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PROJECT-BASED LEARNING WITH QREATIF EDUCATIVE: IMPROVING EARLY WRITING SKILLS IN ELEMENTARY SCHOOLS

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Abstract
Beginning writing is a foundational literacy skill in early elementary education because it supports students' ability to form letters, build words, and construct simple sentences to express ideas. However, classroom instruction at the early writing stage often remains procedural and copy-based, with limited media to stimulate idea development, engagement, and confidence in initiating written texts. This study developed and tested a Project-Based Learning (PjBL) model supported by the interactive digital application Qreatif Educative to improve Grade 1 students' beginning writing skills. Using a Research and Development (R&D) approach, the study followed sequential stages of needs analysis, information gathering, product design, expert validation, limited trial, field trial, and final revision. The research site was SDN 3 Sukamaju. Validators consisted of two content experts and two media experts. A small-group trial involved 7 students, followed by a field trial involving 16 students. Data were collected through observations, interviews, questionnaires, documentation, and pretest–posttest writing assessments. Qualitative data were analyzed thematically to capture usability feedback and implementation challenges, while quantitative data were analyzed descriptively using feasibility percentages and inferentially using a paired-sample t-test. The developed model and media were rated very feasible by experts, with content and media validation results reaching 88%. Student responses in the small-group trial indicated very positive usability and engagement, with an average feasibility score of 85.56%. Effectiveness testing in the field trial demonstrated a significant improvement in students' beginning writing performance after implementation (paired-sample t-test, $p = .000 < .05$). Overall, integrating PjBL with Qreatif Educative provides a feasible and effective approach to strengthening beginning writing through structured projects, interactive practice, and guided feedback in early elementary classrooms.

Keywords: beginning writing skills, project-based learning; interactive digital media, Qreatif Educative, elementary education

Introduction

Beginning writing skills are a core component of early literacy in elementary education because they enable students to represent ideas through written symbols, develop vocabulary choices, and construct simple sentences meaningfully. At the Grade 1 level, writing is not merely a mechanical activity but a developmental process that shapes students' confidence and readiness to communicate in written form. However, many young learners experience difficulties when they start writing, particularly in forming letters accurately, combining letters into words, and composing an initial sentence that matches the intended topic. These difficulties often result in very short or fragmented writing products and limited continuity of ideas. As reported by Nurlatifah and Murni (2023), early writing obstacles are closely related to limited stimulation for idea generation and the lack of media that support students' initial thinking processes.

The persistence of these challenges is also influenced by instructional practices that still rely heavily on conventional learning resources. In many classrooms, beginning writing is taught through teacher-centered explanation and copying exercises from the board or textbook. While such activities may help students practice handwriting, they provide limited opportunities for meaningful idea construction, exploration, and communicative writing. Consequently, students become passive and less confident in expressing their thoughts in written form. This situation aligns with evidence that student participation in early writing is strongly shaped by the characteristics of learning media and the type of learning tasks provided (Nurlatifah & Murni, 2023).

One instructional approach that can address this issue is Project-Based Learning (PjBL). PjBL emphasizes active student participation through planning, creating, and reflecting on a product, allowing learners to develop ideas gradually in a structured learning process. For writing instruction, PjBL can provide concrete steps that guide students from generating simple ideas to organizing them into a basic written form. Recent studies have shown that PjBL contributes positively to students' writing performance and text organization (Pattiasina et al., 2024; Raharjo et al., 2024) and can support creative writing development (Andargie et al., 2025). However, most existing studies focus on writing outcomes as complete text products and are commonly conducted with upper-grade learners, while research that specifically targets Grade 1 beginning writing skills, such as letter formation, word construction, and initial sentence production—remains limited.

Alongside instructional models, interactive digital media have increasingly been utilized to strengthen literacy learning in elementary schools. Digital platforms that provide visualization, audio support, and immediate feedback can increase motivation and scaffold early literacy development (Buhohang et al., 2025; Chao et al., 2025). Nevertheless, much of the existing research has emphasized early reading rather than beginning writing, leaving a gap regarding how interactive applications can be systematically integrated into early writing instruction, particularly for younger learners who require guided and repeated practice.

Qreatif Educative is an interactive educational application that offers learning modules, simulations, educational games, and writing exercises for elementary school students. Prior research indicates that Qreatif Educative and similar interactive applications can improve learning outcomes and support literacy mastery through engaging multimodal features (Fauzana et al., 2025; Handayani & Kristiantari, 2023). Despite these reported benefits, studies that position Qreatif Educative specifically as a structured support medium for beginning writing development in Grade 1 contexts are still scarce. Moreover, interactive digital media often function as supplementary tools rather than being embedded within a coherent instructional model that systematically guides students through writing activities.

Empirical observations at SDN 3 Sukamaju also indicate that beginning writing skills among Grade 1 students remain underdeveloped. Teachers report that students frequently produce only one or two words and struggle to initiate a sentence even when given a topic prompt. Instruction has mainly relied on print-based resources and copying tasks, while available digital learning facilities have not been optimally utilized to support beginning writing activities. This condition suggests a practical need for an instructional design that integrates an active learning model with interactive digital support to scaffold early writing development.

Based on the theoretical and empirical context above, a research gap emerges in the limited empirical evidence on integrating PjBL with interactive digital media, specifically Qreatif Educative

to improve Grade 1 beginning writing skills in Indonesian elementary schools. Therefore, this study aims to develop a PjBL model supported by Qreatif Educative and to examine its feasibility and effectiveness in improving beginning writing skills of Grade 1 students at SDN 3 Sukamaju. The guiding research question is: How does the implementation of Project-Based Learning supported by Qreatif Educative influence Grade 1 students' beginning writing skills?

Literature Review

This section examines theoretical and empirical perspectives relevant to improving beginning writing skills in early elementary education. The discussion focuses on four interrelated aspects: (1) Project-Based Learning as an instructional framework, (2) interactive digital media and Qreatif Educative, (3) beginning writing development in young learners, and (4) the pedagogical integration of PjBL and digital media. These perspectives are reviewed to establish a rationale for developing a learning model that simultaneously provides structured guidance, active engagement, and cognitive scaffolding in early writing instruction.

Project-based learning in elementary writing instruction

Project-Based Learning (PjBL) positions students as active participants who construct knowledge through meaningful tasks and collaborative problem solving. Rather than emphasizing isolated exercises, PjBL organizes learning around purposeful activities that culminate in a tangible product (Pattiasina et al., 2024). Through planning, implementation, and reflection, students gradually build understanding while developing responsibility for their learning outcomes.

In language learning contexts, PjBL supports idea development and organization because students move through stages of thinking before producing written text. Raharjo et al. (2024) demonstrated that PjBL improves writing organization and coherence, while Andargie et al. (2025) reported improvements in creative writing performance. These improvements occur because learners generate, discuss, and refine ideas before writing, which reduces cognitive burden during text production.

For early elementary students, this structured process is particularly relevant. Beginning writers require guided experiences that connect thinking and writing. Small-scale projects enable learners to construct words and sentences gradually rather than produce text spontaneously. Such staged activities align with developmental learning principles in which writing emerges from guided practice and meaningful communication (Suteja & Setiawan, 2022).

However, most PjBL studies address upper-grade writing outcomes and complete texts. Limited research has examined PjBL specifically as a scaffold for beginning writing skills, especially at the stage of forming initial sentences and generating ideas. This indicates a need to adapt the PjBL framework to younger learners and integrate supporting tools that reduce cognitive load during writing.

Interactive digital media and Qreatif Educative

Interactive digital media can function as scaffolding tools that support early literacy development. Multimedia elements such as visuals, audio, and animation help learners understand

language patterns and maintain engagement (Buhohang et al., 2025). Immediate feedback also supports error correction and reinforces correct writing structures (Chao et al., 2025).

Qreatif Educative is designed as an interactive learning platform that presents writing activities through multimodal interaction. The application allows students to trace letters, arrange words, and compose sentences while receiving automated guidance (Handayani & Kristiantari, 2023). Such features correspond to cognitive learning principles, where visual and auditory support reduce extraneous cognitive load and facilitate comprehension.

The platform also provides adaptive exercises, enabling students to progress gradually from recognizing letters to constructing simple sentences. This scaffolding process encourages self-regulated learning and strengthens foundational writing skills (Fauzana et al., 2025). Additionally, gamified elements increase motivation, which is essential for young learners who require engagement to sustain attention during writing activities.

Despite these advantages, digital media is often used only as supplementary practice rather than integrated into a coherent instructional model. Consequently, students may interact with technology without meaningful learning structure. This suggests that digital media should function not merely as a tool but as part of an instructional design that guides the learning process.

Beginning writing skills in early elementary education

Beginning writing skills include recognizing letters, forming words, and composing simple sentences as initial forms of written communication. These abilities develop gradually and depend on cognitive readiness, language exposure, and guided practice (Istiqomah & Apoko, 2025). At this stage, students frequently experience difficulty generating ideas and organizing words into meaningful structures.

Effective early writing instruction requires contextual and supportive learning environments. Appropriate learning media help students understand relationships between sounds, letters, and words (Kusumasari et al., 2025). Writing activities connected to familiar contexts also increase motivation and confidence in expression.

Repeated guided practice is essential because early writing is not only motoric but also cognitive. Students must connect ideas, vocabulary, and structure simultaneously. Digital media can support this process by providing continuous practice and feedback, enabling learners to internalize writing patterns gradually (Nurlatifah & Murni, 2023).

Nevertheless, early writing instruction often remains mechanical, focusing on copying rather than expression. As a result, students may develop handwriting ability without communicative competence. Therefore, instructional approaches must combine structured guidance with meaningful writing experiences.

Integrating PjBL and interactive media in beginning writing

Integrating PjBL with interactive digital media provides complementary instructional support. PjBL offers structured activities that guide idea development, while digital media supplies immediate feedback and visualization. Together, they form a learning environment that supports both cognitive processing and engagement (Herdiana et al., 2025).

Interactive projects allow students to plan, practice, and present writing products with guidance from the media. The media supports technical aspects of writing, whereas the project

structure supports conceptual understanding of communication. This combination encourages active participation and reflective learning (Handayani & Kristiantari, 2023).

Previous studies show that combining project-based learning with digital media improves motivation and writing performance (Turyani et al., 2024). However, most research addresses narrative or advanced writing skills rather than early writing stages. Therefore, empirical evidence regarding its effectiveness for beginning writing remains limited.

The literature suggests three key points. First, PjBL supports structured idea development but has rarely been adapted for beginning writing skills. Second, interactive digital media facilitates guided practice and engagement but is often used without pedagogical integration. Third, early writing development requires both structured activities and scaffolded feedback.

These findings indicate a gap in instructional design that simultaneously integrates project-based pedagogy and interactive digital scaffolding for early elementary writers. To address this gap, the present study develops a Project-Based Learning model supported by Qreatif Educative and examines its feasibility and effectiveness in improving beginning writing skills.

Methodology

Research design and study approach

This study employed a Research and Development (R&D) approach to design, validate, and evaluate a Project-Based Learning (PjBL) model supported by the interactive digital media Qreatif Educative for improving early writing skills of elementary school students. The R&D approach was selected because the purpose of the study was not only to investigate learning conditions but also to produce an instructional product and test its feasibility and effectiveness in classroom practice. Educational R&D is appropriate when research aims to generate and evaluate instructional interventions in authentic educational settings (Creswell, 2012).

The development procedures were adapted from the Borg and Gall development framework and organized into sequential stages: needs analysis, information gathering, product design, expert validation, limited trial, field trial, and final revision. Each stage generated evaluative data that informed subsequent revisions so that the final product became pedagogically appropriate and practically usable (Creswell, 2012).

Research site and participants

The study was conducted at SDN 3 Sukamaju, an elementary school equipped with digital learning facilities but not yet utilizing interactive media for early writing instruction. Participants were selected purposively because they were directly involved in the learning process, which is consistent with developmental research requiring representative users of the designed product (Creswell, 2012). Validators consisted of two Indonesian language education experts evaluating content validity and two educational technology experts evaluating media usability. Student participants consisted of Grade 1 learners involved in two stages: seven students in the limited trial and sixteen students in the field trial.

Students were included if they had recognized letters and simple words and regularly participated in Indonesian language learning. Ethical considerations were maintained by obtaining school permission and ensuring anonymity of participants.

Data collection

Multiple instruments were employed to capture both product feasibility and learning effectiveness. Observation sheets documented student engagement and interaction during implementation. Observation allows researchers to record authentic classroom behavior during intervention studies (Creswell, 2012).

Semi-structured interviews were conducted with teachers and selected students to obtain perceptions of usability and learning experience. Interviews enable deeper understanding of participants' responses to instructional interventions (Creswell, 2012). Questionnaires were administered to experts, teachers, and students. Expert validation questionnaires assessed content accuracy, instructional alignment, and interface usability. Expert judgment is widely used in development research to establish content validity of educational products (Creswell, 2012).

Writing tests in the form of pretests and posttests measured improvement in early writing skills, including letter formation, word construction, and simple sentence production. The instrument was validated by subject-matter experts prior to use to ensure alignment with learning objectives. Documentation such as student worksheets and project outputs was collected to support data triangulation and strengthen interpretation of results.

Data Analysis

Qualitative data from observations, interviews, and validator comments were analyzed using thematic analysis to identify patterns of usability and learning engagement. Qualitative thematic analysis supports interpretation of educational interventions by organizing recurring responses into meaningful categories (Creswell, 2012). Quantitative questionnaire data were converted into feasibility percentages using the formula:

$$P = \frac{\sum x}{\sum x_i} \times 100\%$$

The percentages were interpreted according to feasibility categories. To evaluate effectiveness, pretest and posttest scores were analyzed using a paired-sample t-test. Prior to hypothesis testing, the Shapiro–Wilk test was conducted to examine normality assumptions. Parametric testing such as the paired t-test is appropriate for determining mean differences in one-group pretest–posttest designs (Creswell, 2012). Quantitative data were obtained from questionnaire ratings and students' writing test results. The questionnaires used a five-point Likert scale with the following criteria.

Table 1. *Likert scale criteria for product feasibility assessment*

Scores	Criterion
1	Very Not Feasible
2	Not Feasible
3	Moderately Feasible
4	Feasible
5	Very Feasible

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Questionnaire scores were analyzed using percentage calculations with the following formula:

where:

P = percentage of assessment results

$\sum x$ = total score obtained

$\sum xi$ = maximum possible score

The resulting percentages were then classified to determine the level of product feasibility based on criteria adapted from Herdiana, et al. (2025) as shown in the following table.

Table 2. *Product feasibility classification based on percentage scores*

Percentage	Feasibility Level
0–20%	Very Not Feasible for Use
20.1–40%	Not Feasible for Use
40.1–60%	Feasible with Revisions
60.1–80%	Feasible for Use
80.1–100%	Very Feasible for Use

The effectiveness of the learning model was analyzed using a one-group pretest–posttest design. Before conducting the t-test, the normality of the pretest and posttest data was examined using the Shapiro–Wilk test, which is suitable for small to moderate sample sizes. The results indicated that both pretest ($p = 0.112$) and posttest ($p = 0.087$) scores were normally distributed, meeting the assumption required for parametric testing. Subsequently, a paired-sample t-test was performed using SPSS software to determine whether there were significant differences in students' beginning writing skills before and after the implementation of the PjBL model supported by Qreatif Educative media (Creswell 2012)

Development procedures

The needs analysis stage identified learning difficulties through classroom observation and teacher interviews. The design stage formulated learning objectives, project activities, and media structure aligned with early writing indicators. The development stage produced the initial Qreatif Educative-supported learning model and was followed by expert validation to evaluate content accuracy and usability.

The limited trial examined clarity and practicality with a small student group, while the field trial tested effectiveness in real classroom conditions. Iterative revisions were conducted after each stage to improve product quality, which is a defining characteristic of development research cycles (Creswell, 2012).

Validity and trustworthiness

Content validity was established through expert judgment evaluating relevance and clarity of all instruments. Reliability of quantitative instruments was examined using internal consistency procedures. Trustworthiness of qualitative findings was ensured through triangulation across observations, interviews, questionnaires, and student writing products. Triangulation strengthens credibility by confirming findings from multiple sources (Creswell, 2012).

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Findings

The development of learning media in this study followed the Research and Development (R&D) procedure aimed at producing a Project-Based Learning (PjBL) model assisted by Qreatif Educative media to improve students' early writing skills. The results are presented according to the development stages, from identifying problems to producing the final product.

Identification of potential and problems

Initial data were obtained through classroom observation and interviews with the Grade 1 teacher at SDN 3 Sukamaju. The findings showed that early writing instruction was still dominated by copying activities. Students generally copied letters or words from the board rather than composing their own writing. Many students experienced difficulty forming letters correctly, combining letters into words, and arranging simple sentences.

Teacher interviews indicated that learning media used in the classroom were mostly printed worksheets and textbooks. Digital facilities were available but had not been used in writing instruction. As a result, students tended to lose attention quickly during writing activities and hesitated when asked to begin writing. Analysis of lesson plans also showed that writing activities had not yet facilitated idea expression. Students wrote isolated words rather than meaningful sentences. These findings indicated the need for a structured and interactive learning approach to support early writing development.

Information gathering

The information-gathering stage was conducted to obtain empirical and theoretical foundations for designing the Project-Based Learning (PjBL) model assisted by Qreatif Educative media. Data were collected through a literature review, document analysis, and in-depth interviews with Indonesian language teachers at SDN 3 Sukamaju. The literature review examined previous studies on the use of the PjBL model and interactive digital media in early writing instruction for lower-grade students. The analyzed documents included lesson plans (RPP), syllabi, and the school's annual program.

The analysis indicated that early writing instruction in Grade 1 still tended to be conventional, primarily involving copying letters, words, or simple sentences from the board without engaging students in creative thinking activities. Teachers reported that many students experienced difficulties combining letters into words, arranging words into simple sentences, and expressing ideas in written form. Interviews also revealed that the school had not yet implemented digital learning media that adequately supported project-based learning.

These findings align with previous research emphasizing the importance of interactive technology in improving students' motivation and early writing skills (Handayani & Kristiantari, 2023). Furthermore, interactive digital media are considered capable of helping students understand early writing concepts in a more engaging, meaningful, and contextual manner. The data obtained at this stage therefore served as the basis for designing a PjBL model assisted by Qreatif Educative media that addresses the needs of first-grade students in the digital era.

The integration of information from literature, documents, and interviews ensured that the developed model was not only theoretically grounded but also practical and applicable in classroom settings, and thus expected to significantly enhance early writing skills.

Product design

The initial product design was developed by integrating the Project-Based Learning (PjBL) model with the Qreatif Educative interactive digital media. This design aimed to provide a more creative, engaging, and contextual early writing learning approach for first-grade students at SDN 3 Sukamaju. A learning flowchart was prepared to systematically map student activities, beginning with the introduction to writing, practicing letters and words, constructing simple sentences, and presenting students' written work.

The learning scenario followed a modified PjBL syntax adapted to the developmental characteristics of lower-grade elementary students. The stages consisted of introducing writing activities, planning early writing tasks, scheduling activities, monitoring the writing process, evaluating writing results, and reflecting on students' learning experiences. This structure considered students' initial abilities, age characteristics, and interactions among teachers, students, and digital media (Pattiasina et al., 2024).

Qreatif Educative was selected because it presents early writing materials in an interactive format that is visually appealing and easily accessible. Interactive features such as animation, audio, video, and quizzes support students' understanding and enhance learning motivation (Handayani & Kristiantari, 2023).

At this stage, essential components including learning objectives, writing activities, digital learning materials, and assessment rubrics were prepared in detail. This preparation ensured that students' early writing skills could be developed systematically and effectively. The product design emphasized alignment between instructional materials and student needs as well as the effectiveness of digital media integration. The design then served as the basis for expert validation prior to small-group and field trials.

Design validation

Design validation was conducted to ensure that the Project-Based Learning (PjBL) model supported by Qreatif Educative digital media met feasibility standards in terms of content accuracy, language clarity, visual presentation, and instructional usefulness before implementation with first-grade students at SDN 3 Sukamaju. This stage aimed to obtain constructive feedback so that the developed product would be pedagogically appropriate and suitable for early writing instruction.

The validation involved two content experts in Indonesian language education and two media experts with expertise in educational technology. Content experts evaluated the alignment between learning objectives and materials, conceptual accuracy, and relevance to students' developmental level. Media experts assessed interface clarity, layout consistency, color selection, integration of text and images, and ease of navigation within the Qreatif Educative platform. The involvement of experts ensured that both instructional and technical aspects of the product met educational standards.

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Validation data were collected using a Likert-scale assessment sheet and analyzed using percentage calculations to determine the level of feasibility. The results indicated that the learning model and media were categorized as highly feasible in both content and technical aspects. These findings suggest that the product was appropriate for early writing learning and ready to proceed to the trial stage with students. The validation results indicate that both instructional content and media design met the feasibility criteria. Therefore, the product was considered appropriate for classroom implementation after minor revisions.

Table 3. *Content expert validation results*

No	Assessment Aspects	Maximum Score	Score Obtained	Percentage	Category
1	Content alignment with learning objectives	5	5	100%	Very Feasible
2	Content alignment with curriculum	5	4	80%	Feasible
3	Accuracy and clarity of material	5	4	80%	Feasible
4	Language and sentence structure	5	4	80%	Feasible
5	Usefulness of material for students	5	5	100%	Very Feasible
	Total	25	22	88%	Very Feasible

Table 4. *Media expert validation results*

No	Assessment Aspects	Maximum Score	Score Obtained	Percentage	Category
1	Visual display and design	5	4	80%	Feasible
2	Consistency and navigation	5	4	80%	Feasible
3	Media alignment with content	5	5	100%	Very Feasible
4	Audio and visual quality	5	4	80%	Feasible
5	Ease of use for students	5	5	100%	Very Feasible
	Total	25	22	88%	Very Feasible

Design revision

The design revision stage was conducted after the validation process to improve the quality and suitability of the Project-Based Learning (PjBL) model supported by Qreatif Educative digital media for first-grade students at SDN 3 Sukamaju. The revisions were based on feedback provided by both content and media experts to ensure that the product aligned with students' developmental characteristics and early writing learning objectives.

Content experts recommended adjusting the sequence of learning materials to better reflect the gradual development of early writing skills, beginning from letter recognition, progressing to word formation, and finally to simple sentence construction. The learning activities within the PjBL scenario were also reorganized to provide clearer guidance and a more structured progression of tasks. From a technical perspective, media experts suggested improving the visual interface to make it more accessible and engaging for young learners. Several adjustments were made, including simplifying navigation, refining the layout, and enhancing illustrations and audio support to facilitate comprehension. Some instructional texts were shortened and clarified to match students'

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reading ability at the early writing stage. The revision did not alter the fundamental structure of the learning model but strengthened usability and clarity. These improvements ensured that the product was pedagogically appropriate, visually understandable, and ready for implementation in the trial stage.

Product Trial

The product trial was conducted to examine students' understanding, usability of the media, and learning engagement before wider implementation. This stage involved a small group of seven first-grade students at SDN 3 Sukamaju who represented varying initial writing abilities.
During the learning activities, students interacted directly with the Qreatif Educative media while following the Project-Based Learning (PjBL) stages. Observations showed that students were able to recognize letters and words more confidently compared to previous conventional lessons. They also demonstrated greater participation during writing activities, particularly when arranging words and composing simple sentences.

Student responses were collected through questionnaires and classroom observation. The evaluated aspects included clarity of instructions, ease of use, attractiveness of the media, and involvement in early writing tasks. The results indicated that students could follow the learning steps with minimal teacher assistance and showed enthusiasm when completing writing activities using the digital media. Overall, the small-group trial demonstrated that the developed learning model was understandable, engaging, and appropriate for students' developmental level. Minor adjustments were still required, particularly in simplifying several instructions and adding additional example words to support comprehension. The findings confirmed that the product was ready for further refinement before larger-scale implementation.

Table 5. *Product trial results*

Assessed Aspect	Maximum Score	Score Obtained	Percentage (%)	Category
Ease of understanding letters and words	45	39	86.67%	Very Good
Attractiveness of media display	45	40	88.89%	Very Good
Engagement in writing activities	45	38	84.44%	Very Good
Clarity of instructions and media navigation	45	37	82.22%	Very Good
Total Average	180	154	85.56%	Very Good

Based on these results, the average percentage of 85.56% falls into the "Very Good" category. This indicates that the learning product is easy to understand, visually attractive, actively engages students, and is user-friendly. Student feedback also indicated that Qreatif Educative helped them understand writing letters, words, and initial sentences more enjoyably. These trial results serve as a foundation showing that the PjBL model and digital media are ready for wider implementation, although minor improvements are still needed, such as adding example words or simple sentences and varying interactive activities in the media.

Product revision

Following the small-group trial, a product revision was conducted to improve usability and clarity of the Project-Based Learning (PjBL) model supported by Qreatif Educative media. The revisions were based on classroom observations, student responses, and teacher feedback obtained during the trial implementation.

Most students were able to operate the media and follow the learning activities; however, several difficulties were identified. Some instructions were still too long for first-grade reading ability, and a few students required repeated guidance when moving between activities. In addition, several vocabulary examples were considered insufficient to support independent sentence construction. To address these issues, the instructional texts were simplified and rewritten using shorter and clearer sentences. Additional example words and sentence models were inserted to help students construct early written expressions more independently. The navigation icons were also repositioned to make transitions between activities more intuitive for young learners. These revisions did not modify the conceptual structure of the PjBL model but improved readability and operational practicality. After refinement, the media was considered clearer, easier to use, and more suitable for classroom application, and therefore ready for field testing in a larger group of students.

Field trial (usage testing)

The field trial was conducted to evaluate the effectiveness of the Project-Based Learning (PjBL) model supported by Qreatif Educative media in improving students' early writing skills. The implementation involved sixteen first-grade students at SDN 3 Sukamaju in a full-class learning setting. Before the learning activities, students completed a pretest to measure their initial early writing ability, including letter formation, word construction, and simple sentence writing. After participating in the learning sessions using the developed media, students completed a posttest with equivalent indicators. The results were analyzed using a paired-sample t-test to determine whether a significant improvement occurred after the intervention.

The analysis showed a significant difference between pretest and posttest scores (Sig. 0.000 < 0.05), indicating that students' early writing skills improved after using the PjBL model supported by Qreatif Educative media. Students demonstrated better ability in arranging letters into meaningful words and constructing simple opening sentences. They also showed greater confidence in starting writing tasks compared to the initial learning condition. Classroom observations supported the quantitative findings. Students participated more actively in writing activities and required less teacher assistance when composing words and short sentences. The interactive features of the media allowed students to practice repeatedly and receive immediate feedback, which facilitated gradual improvement in early writing performance. These findings indicate that the developed learning model was not only feasible but also effective in supporting early writing instruction in the elementary classroom context.

Table 6. *Paired Sample t-Test Results for Field Trial*

Pair	Comparison	Mean Difference	Std. Deviation	Std. Error	95% CI (Lower)	95% CI (Upper)	t	df	Sig. (2-tailed)
1	Pretest – Posttest	-80.870	7.868	1.661	-84.315	-76.424	-49.279	16	0.000

Based on the analysis, the two-tailed significance value of 0.000 is far below the 0.05 threshold. This indicates a significant difference between students' pretest and posttest scores. Thus, H_0 is rejected and H_1 is accepted.

The significant mean difference (80.870 points) proves that using Qreatif Educative within the PjBL model significantly improves students' beginning writing skills. These findings support previous research indicating that the integration of interactive digital media in learning has a positive impact on students' academic outcomes (Siwi et al., 2025).

Final revision

The final revision was conducted after the field trial to refine the Project-Based Learning (PjBL) model supported by Qreatif Educative media based on classroom implementation results. Feedback was obtained from teacher observations, student responses, and analysis of learning outcomes. Overall, the media functioned effectively during learning activities; however, several minor improvements were identified. Some task instructions were still considered slightly complex for first-grade reading ability, and a few activity durations needed adjustment to better fit classroom time allocation. In addition, several visual elements were enhanced to maintain students' attention during longer writing activities. The revisions focused on simplifying instructions, adjusting activity timing, and improving visual clarity without altering the learning objectives or the structure of the PjBL model. These refinements ensured that the learning media became more practical for classroom use and more suitable for students' developmental level. After the revision process, the product was considered fully developed and ready for broader classroom implementation as a learning model to support early writing instruction.

Final product

The final product of this study is a Project-Based Learning (PjBL) model supported by the Qreatif Educative interactive digital media designed to improve early writing skills of first-grade elementary school students. The product integrates structured project activities with guided digital writing practice, allowing students to learn through sequential stages from letter recognition to simple sentence construction. The learning model is organized into thematic project activities in which students plan, complete, and present simple written outputs. Within each stage, the Qreatif Educative media provides interactive exercises, visual prompts, and immediate feedback that help students practice writing independently while still receiving structured guidance.

The developed product emphasizes three main characteristics: active participation through project activities, guided practice through interactive media, and gradual development of early

writing skills. Based on validation and field testing results, the product is considered feasible, practical, and effective for classroom use and can serve as an alternative instructional approach for early writing learning in elementary schools.

Discussion

This study aimed to examine the effectiveness of the Project-Based Learning (PjBL) model supported by Qreatif Educative interactive digital media in improving early writing skills among elementary school students. The results demonstrated a significant improvement in students' ability to initiate writing, particularly in recognizing letters, forming words, and composing simple opening sentences. These findings indicate that integrating structured project activities with interactive digital support helps students overcome common difficulties in the early stages of writing.

The improvement can be explained by the learning characteristics provided by the developed model. The project-based activities encouraged students to actively construct written expressions, while the digital media offered guided practice and immediate feedback. This combination enabled students to gradually build confidence in beginning writing tasks and reduced hesitation when starting a sentence. Such conditions support the view that meaningful learning occurs when students actively engage in constructing knowledge rather than merely copying written forms.

The findings are consistent with previous studies reporting that project-based learning improves writing performance through active participation and structured practice. However, earlier studies mainly focused on complete text production, whereas the present study emphasizes the foundational stage of writing development. By targeting early writing skills, this research extends prior findings and demonstrates that project-based learning can also support the initial formation of written expression when combined with appropriate interactive media.

From a socio-constructivist perspective, the effectiveness of the developed learning model can be interpreted through the concept of guided learning support. During the implementation, students did not immediately produce complete written expressions but gradually constructed them through repeated interaction with tasks and media feedback. The teacher functioned as a facilitator, while the digital media provided structured assistance at each stage of writing. This condition reflects the idea that learning occurs most effectively when learners receive support slightly above their independent ability level, enabling them to internalize new skills progressively (Widiastuti et al., 2024).

The interactive features of Qreatif Educative also contributed to reducing students' difficulty in starting writing activities. Instead of facing a blank page, students were provided with visual prompts, word examples, and guided exercises. These supports helped students organize ideas and begin composing sentences more confidently. The availability of immediate feedback allowed students to correct mistakes directly and repeat the activity until they achieved correct writing forms. As a result, students relied less on memorization and more on practice-based understanding, which aligns with findings that interactive media enhances early literacy development (Handayani & Kristiantari, 2023; Buhohang et al., 2025).

In addition, project-based activities encouraged meaningful engagement. Students did not merely practice isolated letters or words but used them within purposeful tasks that required producing simple written outputs. This process strengthened the connection between writing practice and communication purpose, making learning more relevant to students' experience. The

combination of meaningful tasks and interactive guidance therefore supported both cognitive development and learning motivation (Pattiasina et al., 2024).

The findings of this study support previous research indicating that project-based learning improves students' writing performance through active participation and structured activities (Raharjo et al., 2024; Wikanengsih & Juhari, 2025). Earlier studies reported improvements in narrative and descriptive writing after the implementation of project-based instruction. However, those studies mainly examined writing as a complete text product at higher grade levels. In contrast, the present study focuses on early writing skills at the initial literacy stage. The results demonstrate that project-based learning can also facilitate foundational writing abilities when combined with guided interactive media.

The role of digital media in this study also extends prior findings. Previous research showed that digital tools increase motivation and engagement in literacy learning (Wijaya et al., 2025), yet they often functioned only as supplementary practice platforms. In the present study, Qreatif Educative was integrated within each stage of learning activities rather than used as an additional tool. This integration allowed students to interact with writing tasks continuously, strengthening the relationship between activity, feedback, and skill development (Nurlatifah & Murni, 2023).

This study contributes to elementary literacy instruction in three ways. First, it demonstrates that early writing development can be supported through structured project activities rather than repetitive mechanical exercises (Istiqomah & Apoko, 2025). Second, it shows that interactive digital media can provide scaffolding that helps young learners initiate writing more confidently (Handayani & Kristiantari, 2023). Third, it offers a practical instructional model integrating pedagogy and technology, which teachers can adapt in similar classroom contexts (Widhiastuti et al., 2023).

Rather than positioning technology as a replacement for teaching, the developed model combines teacher guidance, student activity, and digital support into a unified learning environment. This integration helps students gradually transition from guided writing practice to more independent written expression.

Despite its contributions, this study has several limitations. The implementation was conducted in a single classroom with a limited number of participants, which may restrict generalization of the findings. The research also focused on short-term improvement in early writing skills without examining long-term retention or transfer to more complex writing tasks. Similar constraints are also reported in classroom-based literacy intervention studies (Suteja & Setiawan, 2022). Future research may involve larger samples, multiple schools, and longer intervention periods to examine sustainability of learning outcomes and progression toward advanced writing abilities

Conclusion and Recommendations

This study developed and evaluated a Project-Based Learning (PjBL) model supported by Qreatif Educative interactive digital media to improve elementary students' early writing skills. The findings indicate that integrating structured project activities with guided digital interaction supports students in initiating writing, forming words, and composing simple sentences more

confidently. The media functioned not only as a practice tool but as a scaffold that helped students gradually construct written expression.

The study suggests that early writing instruction benefits from combining meaningful tasks and interactive feedback rather than relying solely on mechanical exercises. The developed model provides an instructional alternative that integrates pedagogy and technology to support foundational literacy learning in elementary classrooms.

Teachers are encouraged to implement structured project activities supported by interactive media to facilitate early writing development. Future research may examine long-term writing development and broader classroom implementation across different school contexts.

Disclosure statement

No potential conflict of interest was reported by the authors

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