

Developing a Jimdo-Based Ekanaru Learning Platform Using Problem-Based Learning to Support Elementary Students' Explanatory Writing Skills

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Abstract

This study aims to describe the development process and assess the suitability of the Ekanaru learning resource, based on the Jimdo website and using the Problem-Based Learning (PBL) model, for teaching writing skills to fifth-grade public elementary school in Indonesia. The study employed the Research and Development (R&D) method using the ADDIE model, which comprises the stages of analysis, design, development, implementation, and evaluation. The research subjects comprised 13 Year 5 students. Product validation involved one media expert, one subject, and a language expert. Data were collected through observation, interviews, questionnaires, and documentation, and subsequently analyzed using quantitative descriptive techniques, expressed as percentages. The learning resource developed was integrated with the Problem-Based Learning (PBL) model on the Jimdo website platform. The validation results showed an average feasibility percentage of 84.14%, categorized as 'highly suitable'. Teacher feedback scored 90%, and students' feedback 88.46 %, both falling into the 'very good' category. The evaluation results showed that students were able to compose explanatory texts in the correct structure and achieved good learning outcomes. The Ekanaru learning media, based on the Jimdo website and using the PBL model, is suitable for supporting the development of explanatory text writing skills among fifth-grade elementary school students.

1. Introduction

The teaching of Indonesian in primary schools plays a vital role in developing students' language skills, including writing. Writing is the ability to express ideas, thoughts, experiences, messages, and opinions in writing in a logical, systematic, and creative manner (Xie, 2025). Writing activities enable students to learn to organize their ideas, develop their reasoning, and convey their thoughts coherently and clearly, thereby supporting the development of their thinking skills (Asis, 2026; Gao et al., 2025). Writing explanatory texts is one of the skills that primary school students need to master. Explanatory texts explain the processes underlying natural, social, or cultural phenomena through logically and systematically organized cause-and-effect relationships (Yusmaniar et al., 2022). Learning to write explanatory texts helps students develop logical thinking skills and the ability to organize information in a structured manner (Takan, 2026).

Observations and interviews with fifth-grade teachers revealed that students' explanatory writing skills were still below expectations. Many students experienced difficulties in developing ideas, organizing complete text structures, and applying appropriate language features, resulting in explanations that did not clearly describe cause-and-effect relationships. The continued use of conventional learning media also reduced students' participation and interest in writing activities. These findings indicate the need for learning media that can increase student engagement while helping students understand explanatory texts more systematically.

Advances in digital technology provide opportunities to create more interactive learning through website-based media. Previous studies have shown that website-based learning media are appropriate for elementary education because they provide attractive interfaces, are easy to use, and encourage greater student engagement (Putra et al., 2025). Website-based media also offer flexible learning access and contribute to improved learning outcomes (Marini et al., 2025; Titifanue, 2026). The use of digital technology has been shown to improve students' writing performance by increasing learning participation and writing quality (Kiziltas & Kultas, 2025; Wen & Walters, 2022). Website-based digital media have also demonstrated appropriate levels of feasibility for fifth-grade elementary students (Al Husaeni et al., 2022). The effectiveness of digital learning media is also influenced by the instructional model employed during the learning process. Problem-Based Learning (PBL)

places students at the center of learning through problem-solving activities that encourage the development of knowledge and critical thinking skills (Darmawati & Mustadi, 2023). PBL encourages students to construct knowledge independently, collaborate with peers, and develop higher-order thinking skills through contextual problem solving (Haryanti et al., 2022; Simanjuntak et al., 2020). Previous studies have also reported that integrating digital learning media with the PBL model improves student engagement and learning outcomes across different subjects (Asy, 2026; Zou et al., 2026)

Previous studies have reported that applying the PBL model improves students' explanatory writing skills (Royani et al., 2025). However, studies focusing on the development of Jimdo website-based learning media integrated with the PBL model to support explanatory text writing in elementary schools remain limited. Most previous studies have examined website-based media or the PBL model separately rather than combining both approaches in a single learning medium. This gap indicates the need to develop integrated digital learning media that combine the advantages of the Jimdo platform with the instructional stages of Problem-Based Learning.

This study aims to describe the development process and determine the feasibility of Ekanaru, a Jimdo website-based learning media integrated with the Problem-Based Learning (PBL) model, to support explanatory text writing among fifth-grade elementary school students.

2. Method

2.1. Research Setting

This study employed a Research and Development (R&D) methodology based on the ADDIE model. The study was conducted at a public elementary school during the second semester of the 2025/2026 academic year. The research participants consisted of 13 Grade 5 students who used the developed learning media. The product validation process involved one media expert and one subject matter and language expert. The classroom teacher also evaluated the practicality of the developed learning media during classroom implementation.

2.2. Research Design

This study employed the Research and Development (R&D) method using the ADDIE development model, which comprises five stages: analysis, design, development, implementation, and evaluation (Szabo, 2022). The ADDIE model was chosen because it provides a systematic, structured development process, enabling the creation of learning products that meet user needs and the established learning objectives (Spatioti et al., 2022). The ADDIE model is widely used in research on the development of learning media because it provides a systematic process, from needs analysis to evaluation of the resulting product (Hanifah et al., 2023). Each stage of the ADDIE model is interconnected and serves as the basis for the subsequent stage of the development process (see Figure 1).

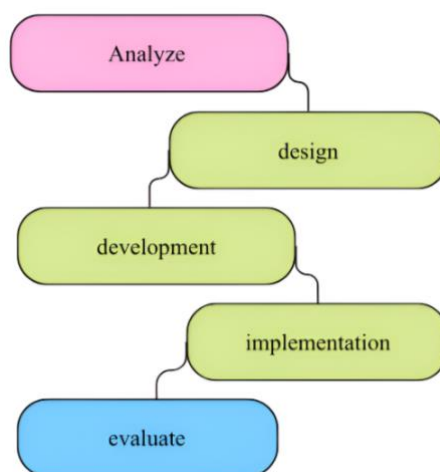


Figure 1. ADDIE Model Development Steps

The analysis phase was conducted to identify learning needs, student characteristics, and instructional problems through observations, interviews, and documentation. The design phase involved designing the structure of the learning media, preparing the learning materials, defining the learning objectives, and developing the research instruments. During the development phase, the Ekanaru learning media based on the Jimdo website was developed and validated by media, subject matter, and language experts. The implementation phase involved using the learning media in explanatory text writing lessons with Grade 5 students at a public elementary school, while collecting teacher and student responses. The evaluation phase involved analyzing the

validation results and user responses to determine the quality of the developed learning media and to identify any necessary revisions.

2.3. Data Collection Techniques

Research data were collected through observations, interviews, questionnaires, and documentation. Observations and interviews were conducted to gather information about learning conditions, student characteristics, and challenges encountered in teaching explanatory text writing. Documentation served as supporting research data, while questionnaires were administered to obtain expert validation, teacher responses, and student responses. The research instruments consisted of a media expert validation sheet, a subject matter and language expert validation sheet, a teacher response questionnaire, and a student response questionnaire.

Expert validation and teacher and student responses were assessed using a four-point Likert scale with scores of 4 (highly appropriate/very good), 3 (appropriate/good), 2 (less appropriate/fairly good) and 1 (inappropriate/not good) (Huda et al., 2023). The percentage score was calculated using the Formula 1:

$$P_k = \frac{S}{N} \times 100\% \quad (1)$$

where P_k represents the product appropriateness category, S is the total score obtained, and N is the maximum possible score. The results were interpreted according to the predetermined appropriateness and response criteria (Yazid & Windasari, 2023).

3. Results and Discussion

3.1. Analysis

The analysis phase was conducted through observation, interviews with the teachers, and an assessment of the needs of Grade 5 students at a public elementary school. Indonesian language teaching was implemented in accordance with the Merdeka Deep Learning Curriculum, with reference to the school's learning outcomes and objectives. The teaching of expository writing is supported by the use of textbooks, images, and educational videos as supplementary materials. The observations revealed that students' skills in writing explanatory texts still need improvement. Students experience difficulties in developing ideas, structuring texts comprehensively, and explaining the cause-and-effect relationships of a phenomenon coherently.

Interviews with the Grade 5 teacher revealed that students' participation in writing lessons was not yet consistent. Some students actively participated in classroom activities, while others still needed guidance from the teacher. Writing activities had also not fully attracted students' interest. The teacher expressed the need for learning media that could present the material in a more engaging and structured manner while remaining easy for students to use. The media was expected to combine learning materials, instructional videos, worksheets, and evaluation activities within a single platform so that students could complete each stage of learning more systematically.

The analysis of students' needs showed that most students preferred learning media that combined visual and interactive features, such as images, videos, and quizzes. These features were considered helpful in improving students' understanding of the material and maintaining their interest during learning activities. Based on these findings, worksheets were included to guide students in identifying the causes and processes of a phenomenon before writing an explanatory text, while interactive quizzes were provided to help students check their understanding after completing each learning activity. This design is consistent with previous research indicating that technology-supported writing instruction can promote students' self-directed and collaborative learning when digital tools are integrated into classroom writing activities (Choy & Cheung, 2022).

3.2. Design

The design phase involved developing the Ekanaru learning resource based on the Jimdo website, tailored to the characteristics of primary school students. The content, learning activities, and research instruments were designed by integrating the PBL framework into each stage of the learning process. The initial design of the resource is shown in the Figure 2.

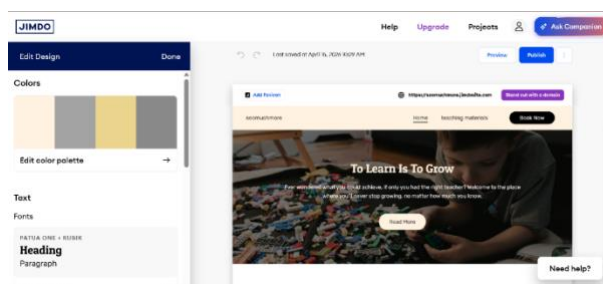


Figure 2. Initial Design of the Ekanaru Learning Resource on the Jimdo Website

The initial design of the resource includes a home page, a user guide, explanatory text materials, instructional videos, PBL-based worksheets, quizzes, and assessments. Each component was designed to encourage students' active participation in learning to write explanatory texts while providing easy access to the learning materials for independent study.

3.3. Development

The development stage involved transforming the initial design into the Ekanaru learning media hosted on the Jimdo website. The resources contain explanatory text, educational videos, worksheets, quizzes, and assessments, all structured in line with the learning outcomes for Indonesian Language in Year 5 of primary school. The structure of the resource is also aligned with the Problem-Based Learning (PBL) framework, which encourages students to investigate problems, organize information, and communicate their understanding through structured learning activities. Previous studies have also shown that scaffolding within PBL supports students in developing ideas and producing higher-quality written work (Belland et al., 2011).

Figure 3 presents the interface of the developed Ekanaru learning media. The Ekanaru platform consists of several main menus, including the home page, user guide, learning materials, instructional videos, PBL-based worksheets, quizzes, and assessments. The learning activities on the platform are structured according to the PBL syntax, which comprises problem orientation, learning organization, investigation, presentation of results, and evaluation. Each component is presented in an integrated manner to support the learning of expository writing.

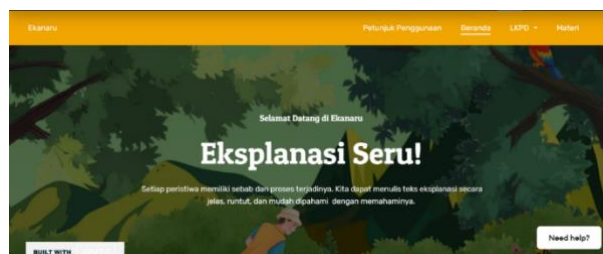


Figure 3. Ekanaru's Media Site Built on Jimdo

The developed product was subsequently validated by media, subject-matter, and language experts to determine the platform's suitability prior to its implementation in the classroom. The aspects assessed included content, language, presentation, ease of use, interactivity, and the platform's appropriateness.

The overall validation results indicate that the Ekanaru learning media achieved an average score of 84.14%, which falls within the 'highly suitable' category. The subject matter and language validation obtained a score of 96.05%, indicating that the media was highly suitable (see Figure 4). These results indicate that the subject matter, content presentation, and language use in the Ekanaru resource align with the learning objectives and the characteristics of primary school students. The systematic presentation of the material together with clear language supported the suitability of the media for teaching explanatory text writing. This finding is consistent with research showing that website-based media and the Problem-Based Learning model offer high-quality content and are suitable for Indonesian language learning (Liao et al., 2025; Liu et al., 2026).

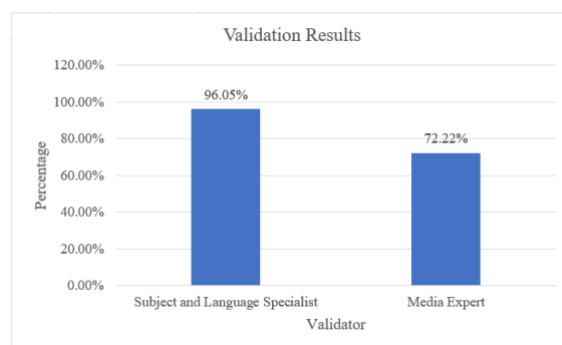


Figure 4. Validation Summary Results

The media expert validation yielded a score of 72.22%, which was categorized as acceptable. These results indicate that the appearance, navigation, ease of use, and interactivity of the Ekanaru media meet the suitability criteria for use in learning. The media's simple, accessible design helps students follow lessons more easily. These findings are consistent with research showing that website-based learning media can support the learning process if designed to meet user needs and are capable of increasing students engagement in learning activities. The development of digital media at primary school level also suggests that the integration of content delivery, learning activities and assessment within a single platform can support the suitability of the media and provide a more interactive learning experience for students (Bateman, 2021; Martin et al., 2020; Widyaningrum & Hasanudin, 2025).

3.4. Implementation

The implementation phase involved 13 Grade 5 students who used the developed learning media during classroom instruction. Learning activities were conducted using the Ekanaru learning media developed on the Jimdo website and implemented through the Problem-Based Learning (PBL) model. Prior to classroom implementation, the learning media had been validated by media, subject matter, and language experts to ensure its suitability for instructional use. Students learned to write explanatory texts through the stages of the Problem-Based Learning (PBL) model integrated into the learning media. The teacher acted as a facilitator throughout the learning process, whilst the students accessed the materials, instructional videos, worksheets, quizzes, and assessments available on the Ekanaru website. The students watched a video on flooding as a learning stimulus, completed worksheets to identify the causes and processes of flooding, studied material on explanatory texts, composed their own explanatory texts, and completed assessment quizzes via the Wayground platform.

The use of the media received a positive response from both teachers and students. Teachers found the media easy to use, helpful in delivering the material, and effective in increasing students' engagement in learning to write explanatory texts. Students participated actively throughout the learning activities because the media presented the material through a combination of text, images, videos, and interactive activities.

The results presented in Figures 5 and 6 indicate that both teacher and student responses were classified as very good. These findings suggest that the Ekanaru learning media is easy to use, attracts students' interest, and supports a more interactive learning process in explanatory text writing.

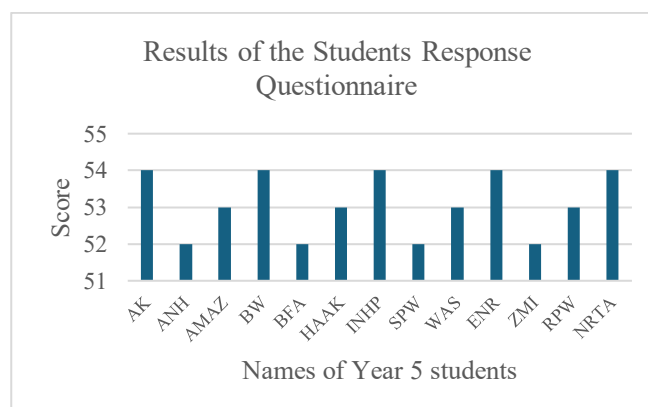


Figure 5. Results of the Students Response Questionnaire

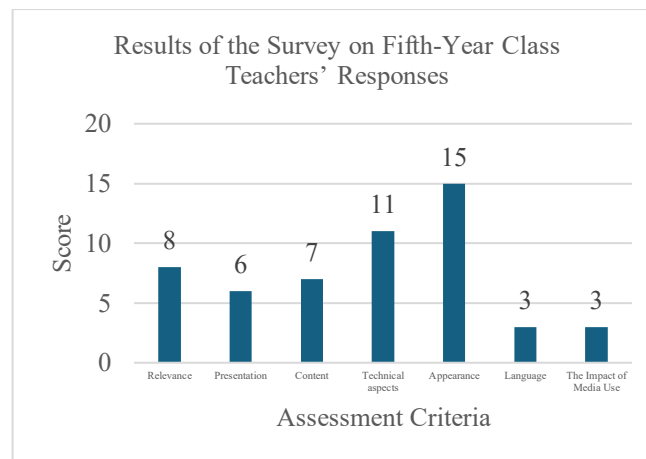


Figure 6. Results of the Teacher Feedback Survey

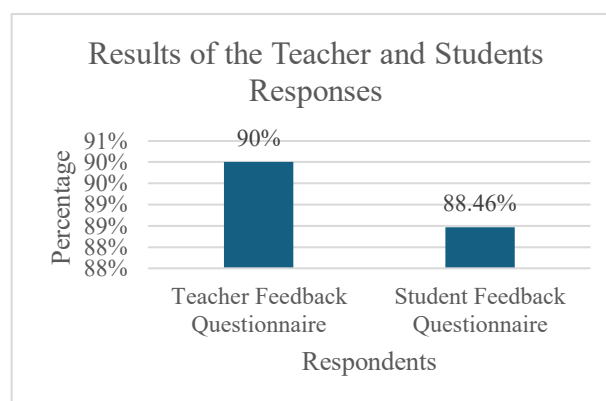


Figure 7. Results of the Teacher and Students' Response Survey

The overall teacher and student responses resulted in an average score of 89.23%, which falls within the 'very good' category. The response rate among teachers was 90%, whilst that among students was 88.46%. These results indicate that the Ekanaru learning resource is user-friendly and capable of engaging students' interest in learning to write explanatory texts. The combination of images, instructional videos, worksheets, and interactive quizzes supported students' participation throughout the learning process. Similar findings have been reported in previous studies showing that integrating multimedia elements into digital learning environments can enhance students' engagement, provide richer writing experiences, and create more opportunities for meaningful writing practice (Little et al., 2018; Nkomo et al., 2021; Yamaç et al., 2020). This result is also consistent with studies reporting that website-based and interactive learning media can improve students' motivation and classroom participation (Laila & Raharja, 2021; Purtilo-Nieminen et al., 2021).

3.5. Evaluate

The evaluation stage was conducted to assess the outcomes of using the Ekanaru platform in teaching students to write explanatory texts. The evaluation was based on the results of the explanatory text writing tasks completed in groups, as well as the assessment quizzes completed individually by the students via the Wayground platform. The evaluation results were used to assess the students' achievements following lessons on the Ekanaru platform, hosted on the Jimdo website, using the Problem-Based Learning (PBL) model.

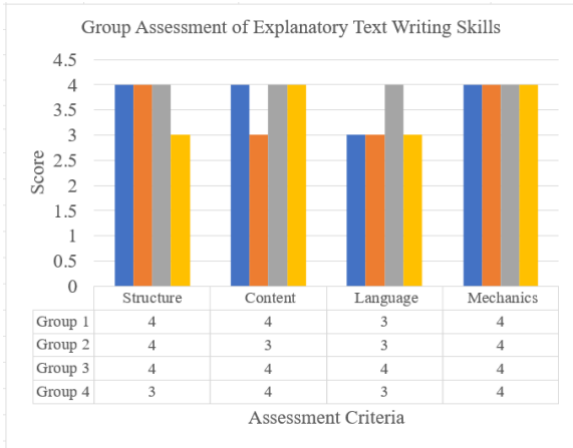


Figure 8. Results of the Explanatory Text Writing Skills Assessment

Figure 8 presents the results of the assessment of students' explanatory text writing skills. All groups achieved good results across structure, content, language use, and spelling. Group 3 achieved the highest score, whilst the other groups also performed well across each assessment criterion. These results indicate that students were able to organize explanatory texts according to the required structure and explain a phenomenon in a coherent manner. These findings are consistent with studies showing that teaching interventions in writing involving active and collaborative activities can improve the quality of primary school students' writing (Bouwer & Veen, 2024).

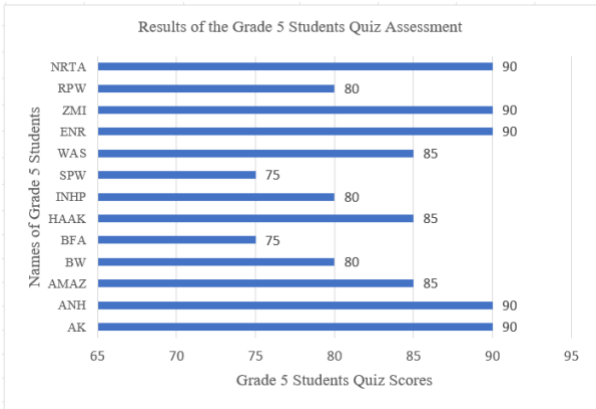


Figure 9. Student Assessment Quiz Results

Figure 9 shows the results of the students' evaluation quiz. The marks obtained ranged from 75 to 90. Five students scored 90, three scored 85, three scored 80, and two scored 75. These results indicate that most students demonstrated a good understanding of the explanatory text material presented through the Ekanaru learning media.

Overall, the evaluation results indicate that students were able to organize ideas into explanatory texts with appropriate structures and achieved satisfactory learning outcomes after using the Ekanaru learning media. These findings support previous research indicating that Problem-Based Learning helps students develop writing skills by encouraging them to generate ideas, organize information, and compose texts using appropriate structures and language features (Liao et al., 2025). They are also consistent with studies showing that structured writing instruction supports students in planning, organizing, and revising their writing, leading to improvements in writing quality (López et al., 2017).

Based on the results of the writing assessment and the evaluation quiz, the Ekanaru learning media can be used to support explanatory text writing instruction for Grade 5 students. Students were able to produce explanatory texts with appropriate structures while demonstrating a good understanding of the learning materials. These findings indicate that integrating digital learning media with structured learning activities can support the development of students' writing skills. Similar findings were reported by González-Laguna et al. (2024), who found that technology-based writing interventions contribute to improvements in writing quality and students' engagement throughout the writing process. Overall, the evaluation results are consistent with the findings from the validation and implementation stages, indicating that the developed learning media was well received by experts, teachers, and students.

3.6. Discussion

The findings of this study indicate that integrating the Jimdo website with the Problem-Based Learning (PBL) model provides a structured learning environment that supports students in learning to write explanatory texts. The combination of learning materials, instructional videos, worksheets, quizzes, and evaluation activities within a single platform enabled students to complete each stage of learning sequentially. The worksheets guided students in identifying the causes and processes of a phenomenon before writing, while the quizzes provided immediate feedback on their understanding of the material. As a result, students were able to organize their ideas more systematically and produce explanatory texts with appropriate structures. This suggests that integrating learning resources and formative assessment within a single digital platform helped reduce the complexity of the writing process by guiding students through each stage of explanatory text construction. Similar findings have been reported in previous studies indicating that well-designed digital writing instruction and the integration of digital tools into classroom writing activities support more structured writing practices, enhance students' engagement, and improve writing performance in primary education (Gil et al., 2026; Malpique et al., 2025; Uslu & Uslu, 2021).

The findings also demonstrate that integrating website-based learning media with the Problem-Based Learning (PBL) model encouraged students to participate actively throughout the learning process. During implementation, students actively completed worksheets, discussed ideas with their peers, and composed explanatory texts based on contextual problems. These activities encouraged students to construct knowledge actively while developing their writing skills. This finding suggests that integrating the Problem-Based Learning model with website-based learning media provided opportunities for students to learn through discussion, problem solving, and writing activities, rather than relying solely on teacher explanations.

While previous studies have examined digital learning media and the Problem-Based Learning model in various educational contexts, this study specifically integrates both approaches into a Jimdo-based learning platform designed to support explanatory text writing in primary education. This integration provides a practical example of how digital learning media and student-centred learning models can be combined to facilitate writing instruction through a structured and interactive learning process. The findings contribute to the growing body of research on digital writing instruction by providing empirical evidence that integrating website-based learning media with the Problem-Based Learning model can support explanatory text writing instruction in primary schools through structured and interactive learning activities.

3.7. Implications

The findings of this study indicate that the Ekanaru learning media can serve as an alternative digital learning resource to support explanatory text writing instruction in primary schools. The integration of website-based learning media with the Problem-Based Learning (PBL) model provides opportunities for teachers to organize learning activities that encourage students to explore ideas, analyze problems, and communicate their understanding through structured writing. The availability of instructional materials, learning videos, worksheets, quizzes, and evaluations within a single platform also facilitates a more organized learning process while increasing students' participation during classroom activities. These findings suggest that integrating digital media with student-centered learning approaches may provide an effective strategy for strengthening writing instruction and literacy development in primary education.

3.8. Limitations

This study has several limitations. First, the implementation involved only 13 fifth-grade students from one public elementary school, which limits the generalizability of the findings to other educational contexts. Second, this study focused on the development process and feasibility of the Ekanaru learning media. Therefore, its effectiveness in improving students' explanatory text writing skills over a longer period was not examined. Future studies are recommended to involve larger samples from different schools and investigate the long-term effectiveness of the learning media in enhancing students' writing achievement.

4. Conclusion

The development of the Ekanaru learning resource, based on the Jimdo website and using the Problem-Based Learning (PBL) model, was carried out using the ADDIE model, comprising the stages of analysis, design, development, implementation, and evaluation. The resource developed includes explanatory text, educational videos, worksheets, quizzes, and assessments, all integrated into a single platform, enabling its use in teaching Grade 5 students how to write explanatory texts. The results of expert validation, teacher responses, student responses, and the evaluation stage indicate that the Ekanaru learning resource is suitable for classroom use. The resource helps students understand explanatory texts, develop ideas, and organize their writing according to the appropriate structure. Therefore, the Jimdo-based Ekanaru learning resource integrated with the Problem-Based Learning (PBL) model can be used to support explanatory text writing instruction for Grade 5 primary school students.

Author Contributions

All authors contributed equally to this paper. All authors have read and approved the final manuscript.

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Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/ or publication of this article.

Data Availability

The datasets generated during and/ or analyzed during the current study are available from the corresponding author on reasonable request.

Declaration on AI Use

The authors declare that no artificial intelligence (AI) or AI-assisted tools were used in the preparation of this manuscript.

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