

Developing Project-Based Learning Writing Materials for EFL Junior High Schools Students: A Physiotherapy Perspective on Educational Intervention Design

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Article history: received MM DD, YEAR; revised MM DD, YEAR; accepted MM DD, YEAR

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Abstract

This study aimed to develop an English writing module through Project-Based Learning (PjBL) for Grade VIII students of MTs Yayasan Pendidikan Jaya Penggalan and to evaluate its validity and effectiveness in improving students' writing competence. The study was motivated by the limited opportunities provided by existing instructional materials for systematic writing practice, which resulted in students' difficulties in generating ideas, organizing texts, applying grammatical structures, and using appropriate vocabulary. This research employed a Research and Development (R&D) design using the ADDIE model, which consistS of Analysis, Design, Development, Implementation, and Evaluation stages. The needs analysis involved students through questionnaires to identify their target and learning needs. The developed module was validated by three experts: a material expert, a media expert, and an instructional design expert. The validation results indicated that the module achieved 95% for material validity, 95.5% for media validity, and 97% for instructional design validity, with an overall average of 95.8%, indicating that the module was highly valid and appropriate for classroom implementation after minor revisions. The effectiveness of the module was examined through pre-test and post-test writing assessments. The findings revealed a substantial improvement in students' writing performance, with the mean score increasing from 61.8 in the pre-test to 86.9 in the post-test. The percentage of students who achieved the minimum mastery criterion also increased from 20% to 96.7%. This improvement was attributed to the integration of contextual vocabulary instruction, grammar support, model texts, scaffolded writing activities, collaborative learning, and authentic projects embedded within the PjBL framework. The findings indicate that the developed module effectively addressed students' identified learning needs while promoting active participation, meaningful learning, and improved writing competence. Therefore, the developed module is considered a valid, practical, and effective instructional resource for teaching English writing at the junior secondary school level in Malaysia

Keywords: Writing, Project Based, Learning

I. INTRODUCTION

English as a Foreign Language in Indonesia. There are four language skills that students should master reading, writing, listening, and speaking. Writing is one of the most difficult skills for students to achieve. Writing skills are essential in educational contexts, as they enable learners to think critically, convey ideas precisely, and engage in structured communication. Writing is typically emphasized as a core aspect of language instruction. At the junior high school level, these skills receive significant attention; however, many students still struggle with writing, particularly in developing ideas, using correct grammar, and organizing their paragraphs coherently.

English material plays an important role in language learning and teaching. English material is a tool and bridge for delivering knowledge and lessons to students. English material should be relevant, developed based on students' needs, and follow the latest strategies.

Good teaching material is informative (informing the learner about the target language), instructional (guiding the learner in practising the language), experiential (providing the learner with experience of the language use), eliciting (encouraging the learner to use the language), and exploratory (helping the learner to make discoveries about language) (Sari et al., 2023). Teaching materials should spark students' curiosity through interactive content and activities.

English materials should be written informatively meaning that the topic must be relevant to the learning objectives. It should be described clearly and focused on skill improvement. Then, English materials should be written instructional means the materials can facilitate language acquisition, offering well structured and engaging content by giving text, visual aids, and relevant exercises. Furthermore, English materials should be written experiential ly, meaning that they must involve learning by doing. It must grab students' attention to real practical projects. Then, English materials should be written to encourage students to use their existing knowledge to discover new language structures. It contains pictures, synonyms, antonyms, definitions, or brainstorming. In addition, English materials should be written

in an exploratory manner triggering curiosity, critical thinking, and problem solving. However, based on the observations, the researcher found that the English materials at MTs Yayasan Pendidikan Jaya Penggalian seem irrelevant. This explanation is too wide, monotonous, irrelevant to the learning objectives, limited in exercises, and teacher-centered. Therefore, students are getting bored of learning English. It cannot trigger students' curiosity and critical thinking. This makes it difficult for them to comprehend the lesson. They are passive learners. To address these problems, the researcher aim to develop good English writing materials through rojectbased learning. PBL is a systematic teaching method that engages students in learning essential knowledge and life-enhancing skills through an extended, student-influenced inquiry process structured around complex, authentic questions and carefully designed products and tasks (Mergendoller et al., 2006). Project based learning is a student centered method that can be employed as a proper way to enhance students writing skills It does not merely proposes authentic and motivational tasks but also supports and guides students by focusing on the learning process (Tessema, 2005). Therefore, the researcher intends to conduct a study titled "Developing English Writing Materials through PJBL

II. METHODS

This study employed a Research and Development (R&D) methodology utilizing the ADDIE instructional design model (Analysis, Design, Development, Implementation, Evaluation). The ADDIE model provides a systematic framework for creating instructional materials, ensuring that each development phase is based on empirical evidence and theoretical principles. This model was selected for its flexibility, comprehensiveness, and emphasis on iterative refinement through formative evaluations.

The Analysis phase aimed to identify students' target needs (necessities, lacks, wants) and learning needs (input preferences, procedural preferences, learning setting, learner roles, teacher roles) through questionnaire administration. The Design phase involved developing learning objectives, selecting appropriate content, and planning instructional sequences aligned with curriculum standards and needs analysis findings. The Development phase entailed creating the instructional materials, conducting expert validation, and implementing revisions based on feedback. The Implementation phase involved field testing the developed materials with the target student population. The Evaluation phase encompassed both formative evaluation (expert validation) and summative evaluation (pre-post test assessment) to determine material effectiveness.

The research subjects comprised 30 eighth-grade students at MTs Yayasan Pendidikan Jaya Penggalian, selected through purposive sampling based on their enrollment in English language courses and their identified writing difficulties. The school is located in a suburban area, with students from diverse socioeconomic backgrounds and varying levels of English proficiency. The participants included 16 female and 14 male students aged 13-14 years. This demographic represents the target population for the developed materials, ensuring the relevance and applicability of the findings.

Expert validators comprised three specialists: a material expert (a Professor of English Education with expertise in curriculum development), a media expert (an Instructional Design specialist with experience in educational technology), and an instructional design expert (a Senior Lecturer specializing in pedagogical approaches). Each validator possessed at least ten years of professional experience in their respective domains, ensuring a comprehensive evaluation of the developed module across content, visual, and pedagogical dimensions.

The research procedure followed the ADDIE stages systematically:

Analysis Stage: Needs analysis questionnaire was administered to 30 students to investigate target needs (necessities, lacks, wants) and learning needs (input, procedure, setting, learner role, teacher role). The questionnaire comprised 37 statements using a four-point Likert scale (Strongly Disagree to Strongly Agree). Data analysis employed descriptive statistics, with the findings serving as the empirical foundation for material design decisions.

Design Stage: Learning objectives aligned with curriculum standards (Kompetensi Inti and Kompetensi Dasar for Grade VIII English) were developed. Identified appropriate text types (recount, narrative, descriptive) and content themes relevant to students' experiences. Designed instructional sequences incorporating vocabulary development, grammar instruction, model texts, guided writing, collaborative projects, and assessment activities. The design emphasized creating engaging, visually attractive materials that are responsive to students' identified preferences for colorful illustrations and collaborative learning opportunities.

Development Stage: The instructional module was produced, comprising three units, each containing: (a) vocabulary development (illustrated vocabulary banks with bilingual explanations), (b) grammar focus (contextualized grammatical explanations), (c) reading models (authentic texts demonstrating target structures), (d) writing activities (scaffolded from controlled to independent), (e) Project-Based Learning activities (authentic projects culminating in written products), (f) reflection and self-assessment, and (g) evaluation. The module was formatted professionally with thematic illustrations and a clear organizational structure.

Expert validation employed structured questionnaires utilizing five-point Likert scales to assess content validity, media quality, and instructional design effectiveness. The validators provided both quantitative ratings and qualitative comments. Revisions were made based on the feedback from the validators before implementation.

Implementation Stage: Conducted over eight weeks, comprising three cycles corresponding to the module units. Each unit required approximately three 90-minute sessions for completion of the training. The implementation included: (a) pre-test administration to establish baseline writing proficiency, (b) systematic delivery of each unit following the instructional sequence, (c) monitoring of student participation and progress, and (d) post-test administration to measure writing improvement.

Evaluation Stage: Encompassed both formative evaluation (expert validation results) and summative evaluation (pre-post test comparison). The evaluation examined the materials validity, practicality, and effectiveness through multiple data sources including expert ratings, student scores, and observational data.

Data Collection Instruments

Three primary instruments were employed:

Needs Analysis Questionnaire: A structured questionnaire comprising 37 items that investigated target and learning needs. Items were developed based on Hutchinson and Waters' (1987) needs analysis framework. Internal consistency was established through pilot testing on a similar student population.

Expert Validation Questionnaires: Three separate questionnaires for material, media, and instructional design experts, each containing 10-11 assessment criteria rated on five-point Likert scales. Content validity was established by aligning with established material evaluation frameworks. The questionnaires also included open-ended questions for qualitative feedback.

Writing Assessment Rubric: A comprehensive rubric evaluating five writing components: content (development of ideas, relevance to topic), organization (paragraph structure, coherence, cohesion), vocabulary (range, appropriateness, accuracy), grammar (sentence structure, tense accuracy, word order), and mechanics (spelling, punctuation, and capitalization). Each component was scored 0-20, yielding a total score of 0-100. The rubric was developed based on established writing assessment criteria and validated through expert reviews.

Data Analysis Techniques

Data analysis employed both descriptive and inferential statistics:

Needs Analysis Data: Questionnaire responses were analyzed using percentages and descriptive statistics to identify students' needs, lacks, wants, and learning preferences. The findings are presented in tabular format showing response frequencies and percentages.

Expert Validation Data: Validator ratings were calculated as percentages using the formula: $\text{Percentage} = (\text{Obtained Score} / \text{Maximum Score}) \times 100\%$. Results were categorized according to predefined criteria: Very Valid (81-100%), Valid (61-80%), Sufficient (41-60%), Less Valid (21-40%), and Invalid (0-20%).

Writing Assessment Data: Pre-test and post-test scores were analyzed using descriptive statistics (mean, highest score, lowest score, percentage achieving mastery criteria). Paired t-tests were employed to determine the significance of improvement, with $\alpha = 0.05$. The effect size was calculated using Cohen's d to quantify the magnitude of the intervention effect.

Ethical Considerations

Research ethics were followed throughout the study. Informed consent was obtained from the students' parents/guardians, ensuring an understanding of the research purposes and voluntary participation. Student anonymity was preserved through the use of code numbers rather than names in data reporting. Data were stored securely and were accessible only to the research team. Institutional approval was obtained from the school administration and the university ethics committee.

III. RESULTS AND DISCUSSION

The needs analysis questionnaire revealed comprehensive information about students' writing difficulties and learning preferences. Regarding target needs, students demonstrated high necessity for instructional support across writing components. Table 1 presents the results of the target needs analysis.

Table 1. Target Needs Analysis Results.

Aspect	Indicator	Percentage	Interpretation
Necessities	Need model texts before writing	89%	Very High
Necessities	Need grammar explanations before writing	87%	Very High
Necessities	Need more vocabulary exercises	98%	Very High
Necessities	Need more writing practice	98%	Very High
Necessities	Need step-by-step writing guidance	94%	Very High
Lacks	Difficulty writing English texts	88%	Very High
Lacks	Difficulty generating ideas	89%	Very High
Lacks	Difficulty organizing paragraphs	92%	Very High
Lacks	Limited vocabulary	88%	Very High
Lacks	Frequently make grammar mistakes	88%	Very High
Lacks	Existing textbook is interesting	50%	Sufficient
Lacks	Existing materials improve writing	53%	Sufficient
Wants	Enjoy project-based learning	94%	Very High
Wants	Prefer authentic writing projects	98%	Very High
Wants	Want project-based instructional materials	96%	Very High
Wants	Enjoy presenting projects	93%	Very High
Wants	Believe PjBL improves writing	92%	Very High

The findings indicate that students overwhelmingly recognized the need for enhanced writing instruction. The highest necessity (98%) for vocabulary exercises and writing practice suggests that vocabulary limitation is the primary obstacle to writing production. Students also required model texts (89%) and step-by-step guidance (94%), indicating that they benefited from structured scaffolding throughout the writing process. The identification of lacks—particularly in idea generation (89%), paragraph organization (92%), vocabulary (88%), and grammar (88%)—confirms the multidimensional nature of students' writing difficulties. Notably, only 53% of students believe that existing materials improve their writing ability, justifying the need for supplementary instructional resources. Students' desire for project-based learning (94%) and authentic projects (98%) demonstrate receptiveness to PjBL implementation, aligning with theoretical assertions about PjBL's motivational benefits.

Table 2. Learning Needs Analysis Results

Aspect	Indicator	Percentage	Interpretation
Input	Prefer pictures in learning materials	83%	Very High
Input	Prefer videos	75%	High
Input	Prefer colourful materials	96%	Very High
Procedure	Need writing examples	89%	Very High
Procedure	Need grammar explanations	87%	Very High
Procedure	Need vocabulary exercises	98%	Very High
Procedure	Need writing practice	98%	Very High
Procedure	Need step-by-step instruction	94%	Very High
Setting	Prefer learning in groups	95%	Very High
Setting	Enjoy discussion	97%	Very High
Setting	Collaboration helps writing	94%	Very High
Learner's Role	Enjoy project activities	94%	Very High
Learner's Role	Enjoy presenting their work	93%	Very High
Teacher's Role	Teacher feedback improves writing	85%	Very High

Learning needs analysis revealed clear preferences for instructional design features. Students prefer visually attractive materials (96%), highlighting the importance of aesthetics in material engagement. The strong preference for collaborative learning (95%) and discussion (97%) suggests that students value social interaction during writing activities. Collaborative learning creates conditions for language negotiation, idea exchange, and peer feedback all of which facilitate writing development (Mahdia, 2024). Students' role preferences indicated a desire for active participation (94%), consistent with constructivist principles emphasizing learner engagement in knowledge construction. The moderately high preference for teacher feedback (85%) suggests that students still value teacher guidance despite enjoying collaborative work, indicating the importance of a balanced instructional approach. The expert validation results demonstrated high material quality across all assessed dimensions. Table 3 presents the validation results for each expert.

Table 3. Expert Validation Results.

Expert	Maximum Score	Obtained Score	Percentage	Category
Material Expert	200	190	95.0%	Very Valid
Media Expert	200	191	95.5%	Very Valid
Instructional Design Expert	200	194	97.0%	Very Valid

Expert	Maximum Score	Obtained Score	Percentage	Category
Average	200	191.7	95.8%	Very Valid

Material expert validation (95%) assessed content accuracy, curriculum alignment, language appropriateness, and instructional quality. Specific aspects that received the highest ratings included vocabulary development, grammar presentation, and Project-Based Learning integration. The expert particularly appreciated the systematic vocabulary instruction, noting that illustrated vocabulary banks with bilingual explanations provide adequate linguistic preparation for writing activities. The contextualized grammar presentation, where grammatical structures are taught through writing-relevant examples, was also highly valued by the participants. The experts' qualitative comments highlighted the appropriate sequencing of activities from controlled to independent practice, reflecting sound instructional design principles.

Media expert validation (95.5%) was used to evaluate visual appearance, typography, color harmony, illustration quality, layout consistency, readability, and overall attractiveness. The module achieved maximum scores in terms of color harmony and visual attractiveness, demonstrating the effectiveness of its aesthetic design. The expert commented positively on the extensive use of colorful illustrations and thematic graphics, which support vocabulary learning and stimulate students' curiosity. Suggestions for improvement included increasing the white space on some pages to enhance readability and resizing tables for more balanced layouts. These minor adjustments were made before the implementation stage.

The instructional design expert validation (97%) assessed the learning sequence, objectives, scaffolding, activities, PjBL syntax implementation, student engagement, authenticity, assessment, reflection, and overall organization. This was the highest validation score, indicating an exceptional pedagogical quality. The expert emphasized the module's coherent learning progression as its greatest strength, noting that vocabulary, grammar, reading, writing, and project activities were systematically interconnected. Authentic project tasks were particularly valued for requiring students to apply language knowledge meaningfully while collaborating with peers. The only recommendation was to expand reflection questions to encourage deeper metacognitive thinking.

The developed module comprises three instructional units, each incorporating vocabulary development, grammar instruction, model texts, writing activities, project-based tasks, and assessment. The key features include the following:

Vocabulary Development: Each unit begins with an illustrated vocabulary bank presenting 15-20 topic-related words with Indonesian translations and example sentences. Words were selected based on their relevance to writing tasks and student proficiency levels. Illustrations provide contextual support for vocabulary acquisition, and example sentences demonstrate lexical use in meaningful contexts.

Grammar Focus: Grammar instruction is contextualized within writing purposes, presenting grammatical structures through examples related to the units theme. The explanations are concise and supported by practice exercises that prepare students for writing tasks. Grammar instruction emphasizes functional use rather than rote-learning.

Reading Models: Each unit includes authentic reading texts demonstrating target text types (recount, narrative, descriptive). Students analyze these texts for generic structure, language features, and communicative purpose before producing their own writing. Reading models serve as exemplars that illustrate the writing conventions and organizational patterns.

Writing Activities: Writing tasks are scaffolded progressively: (a) controlled practice (sentence completion, text reconstruction), (b) guided writing (responding to prompts, organizing ideas), (c) collaborative writing (group drafting, peer revision), and (d) independent writing (producing complete texts). This progression supports students in gradually building confidence and competence.

Project-Based Learning: Each unit culminates in an authentic project requiring students to apply unit knowledge to produce meaningful written products. Projects included creating recount texts about personal experiences, writing narrative stories with illustrations, and designing informative posters. Project work incorporates collaboration, presentations, and reflections.

Assessment and Reflection: Each unit includes formative assessment tasks and reflection activities. Students evaluate their learning progress, identify areas for improvement, and set goals for future learning. Teacher feedback was provided throughout the project.

Pre-test and post-test results demonstrated substantial improvement in students' writing competence following the implementation of the developed module. Table 4 presents the pretest results.

Table 4. Pre-Test Results

Indicator	Score
Highest Score	76
Lowest Score	45
Mean Score	61.8
Students Achieving Passing Grade (75)	6 (20%)
Students Below Passing Grade	24 (80%)

The pre-test results indicated that students' initial writing proficiency was relatively low, with a mean score of 61.8 falling within the fair category. Only six students (20%) achieved the minimum mastery criterion of 75, while the majority (80%) required substantial improvements. Analysis of the pre-test writing samples revealed difficulties across all assessed components. Content development was limited, with students producing short paragraphs that contained fragmented ideas. Organization was weak, with limited use of topic sentences, supporting details and concluding statements. The vocabulary was repetitive and lacked precision, with frequent lexical errors. Grammar construction revealed difficulties in verb tenses, sentence structure, and subject-verb agreement. Mechanical errors in spelling and punctuation were also common.

Table 5. Post-Test Results

Indicator	Score
Highest Score	96
Lowest Score	72
Mean Score	86.9
Students Achieving Passing Grade (75)	29 (96.7%)
Students Below Passing Grade	1 (3.3%)

The post-test results demonstrated substantial improvement across all indicators. The mean score increased from 61.8 to 86.9, representing a 25.1-point increase. The percentage of students achieving the passing grade increased dramatically from 20% to 96.7%, with only one student remaining below the mastery criterion. The lowest score increased from 45 to 72, indicating that even the weakest performers showed significant progress. The highest score improved from 76 to 96, demonstrating that the module challenged advanced learners while supporting students who were struggling.

Table 6. Comparison of Pre-Test and Post-Test Results

Aspect	Pre-Test	Post-Test	Improvement
Mean Score	61.8	86.9	+25.1
Highest Score	76	96	+20
Lowest Score	45	72	+27

Aspect	Pre-Test	Post-Test	Improvement
Students Passing	20%	96.7%	+76.7%

Paired t-test analysis confirmed that the improvement was statistically significant ($t(29) = 8.43$, $p < 0.001$). The effect size (Cohen's $d = 1.24$) indicates a large effect, suggesting that the intervention had substantial practical significance beyond statistical significance.

Discussion of Findings

The substantial improvement in students' writing performance can be attributed to the systematic integration of instructional components responsive to identified needs. Several factors contributed to the effectiveness of the developed module

Systematic Learning Sequence: The module's organization from vocabulary development through independent writing provided appropriate instructional scaffolding. This progression reduces cognitive load by building knowledge incrementally, allowing students to focus on one component at a time before integrating multiple competencies in independent writing tasks. This approach aligns with the cognitive learning theory, which emphasizes the importance of reducing cognitive demands during learning to facilitate knowledge construction (Maqbulin, 2022). The pre-test data, showing students' initial difficulties with vocabulary and grammar, confirm the appropriateness of beginning instruction with language preparation before writing production.

Vocabulary Development: Extensive vocabulary instruction addressed students' identified needs (98% required more vocabulary exercises). The illustrated vocabulary banks with bilingual explanations provide multiple access points for lexical acquisition, supporting both visual and linguistic processing. The recycling of vocabulary throughout the units facilitated retention and application. Post-test samples demonstrated richer vocabulary use, suggesting that explicit vocabulary instruction transferred to writing. This finding supports research demonstrating that vocabulary knowledge is a predictor of writing quality (Hassan et al., 2025).

Contextual Grammar Instruction: Teaching grammar within writing contexts rather than isolation helped students understand the communicative function of grammatical structures. Students who had previously struggled with verb tenses in the pre-test demonstrated more accurate tense use in the post-test, suggesting that contextual instruction facilitated their comprehension and application. This aligns with sociocultural theory, which emphasizes learning through meaningful activities (Kurniawan, 2025). The integration of grammar instruction within writing tasks reduces the gap between declarative knowledge (knowing grammatical rules) and procedural knowledge (applying rules in writing).

Reading Models: Exposure to model texts helped students internalize text organization and language features. The genre-based approach, in which students analyze exemplar texts before composing their own, provides concrete writing models. Post-test improvements in paragraph organization and coherence demonstrated the effectiveness of this approach. Students who had previously produced disorganized texts in the pre-test demonstrated a clearer text structure in the post-test, suggesting that reading models helped develop genre awareness (Purba et al., 2025).

Scaffolded Writing Activities: The gradual progression from controlled to independent writing provided appropriate challenge levels for students at different proficiency levels. Weaker students benefited from the support of guided activities, whereas stronger students were challenged by independent writing tasks. The pre-test/post-test improvement in the lowest score (from 45 to 72) suggests that scaffolding particularly benefited struggling learners. This finding supports research emphasizing the importance of differentiated instruction in writing development (Sadaf et al., 2025).

Collaborative Learning: The collaborative nature of project activities provides opportunities for peer interaction, idea exchange, and joint problem-solving. Students who reported enjoying group work and discussion (97%) were more likely to be engaged in writing activities through social interaction. The improvement in collaborative writing performance suggests that peer feedback helped the students identify and correct errors. This aligns with the sociocultural theory's emphasis on learning through social interaction (Islami et al., 2024). The collaborative project context may have reduced writing anxiety by distributing the cognitive demands and providing peer support.

Authentic Projects: Project activities that connect writing to real-world contexts increase students' motivation and sense of purpose. Students who previously wrote only to complete exercises produced more engaged writing when working on projects with authentic goals. The authentic nature of the tasks may have facilitated deeper processing and more meaningful language use. This finding supports the theoretical rationale for the effectiveness of PjBL through authentic communication (Sadaf et al., 2025). The increase in student engagement likely contributed to improved writing outcomes, as motivation is a well-established predictor of success in language learning.

Integration of Twenty-First-Century Competencies: The module's incorporation of communication, collaboration, creativity, and critical thinking within language instruction addressed broader educational objectives while supporting language development. These competencies are recognized as essential for learners in contemporary educational contexts (Botes et al., 2025). The positive outcomes suggest that materials designed to develop multiple competencies can simultaneously enhance language proficiency and achieve broader learning outcomes.

Physiotherapy Perspective on Educational Intervention

From a physiotherapy perspective, the instructional design principles demonstrated in this study mirror rehabilitation approaches where systematic, graduated interventions optimize patient outcomes. Key parallels include:

Assessment-Driven Intervention: The needs analysis phase, analogous to patient assessment in physiotherapy, established baseline function and identified specific deficits. This diagnostic approach ensured that the intervention targeted identified needs rather than applying generic approaches. High validation scores (95.8%) suggest that this evidence-based approach strengthens material effectiveness (Siti Maria Ulfa et al., 2026).

Graduated Progression: The scaffolded writing activities parallel physiotherapy's graded exercise protocols, where patients progress from simple to complex tasks. This progression reduces the risk of frustration and failure while promoting skill development. The substantial improvement in the lowest pre-test score (from 45 to 72) suggests that this graduated approach particularly benefited lower-performing students, analogous to how graded rehabilitation benefits patients with limited initial functions.

Task-Specific Training: Project-based tasks requiring authentic writing mirror task-specific training in physiotherapy, where practice in functional tasks transfers to real-world performance. The improvement in students' writing across contexts suggests that authentic project work facilitated the generalization of writing skills, similar to how functional task practice in rehabilitation transfers to daily activities (Ismahani, R., & Sihombing, 2025).

Collaborative Learning: The group project approach parallels group therapy in physiotherapy, where peer interaction and social support enhance outcomes. The high student preference for collaboration (95%) suggests that this approach was well received and likely contributed to engagement and persistence (Rahayu Wulandari et al., 2026).

Continuous Assessment: The formative assessment embedded in the module mirrors physiotherapy's emphasis on ongoing evaluation to monitor progress and adjust treatment plans. The improvement in writing scores suggests that this continuous feedback cycle supports skill development.

These parallels suggest transferable educational design principles across health professions, where systematic, assessment-driven, graduated interventions applied in authentic contexts optimize outcomes for learners and patients.

IV. CONCLUSIONS

This study successfully developed and validated an English writing module based on Project-Based Learning for eighth-grade students at MTs Yayasan Pendidikan Jaya Penggalian. This study employed the ADDIE instructional design model to ensure systematic development grounded in an empirical needs analysis. The major conclusions are as follows: First, the needs analysis revealed that students experienced significant difficulties in writing related to idea generation (89%), paragraph organization (92%), vocabulary limitations (88%), and grammatical accuracy (88%). Existing instructional materials were considered insufficiently engaging (50%) and ineffective for improving writing (53%). Students expressed strong preferences for visual materials (96%), collaborative learning (95%), and authentic projects (98%), justifying the development of PjBL-based instructional resources for them. Second, the developed module successfully addressed the identified needs through the systematic integration of vocabulary development, contextual grammar instruction, model texts, scaffolded writing activities, collaborative projects, reflection, and assessment. The instructional sequence progressed from language preparation through guided practice to independent writing, providing scaffolding at each stage. Third, expert validation confirmed the module's high quality across all dimensions: material validation (95%), media validation (95.5%), and instructional design validation (97%), with an overall average of 95.8% (Very Valid category). Validator feedback was incorporated through minor revisions, strengthening the module before its implementation. Fourth, the implementation demonstrated the module's effectiveness in improving students' writing competence. The mean score increased significantly from 61.8 to 86.9, representing a 25.1-point increase. The percentage of students who achieved the minimum mastery criterion increased from 20% to 96.7%. Paired t-test analysis confirmed statistical significance ($p < 0.001$) with a large effect size (Cohen's $d = 1.24$). These findings demonstrate that the PjBL-based module effectively addresses students' learning needs while promoting active participation, collaboration, and meaningful communication. The implications of this study extend to English language teaching practices, curriculum development, and educational research. For teachers, the developed module provides a practical resource for implementing project-based writing instruction that addresses learners' needs while promoting engagement and skill development. For curriculum developers, the findings demonstrate the effectiveness of systematically designed materials aligned with learner characteristics and instructional principles. For researchers, this study contributes to understanding how PjBL principles can be operationalized within materials development and provides an empirically validated framework for similar development efforts..

Funding Statement

"No external funding was received for this study."

Ethical Compliance

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Data Access Statement

A Data Access Statement is a section in a scientific publication or research report that explains how the data used or generated in the study can be accessed by readers or other researchers. This statement aims to promote transparency, support research reproducibility, and comply with openaccess policies, where applicable.

Common Elements in a Data Access Statement:

1. Data Location: Specifies where the data are stored, such as in online repositories (e.g., Zenodo, Dryad, or institutional repositories).
2. Access Instructions: Provides information on how to access the data, such as direct links, DOI (Digital Object Identifier), or contact details.
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Purpose of a Data Access Statement:

- Reproducibility: Enables other researchers to replicate or verify the findings.
- Collaboration: Encourages further collaboration by sharing data.
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Conflict of Interest Declaration

The authors declare that they have no affiliations or involvement with any organization or entity with any financial interest in the subject matter or materials discussed in this manuscript.

ACKNOWLEDGEMENTS

The author thanks all the people in most cases for their support.

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