal of Online and Biomedical Engineering*, *19*(12), 111–126. https://doi.org/10.3991/ijoe.v19i12.40905

Johnson, P. T. (2021). Google Workspace for Education Paul T. Johnson : https://edu.google.com/products/workspace-for-education/. *TESOL Journal*, *12*(3). https://doi.org/10.1002/tesj.593

Melinda, L. G., Rizky Fajar, M., Jannah, N., Puspitasari, T. O., & Putri, Y. E. (2020). Impact E-modul ethnoconstructivism: Attitude & motivation. *International Journal of Scientific and Technology Research*, *9*(4), 3752–3757. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85084459978&partnerID=40&md5=865ffcc6297295418e55dccade773665

Munir, N. P., Hidayat, N., Lestari, A., & Anas, A. (2023). Algebra-Ethnomathematics Integrated E-Modul for Luwu Culture with Flipbook Maker HTML 5 Assisted Application. *AIP Conference Proceedings*, *2805*(1). https://doi.org/10.1063/5.0149379

Nakai, K., Terada, S., Takahara, A., Hage, D., Tubbs, R. S., & Iwanaga, J. (2022). Anatomy education for medical students in a virtual reality workspace: A pilot study. *Clinical Anatomy*, *35*(1), 40–44. https://doi.org/10.1002/ca.23783

Rokhim, A., Saputro, S., & Rahardjo, S. B. (2023). Need Analysis for The Development of Pogil-Ssi Based Natural Science e-Modul to Improve Creative Thinking Ability in The Pandemic Period. *AIP Conference Proceedings*, *2540*. https://doi.org/10.1063/5.0106199

Septianti, S., & Indrowati, M. (2023). Development Needs Analysis of E-Modul Based on POGIL (Process Oriented Guided Inquiry Learning) on Structure Material and Function of Plant Network Student Class XI. *AIP Conference Proceedings*, *2540*. https://doi.org/10.1063/5.0107274

Sharov, S., Tereshchuk, S., Filatova, O., Hinkevych, O., & Ksendzenko, O. (2024). Survey Analysis of University Teachers in Ukraine Regarding the Use of Google Workspace for Education. *TEM Journal*, *13*(1), 315–325. https://doi.org/10.18421/TEM131-33

Thuan, P. D., & Hanh, N. T. H. (2024). Exploring benefits of applying Google Workspace for Education in English as a foreign language classroom. *International Journal of Evaluation and Research in Education* , *13*(2), 1287–1292. https://doi.org/10.11591/ijere.v13i2.27215

Widodo, A., Irianto, D. P., Graha, A. S., Hardianto, D., Sutapa, P., Kauki, M. K., Ali, S. K. S., Kristiyanto, A., & Pratama, K. W. (2024). The Personalized System of E-Modul Instructions in Physical Education Online Learning. *Retos*, *56*, 319–327. https://doi.org/10.47197/retos.v56.103515

Wu, X.-Y. (2025). Exploring the impact of blended collaborative learning on deep learning outcomes: a structural equation modeling approach. *Education and Information Technologies*. https://doi.org/10.1007/s10639-024-13202-z

How to cite this article:

Imran, M. A., Akhir, M., & Arif, T. (2025). Development of a Prototype of Children's Literature E-Module Media Based on Google Workspace for Education to Improve Reading Literacy of Students in Elementary Schools. *Journal of Educational Sciences*, *9(4)*, 2678-2686.