

The Development of a Letter-Writing E-Module Integrating Project-Based Learning (PBL) and Think-Pair-Share for Vocational High School Students

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Abstract

Letter-writing is an essential skill for vocational high school students because it prepares them for professional communication in workplace settings. However, many students still experience difficulties in organizing ideas, applying appropriate language features, and producing well-structured formal letters. Therefore, this study addresses the limited availability of contextual digital learning materials for vocational letter-writing by developing letter-writing e-module through Project-Based Learning (PBL) and Think-Pair-Share (TPS) for vocational high school students and to examine its feasibility and students' responses. This research employed a Research and Development (R&D) design using the ADDIE model, consisting of Analysis, Design, Development, Implementation, and Evaluation. The participants were 24 eleventh-grade students of the Software and Game Development (PPLG) program at SMK BPI Bandung. Data were collected through classroom observations, teacher interviews, practitioner validation, and student response questionnaires. The validation process demonstrated that the developed e-module met appropriate pedagogical, instructional, and linguistic criteria. The validators confirmed that the e-module demonstrated appropriate content organization, learning activities, visual presentation, and language use, indicating its suitability as a learning resource for vocational high school students. Furthermore, students' responses were categorized as very positive, with response percentages of 87.50% in the limited field trial and 88% in the main field trial. These findings indicate that the developed e-module is feasible, practically applicable, and well accepted by vocational high school students. The integration of Project-Based Learning (PBL) and Think-Pair-Share provided structured opportunities for collaborative learning and authentic writing practice, making the e-module a promising instructional resource for teaching professional letter-writing in vocational education.

Keywords: E-Module; Letter-Writing; Project-Based Learning (PBL); Think-Pair-Share; Vocational Students

INTRODUCTION

Writing is one of the essential productive skills that vocational high school students need to master because it enables them to communicate effectively in both academic and professional contexts. Unlike general writing, vocational writing emphasizes workplace-oriented communication that prepares students to meet the demands of future employment. Consequently, writing instruction in vocational education should not only develop students' linguistic competence but also equip them with practical communication skills relevant to authentic workplace situations. Vocational English learning materials should be developed based on students' future professional contexts because language competence in vocational education is closely related to workplace communication demands (Alhusna & Suparmi, 2025). Recent studies have highlighted that workplace-oriented writing contributes significantly to

students' employability, professional communication competence, and career readiness (Yanti et al., 2023; Rizal et al., 2024).

Among various writing genres taught in vocational education, professional letter-writing plays an important role because it represents one of the most common forms of written communication in professional environments. Students are expected to produce various types of formal correspondence, including cover letters, job application letters, internship application letters, and inquiry letters, which require appropriate organization, language accuracy, and professional conventions. However, many vocational high school students continue to experience difficulties in developing ideas, organizing information coherently, applying grammatical rules accurately, selecting appropriate vocabulary, and understanding the structure of professional letters (Fitria, 2022; Widiastuti, 2022; Rizal et al., 2024). These challenges indicate that students require instructional materials capable of providing systematic guidance while simultaneously encouraging active participation throughout the writing process.

The rapid integration of digital technology into education has encouraged teachers to adopt instructional resources that promote flexible, interactive, and student-centred learning. One instructional resource receiving increasing attention is the electronic module (e-module), which enables students to access learning materials independently while engaging with structured activities and multimedia resources. The development of digital learning materials, such as e-modules, has become increasingly relevant in vocational education because they provide structured and accessible resources that support students' independent learning (Habibi et al., 2022). E-modules improve students' learning engagement, learning autonomy, and academic achievement by facilitating self-paced learning and interactive instruction (Habibi et al., 2022; Irawan et al., 2025). Furthermore, the integration of digital learning resources has become increasingly important in vocational education because e-modules provide flexible, interactive, and student-centered learning experiences (Spatioti et al., 2022; Haleem et al., 2022). However, studies developing workplace-oriented letter-writing e-modules for vocational high school students remain limited. Nevertheless, many existing e-modules primarily emphasize content delivery and independent learning, providing relatively limited opportunities for collaborative learning and authentic writing practice.

To address these limitations, instructional approaches that actively engage students throughout the writing process are required. Project-Based Learning (PBL) is widely recognized as an instructional approach that encourages students to solve authentic problems and produce meaningful learning products through inquiry, collaboration, and reflection. Within vocational education, PBL enables students to complete workplace-related writing projects that simulate real professional situations, thereby increasing the relevance of classroom learning to future occupational demands. Barus et al. (2025) stated that Project-Based Learning (PBL) provides vocational high school students with opportunities to engage in authentic writing activities that connect English learning with practical professional contexts. Previous research has consistently demonstrated that Project-Based Learning (PBL) enhances students' motivation, problem-solving ability, communication skills, and learning outcomes across various educational contexts (Indira, 2023; Ananda et al., 2025). Previous studies have shown that Project-Based Learning (PBL) enhances students' collaboration, problem-solving, and communication skills through authentic learning experiences (Guo et al., 2020; Ismailia, 2024). Moreover, recent research suggests that Project-Based Learning (PBL) effectively supports the development of transferable skills required in professional environments.

While Project-Based Learning (PBL) emphasizes authentic product development, effective writing instruction also requires opportunities for students to generate ideas, discuss problems, and receive feedback before completing their writing tasks. Think-Pair-Share (TPS) addresses these needs by encouraging students to think independently, exchange ideas with peers, and communicate their understanding collaboratively before producing final written work. Through these collaborative interactions, students receive immediate feedback, refine their ideas, and improve the quality of their writing. Previous studies have demonstrated that TPS promotes students' engagement, confidence, collaboration, and writing performance by facilitating meaningful peer interaction throughout the learning process (Widiastuti, 2022; Septy et al., 2025).

Although both Project-Based Learning (PBL) and Think-Pair-Share have individually demonstrated positive impacts on students' learning, the two approaches perform complementary pedagogical functions. Project-Based Learning (PBL) primarily emphasizes authentic project completion and product creation, whereas Think-Pair-Share supports cognitive processing, collaborative discussion, and idea refinement throughout the learning process. Integrating these instructional approaches enables students not only to produce authentic professional writing products but also to strengthen the writing process through peer interaction, reflection, and collaborative feedback. Accordingly, combining PBL and TPS is theoretically expected to support both process-oriented and product-oriented learning, particularly in professional letter-writing instruction. This complementary relationship has also been highlighted in recent instructional design research integrating both approaches.

Previous studies have investigated e-module development, Project-Based Learning (PBL), and Think-Pair-Share in different educational contexts. Rizal et al. (2024) developed a Project-Based Learning (PBL)-based e-module that successfully improved students' learning outcomes; however, the instructional product did not integrate collaborative learning strategies such as Think-Pair-Share. Likewise, Irawan et al. (2025) developed an e-module to support writing instruction for vocational high school students, yet the learning materials focused on explanation texts rather than professional correspondence. Furthermore, Septy et al. (2025) examined the validity of Think-Pair-Share in improving students' writing performance but did not incorporate digital instructional materials or Project-Based Learning (PBL) activities. Although Li and Tu (2024) integrated Project-Based Learning (PBL) and Think-Pair-Share within a single instructional model, their study focused on higher education and creative thinking rather than vocational English instruction or professional letter-writing. Therefore, the ADDIE model was selected because it provides a systematic framework for developing instructional materials based on learners' needs (Shakeel et al., 2023; Spatioti et al., 2022).

These studies indicate that existing research has predominantly examined e-modules, Project-Based Learning (PBL), and Think-Pair-Share separately or within different instructional contexts. Limited attention has been given to integrating these instructional approaches into a single digital learning product specifically designed for professional letter-writing instruction in vocational high schools. Furthermore, few studies have addressed multiple types of workplace-oriented correspondence, including cover letters, job application letters, internship application letters, and inquiry letters, within one integrated instructional resource. This gap highlights the need for an instructional product that simultaneously supports authentic project completion, collaborative learning, and workplace-oriented writing competence for vocational high school students.

This study contributes to the existing literature in three ways. First, it develops a digital letter-writing e-module that integrates Project-Based Learning (PBL) and Think-Pair-Share within a single instructional product. Second, the e-module is specifically designed to facilitate learning across four types of professional correspondence required in vocational education: cover letters, job application letters, internship application letters, and inquiry letters. Third, this study provides empirical evidence regarding the feasibility and practicality of the developed e-module through practitioner validation and classroom implementation involving both limited and field trials. Therefore, this study aims to develop a letter-writing e-module integrating Project-Based Learning (PBL) and Think-Pair-Share, determine its feasibility, and investigate vocational high school students' responses toward the developed instructional product.

METHOD

This study employed a Research and Development (R&D) method using the ADDIE instructional design model. Research and Development is a systematic research approach aimed at analysing, designing, developing, implementing, and evaluating educational products to ensure their validity and suitability for instructional use (Judjianto et al., 2024; Sudikan et al., 2023). According to Szabo (2022), ADDIE is a systematic instructional design framework consisting of five interconnected stages: Analysis, Design, Development, Implementation, and Evaluation. Similarly, Spatioti et al. (2022) stated that the ADDIE model provides a structured and iterative process that supports continuous improvement throughout instructional product development. Therefore, the ADDIE model was considered appropriate for this study because it provides a systematic framework for analysing, designing, developing, implementing, and evaluating instructional materials based on learners' needs, curriculum requirements, and learning objectives.

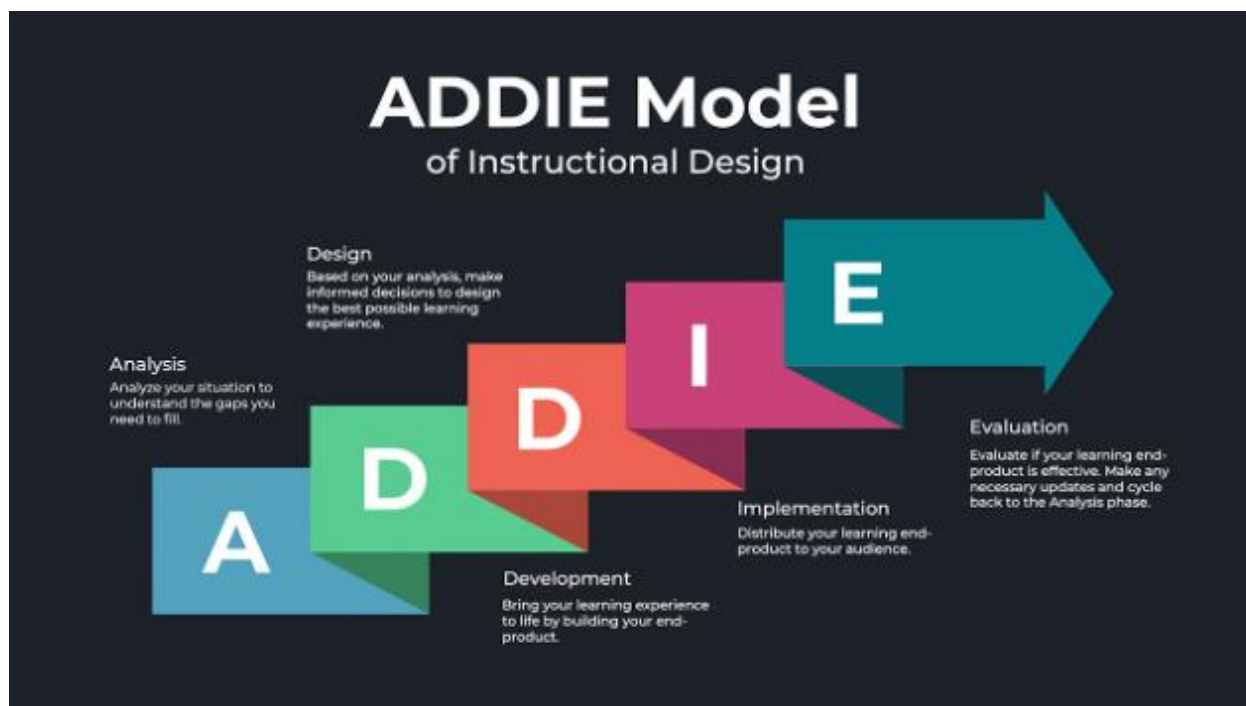


Figure 1. Model ADDIE (DeBell, 2023)

The research was conducted at SMK BPI Bandung during the second semester of the 2026/2027 academic year, with the implementation carried out in April 2026. The participants consisted

of one English teacher and twenty-four Grade XI students majoring in Software and Game Development (PPLG). The participants were selected using purposive sampling because the students were studying formal and professional letter-writing as part of the English curriculum and preparing for workplace internship, making them suitable participants for evaluating the developed letter-writing e-module. The English teacher held a bachelor's degree in English Education and had more than three years of teaching experience. She served as the practitioner validators because of her pedagogical expertise, familiarity with the curriculum, and comprehensive understanding of the students' learning characteristics and instructional needs. Her evaluation focused on the content, instructional design, language, and classroom applicability of the developed e-module.

The student participants consisted of twenty-four learners, including twenty-one male students and three female students. Based on the English teacher's classroom assessments, the students demonstrated basic English writing proficiency. They were generally able to produce simple written texts but continued to experience difficulties in organizing ideas, applying appropriate grammatical structures, and composing professional letters using suitable language conventions.

Data were collected using three research instruments. Classroom observations were conducted using a 15-item observation sheet designed to evaluate students' participation, engagement, collaborative learning, and the implementation of Project-Based Learning (PBL) and Think-Pair-Share (TPS) during the instructional process. Product feasibility was evaluated using a 20-item validation sheet completed by the practitioner validators. The validation covered four aspects, namely content appropriateness, instructional design, language quality, and media presentation. Students' perceptions of the developed e-module were collected through an 8-item close-ended questionnaire measuring usefulness, engagement, motivation, clarity of instruction, and ease of use. All instruments employed a four-point Likert scale ranging from 1 (Strongly Disagree) to 4 (Strongly Agree). The e-module was designed and developed using Canva to create an attractive visual layout and interactive learning materials that supported students' learning experiences. Before data collection, all instruments were reviewed and validated by two practitioner validators who were the research supervisors with expertise in English education and instructional material development. The validation process focused on the suitability, completeness, and clarity of the indicators. Several revisions were made, particularly by improving unclear statements and completing indicators to ensure that the instruments were aligned with the research objectives.

The development procedures followed the five stages of the ADDIE model. During the **analysis** stage, a needs analysis was conducted through classroom observation and consultation with the English teacher to identify students' writing difficulties, learning characteristics, and curriculum requirements. The analysis also examined the suitability of professional letter-writing materials with the Grade XI English curriculum, particularly topics related to workplace communication and internship preparation. The findings indicated that students required more interactive instructional materials to improve their professional letter-writing skills.

The **design** stage focused on preparing the overall structure of the e-module, including learning objectives, instructional activities, project-based tasks, Think-Pair-Share activities, vocabulary exercises, visual illustrations, and module layout. The instructional contents and learning activities were organized to encourage active participation while maintaining alignment with the learning objectives and curriculum standards.

During the **development** stage, the e-module prototype was produced using Canva based on the completed design. The prototype was subsequently reviewed by the practitioner validators, who provided suggestions regarding the instructional content, language use, visual presentation, and learning activities. The feedback obtained from the validation process was used to revise and improve the e-module before classroom implementation.

The **implementation** stage consisted of two phases. The first phase was a limited field trial involving ten students, while the second phase was a field trial involving twenty-four students. The limited field trial and the field trial were each conducted in a single classroom session of 135 minutes (3 × 45-minute class periods). Throughout the implementation, students learned professional letter-writing using the developed e-module through Project-Based Learning (PBL) integrated with the Think-Pair-Share strategy.

Finally, the **evaluation** stage was conducted to assess the overall quality of the developed product. Evaluation data were obtained from the practitioner validation sheet, students' questionnaires, and classroom observations. The results were used to identify the strengths and limitations of the e-module and to perform final revisions before producing the final version of the instructional material.

The collected data were analyzed using descriptive statistical analysis. The scores obtained from the observation sheet, validation sheet, and student questionnaire were converted into percentages using descriptive statistics to determine the feasibility of the developed product and students' responses toward its implementation. The percentage results were subsequently interpreted according to predetermined validity and response criteria to classify the quality of the e-module and the level of students' acceptance of the developed instructional material.

RESULTS AND DISCUSSION

Results

This section presents the findings of the study regarding the development of a letter-writing e-module through Project-Based Learning (PBL) and Think-Pair-Share (TPS) for vocational high school students. The results are organized into three main aspects: the development process of the e-module based on the ADDIE model, the feasibility of the developed product as evaluated by practitioner validators, and students' responses after using the e-module in learning letter-writing. These findings provide evidence of the quality, practicality, and appropriateness of the developed e-module for vocational English instruction.

1. The Process of Developing the Letter-writing E-Module Through Project-Based Learning (PBL) and Think-Pair-Share

This subsection describes the process of developing the letter-writing e-module through Project-Based Learning (PBL) and Think-Pair-Share (TPS) for vocational high school students. The development process followed the ADDIE model, consisting of five stages: Analysis, Design, Development, Implementation, and Evaluation. Throughout these stages, the e-module was systematically developed to meet students' learning needs, align with the vocational English curriculum, and promote active learning through collaborative and Project-Based Learning (PBL) activities. The following section explains each stage of the development process.

The first stage of the ADDIE model was the **analysis** stage, which aimed to identify students' learning needs and the challenges encountered in teaching letter-writing at the vocational high school level. The needs analysis was conducted through classroom observations using an observation sheet and a semi-structured interview with the English teacher of Grade XI PPLG at SMK BPI Bandung. The observation revealed that the teaching and learning process mainly relied on printed learning materials and teacher explanations, with limited opportunities for students to engage in guided writing practice. Many students experienced difficulties in organizing the structure of formal letters, applying appropriate formal expressions, and using correct grammar, while classroom activities remained predominantly teacher-centered with minimal collaboration among students. These findings were supported by the teacher interview, which indicated that students still faced challenges in understanding the structure and language features of various types of formal letters and required more engaging instructional materials to support both independent and collaborative learning. Based on these findings, a letter-writing e-module integrating Project-Based Learning (PBL) and Think-Pair-Share (TPS) was developed to provide systematic learning materials, authentic writing tasks, and collaborative activities aligned with the learning objectives of the Merdeka Curriculum for vocational high school students.

The second stage was the **design** stage, during which the initial blueprint of the letter-writing e-module was developed based on the findings obtained from the analysis stage. The design process emphasized both pedagogical and technical aspects to ensure that the e-module effectively supported the teaching and learning of letter-writing for vocational high school students. The pedagogical considerations included the formulation of learning objectives, the organization of learning materials, the integration of Project-Based Learning (PBL) and Think-Pair-Share (TPS) activities, learning instructions, assessments, and expected learning outcomes aligned with the Merdeka Curriculum. In addition, technical aspects such as layout, typography, color scheme, illustrations, navigation, language appropriateness, and visual consistency were carefully designed to create an engaging and user-friendly digital learning resource. The overall layout and visual appearance of the e-module were designed using Canva.

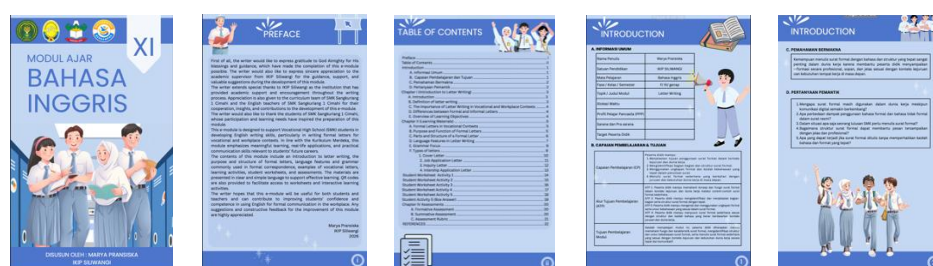


Figure 2. Preliminary Section

Figure 2 presents the preliminary section and the main components of the developed e-module. In terms of its presentation, the preliminary section of the e-module was systematically organized to provide students with essential introductory information before engaging with the learning materials. This section consisted of the cover page, preface, table of contents, and an introduction containing general information, learning outcomes, learning objectives, meaningful understanding, and guiding questions. These components were designed to help students understand the purpose, learning

expectations, and overall structure of the e-module before proceeding to the main learning activities.



Figure 3. Main Contents (Chapter I and II)

Furthermore, the main content of the e-module was systematically organized to provide students with sufficient preparation before completing the Project-Based Learning (PBL) activities. Chapters I and II focus on building students' foundational understanding of letter-writing by introducing the concept and purposes of formal letters, the importance of letter-writing in vocational contexts, the generic structure of each letter, language features, and relevant grammar points. These chapters were designed to equip students with the essential knowledge and writing conventions required before engaging in the worksheet activities. By providing this conceptual and linguistic foundation, the section was intended to prepare students to participate in the collaborative and project-based tasks presented in Chapter III.



Figure 4. Main Content (Chapter II. Types of letters)

Figure 4 presents various types of formal letters, including cover letters, job application e-mails, inquiry letters, and internship application letters accompanied by authentic examples for each type. These examples were intended to help students recognize the purpose, structure, and language features of different formal letters before completing the writing activities.



Figure 5. Chapter III Students Activities

Figure 5 presents the learning activities presented in Chapter III of the e-module, which were developed by incorporating the principles of Project-Based Learning (PBL) and Think-Pair-Share (TPS). The activities are arranged in a logical sequence to support students' learning progression from understanding basic concepts to producing a formal letter independently. The initial activity introduces students to different types of formal letters by asking them to match workplace situations with the appropriate letter types. The second activity encourages collaborative learning through the Think-Pair-Share strategy, allowing students to analyze a sample letter and discuss a series of guiding questions with their peers. The third activity focuses on improving students' understanding of grammar and language features through a guided completion task, while the fourth activity strengthens their knowledge of the structure of formal letters through pair discussion and collaborative problem-solving. The final activity serves as an authentic writing project in which students apply the knowledge and skills acquired throughout the previous activities to compose a formal letter based on a vocational context. Overall, the sequence of activities was designed to foster students' writing competence, collaboration, critical thinking, and readiness to produce formal letters for real-world communication.



Figure 6. Assessments and References

Figure 6 presents the assessment section of the developed e-module, which consisted of formative assessment, summative assessment, an assessment rubric, and a references

section. The formative assessment was intended to monitor students' learning progress and understanding throughout the instructional process, while the summative assessment evaluated their overall achievement after completing the learning activities. In addition, the assessment rubric provided clear and consistent criteria for evaluating students' letter-writing performance based on the learning objectives. The references section included the sources used in developing the learning materials, ensuring the credibility and academic reliability of the e-module. Together, these components were designed to support continuous learning, measure students' achievement, and provide a comprehensive and well-structured learning resource for vocational high school students.

The third stage was the **development** stage, during which the initial prototype of the letter-writing e-module was produced based on the design developed in the previous stage. The prototype was subsequently evaluated by two practitioner validators to determine its feasibility before classroom implementation. The validation process focused on assessing the content, media and design, and language aspects of the e-module to ensure that it met pedagogical, technical, and linguistic standards for vocational English learning. The feedback and suggestions provided by the validators were used to revise and improve the initial prototype before proceeding to the implementation stage. The detailed results of the practitioner validation are presented in the second subsection.

The fourth stage was the **implementation** stage, in which the validated e-module was implemented in the classroom to evaluate its practicality and students' responses in supporting students' letter-writing skills. In this study, the implementation was conducted in two phases: a limited field trial and a main field trial. The limited field trial involved 10 eleventh-grade students of the Software and Game Development (PPLG) program at SMK BPI Bandung, while the main field trial was conducted with 24 students from the same class. During both trials, the developed e-module served as the primary learning resource used throughout the instructional process. The implementation followed the learning sequence designed in the e-module by integrating the principles of Project-Based Learning (PBL) and Think-Pair-Share (TPS). Students first developed their conceptual understanding of letter-writing by studying the learning materials presented in Chapters 1 and 2, which introduced the concept, purposes, types, structures, language features, and grammar of formal letters. After completing the conceptual learning, students proceeded to Chapter 3, where they participated in a series of interactive activities designed to gradually develop their writing skills. These activities encouraged students to identify different types of formal letters, collaboratively analyze authentic letter samples, practice language features and grammar, recognize the organizational structure of formal letters, and ultimately produce their own formal letters based on authentic vocational scenarios. Throughout the implementation process, students actively participated in collaborative discussions, completed project-based tasks, and applied the knowledge acquired from the e-module to authentic writing activities.

The fifth stage was the **evaluation** stage. During the implementation stage, students completed a response questionnaire after using the developed e-module in the learning process. The questionnaire was used to evaluate students' perceptions of the e-module

in terms of its content, usability, and learning activities. The results of the questionnaire are presented in the third subsection.

The findings from the five stages of the ADDIE model address the first research question concerning the development process of the letter-writing e-module through Project-Based Learning (PBL) and Think-Pair-Share (TPS) for vocational high school students.

2. The Feasibility of Developing the Letter-writing E-Module Through Project-Based Learning (PBL) and Think-Pair-Share

The feasibility of the developed letter-writing e-module was evaluated through practitioner validation before classroom implementation. Two practitioner validators reviewed the e-module based on three main aspects: content appropriateness, media and design quality, and language quality. The validators were experienced in English education and instructional material development, which allowed them to evaluate the suitability of the developed e-module for vocational English learning.

In terms of content validation, the practitioner validators confirmed that the e-module materials were aligned with the learning objectives, curriculum requirements, and vocational high school students' needs. The organization of materials, letter structures, examples, and Project-Based Learning (PBL) activities were considered appropriate to support students in understanding and producing professional letters. The integration of Project-Based Learning (PBL) and Think-Pair-Share (TPS) activities was also considered relevant in providing collaborative and meaningful writing practices.

Regarding media and design validation, the practitioner validators indicated that the visual presentation and technical features of the e-module supported students' learning experiences. The layout, typography, illustrations, navigation, and organization of learning materials were considered appropriate. However, several revisions were suggested to improve the visual attractiveness and usability of the module, particularly regarding layout consistency and worksheet presentation.

In terms of language validation, the practitioner validators confirmed that the language used in the e-module was appropriate for vocational high school students. The instructions, vocabulary, grammar, and explanations were considered clear and understandable. Minor revisions were suggested to improve the clarity of several worksheet instructions and maintain consistency in language use throughout the module.

Based on the practitioner validation results, the developed e-module was categorized as valid and feasible for implementation in vocational English learning. The suggestions provided by the practitioner validators were incorporated to improve the quality of the product before the implementation stage. The revisions made based on the validators' feedback are presented in Table 2.

Table 2. Revisions Based on Practitioner Validators

Aspects	Validator's Suggestions	Revisions Made
Content Organization	The learning materials needed clearer organization to ensure alignment between learning objectives, letter-writing concepts, and vocational contexts.	The sequence of materials was revised by improving the connection between learning objectives, explanations, examples, and writing activities.
Learning Activities	The worksheets mainly consisted of questions and provided limited guidance for students during the writing process.	The worksheets were redesigned by adding clearer instructions, guided activities, collaborative tasks, and writing practices based on PBL and TPS stages.
Media and Design	The initial layout and visual presentation were considered less attractive and needed improvement to enhance students' learning experience.	The layout, typography, spacing, visual elements, and page organization were improved to create a more attractive and user-friendly e-module
Instruction Clarity	Several activity instructions were unclear and might confuse students when completing the tasks.	The wording of instructions was revised to make each activity easier to understand and follow independently.
Language Use	Some terminology and expressions needed better consistency throughout the module.	Language use was revised by improving consistency in vocabulary, expressions, and explanations across the e-module.

Although the e-module was considered valid and feasible, the practitioner validators provided several suggestions to further improve its quality. The revisions mainly focused on refining worksheet instructions, improving language consistency, and enhancing the visual layout of several pages. All suggestions provided by the validators were incorporated before the e-module was implemented in the limited field trial.

The practitioner validation findings demonstrate that the developed e-module fulfilled the expected pedagogical, instructional, and linguistic requirements for vocational English learning. These findings provide evidence that the developed e-module is

appropriate for supporting letter-writing instruction through Project-Based Learning (PBL) and Think-Pair-Share (TPS), thereby addressing the second research question regarding the feasibility of the developed instructional product.

3. Students' Responses toward the Developed Letter-writing E-Module.

This third subsection describes students' responses toward the implementation of the developed letter-writing e-module through Project-Based Learning (PBL) and Think-Pair-Share (TPS). The data were obtained from students' responses to the questionnaire administered during the limited field trial and main field trial. The findings of the questionnaire analysis are presented in the following table.

Table 3. Results of Students' Questionnaire Responses

Statements	Score	
	Limited Trial	Field Trial
1. Ease of use	3.70	3.62
2. Material explanation and instructions	3.60	3.45
3. Visual appearance	3.30	3.66
4. Learning Motivation	3.30	3.38
5. Project-Based Learning (PBL) Activities	3.40	3.38
6. Think-Pair-Share activities	3.50	3.38
7. Improvement of letter-writing skills	3.50	3.54
8. Overall satisfaction	3.70	3.63
Score	28	28.04
Average	3.5	3.52
Percentage	87.50%	88%
Interpretation	Very Positive	

The data presented in Table 3 indicated that the use of the developed letter-writing e-module in the limited field trial received a very positive response of 87.50% from ten students. Meanwhile, in the main field trial, the e-module obtained a very positive response of 88% from 24 students. These findings indicate that the developed letter-writing e-module was well accepted by students and considered attractive and practical for use in vocational English learning. Based on these findings, the results provide an answer to the research question regarding students' responses toward the use of the developed letter-writing e-module through Project-Based Learning (PBL) and Think-Pair-Share (TPS).

Discussion

In terms of the development process, the findings demonstrated that the letter-writing e-module was systematically developed by adopting the ADDIE instructional design model. The analysis stage played a fundamental role in identifying students' learning needs through classroom observation and teacher interviews, revealing that students encountered difficulties in understanding formal letter concepts, applying language features and grammar, and producing well-structured letters. Such findings emphasize the importance of conducting a comprehensive needs analysis before designing instructional materials, as learning resources should be developed based on actual classroom conditions rather than theoretical assumptions alone (Aldoobie, 2015; Spatioti et al., 2022). Building upon these findings, the design stage focused on organizing the e-module into a progressive learning sequence consisting of conceptual understanding, language features, grammar focus, and authentic writing activities. This instructional organization reflects the principle of scaffolding, enabling students to construct knowledge gradually before completing independent writing tasks (Haleem et al., 2022). This gradual learning process supports students in constructing knowledge systematically before completing independent learning tasks (Haleem et al., 2022). During the development stage, practitioner validation ensured that the e-module fulfilled pedagogical, linguistic, and instructional requirements before classroom implementation, which is consistent with previous R&D studies emphasizing that practitioner validation improves the quality and practicality of instructional materials (Almunawaroh et al., 2023; Syathroh & Rizkiani, 2023). The implementation stage provided opportunities for students to experience the developed e-module in authentic classroom settings, while the evaluation stage generated valuable feedback regarding the usability and learning experience of the product. Collectively, these stages illustrate that the ADDIE model supports continuous refinement throughout the development process, resulting in instructional materials that are more responsive to learners' needs and vocational learning contexts.

Regarding the feasibility of the developed letter-writing e-module, the findings indicate that the product demonstrated pedagogical appropriateness, instructional feasibility, and practical applicability for vocational English learning. The validation results demonstrate that the e-module fulfilled the expected quality standards in terms of content organization, language appropriateness, instructional design, and visual presentation, indicating that the developed product is suitable for classroom implementation. These aspects are essential in instructional material development because well-organized content, clear learning instructions, and attractive visual layouts facilitate students' comprehension and engagement during the learning process (Fitriyah et al., 2023; Syathroh & Rizkiani, 2023). This finding is consistent with Guo et al. (2020), who emphasized that authentic projects encourage meaningful learning and higher student engagement. In addition, the integration of Project-Based Learning (PBL) and Think-Pair-Share strengthened the instructional value of the e-module by providing authentic writing tasks, collaborative learning opportunities, and structured guidance that support students throughout the writing process. Asih et al. (2023) stated that the integration of Think-Pair-Share (TPS) in writing instruction can encourage students to generate ideas, exchange perspectives, and improve their confidence during the writing process. Previous studies have similarly reported that digital instructional materials integrating active learning strategies are more likely to promote meaningful learning experiences and improve students' participation and learning motivation (Haleem et al., 2022; Chen et al., 2023; Salim et al., 2024). However, this study differs from previous e-module development research, which primarily focused on improving general English skills or digital learning implementation (Septiani et al., 2024). The present study specifically addresses the development of workplace-oriented letter-writing materials for

vocational high school students by integrating Project-Based Learning (PBL) and Think-Pair-Share within a single instructional resource. Shen et al. (2023) reported that collaborative approaches and peer-supported activities can contribute to improving vocational high school students' English writing performance by providing opportunities for feedback and revision. Similarly, collaborative discussion enables students to refine their ideas before completing individual writing tasks (Gillies, 2023). This contextual orientation demonstrates that instructional materials designed for vocational education should not only facilitate language acquisition but also prepare students with practical communication skills required in professional settings.

Regarding students' responses, the questionnaire results indicated that the developed e-module was consistently perceived very positively throughout both the limited and the main field trials. Students' positive perceptions were primarily associated with the clarity of the learning materials, the systematic organization of the content, the variety of interactive learning activities, and the ease of using the e-module during the learning process. Unlike conventional instructional materials that mainly emphasize content delivery, the developed e-module provided students with opportunities to actively construct knowledge through authentic writing tasks and collaborative learning activities. The integration of Project-Based Learning (PBL) enabled students to apply their knowledge by completing workplace-oriented letter-writing projects, thereby making the learning process more meaningful and relevant to vocational contexts. In vocational education contexts, the implementation of Project-Based Learning (PBL) plays an important role in bridging classroom learning with real-world workplace demands. By engaging students in meaningful projects, PBL enables learners to experience professional practices and develop skills that are relevant to their future careers (Ismailia, 2024). At the same time, Think-Pair-Share (TPS) encouraged students to think independently, exchange ideas with peers, and communicate their understanding before completing individual writing tasks. Such collaborative interactions have been widely recognized as effective in promoting students' engagement, confidence, communication skills, and critical thinking during language learning (Gillies, 2023; Chen et al., 2023; Salim et al., 2024). Likewise, previous studies have reported that digital instructional materials integrated with active learning strategies improve students' motivation, learning participation, and overall learning experiences because they encourage learners to become active participants rather than passive recipients of information (Haleem et al., 2022; Fitriyah et al., 2023). Furthermore, the response percentage in the main field trial showed a slight increase compared to the limited field trial, with both trials achieving a very positive category. This consistency demonstrates that students maintained positive perceptions toward the developed e-module and considered it an engaging and practical instructional resource for learning letter-writing. Therefore, these findings suggest that the integration of Project-Based Learning (PBL) and Think-Pair-Share into a vocational-oriented letter-writing e-module provided meaningful learning experiences by encouraging student engagement, collaboration, and independent learning throughout the writing process. The authentic workplace-oriented tasks also supported students in developing awareness of professional communication practices.

Overall, the findings demonstrate that the systematic development of the e-module through the ADDIE model, combined with the integration of Project-Based Learning (PBL) and Think-Pair-Share, not only produced a pedagogically feasible instructional resource but also provided meaningful learning experiences that support vocational high school students' readiness for authentic workplace communication.

CONCLUSION

This study developed a letter-writing e-module that integrates the ADDIE instructional design model, Project-Based Learning (PBL), and Think-Pair-Share (TPS) to support English language learning in vocational high schools. Rather than functioning solely as a digital learning resource, the developed e-module provides authentic learning experiences by connecting formal letter-writing with workplace communication contexts while encouraging collaboration, critical thinking, and independent learning. These characteristics demonstrate the potential of combining instructional design models with student-centered learning approaches to create instructional materials that are relevant to vocational education. The findings also provide practical implications for English teachers and vocational schools. The developed e-module may serve as an alternative instructional resource for teaching formal letter-writing by supporting the implementation of the Merdeka Curriculum through Project-Based and collaborative learning activities. Furthermore, the integration of authentic workplace scenarios may help vocational high school students develop communication skills that are more closely aligned with future academic and professional demands. Despite these contributions, this study was conducted in a single vocational high school and involved two practitioner validators during the product validation process. Therefore, future research is recommended to evaluate the validity of the developed e-module through experimental or quasi-experimental designs involving larger and more diverse participant groups. Future studies may also explore the integration of other student-centered learning models or emerging educational technologies to further enhance English language learning materials for vocational education.

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