

Developing Procedure Text E-Module with Vocabulary Scaffolding in Teaching Writing for the Tenth Grade Students

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Abstract

This study set out the process to develop a Procedure text e-module integrated with vocabulary scaffolding for the tenth grade students, to evaluate its feasibility, and to identify students' responses. A Research and Development (R&D) method was applied, following the five ADDIE phases: Analyze, Design, Develop, Implement, and Evaluate. During the Analysis phase, a needs analysis was identified through an interview with an English teacher, which showed that students struggled with writing procedure texts due to limited vocabulary and low motivation. In the Design and Develop phase, the e-module was built with Canva and validated by three experts: two media experts and one subject matter expert. The validation results showed an average score of 95%, categorizing the e-module as Very Valid. During Implement phase, field testing was conducted with 33 students at one of the vocational high schools in Cimahi, who then completed a response questionnaire. The results indicated a positive response with an average score of 82.20%, categorized as Positive. These outcomes suggest that the Procedure text e-module with vocabulary scaffolding is highly feasible and receives positive responses from students, making it suitable for use in teaching writing.

Keywords: E-Module; Procedure Text; Vocabulary Scaffolding; ADDIE

INTRODUCTION

Technological innovation in the digital era has made a big impact on both teaching methods and the learning experience (Kotsis, 2025). The rapid progress of digital technology has changed the way students learn and find information (Timotheou et al., 2023). Various digital platforms and tools can now be utilized to enrich teaching materials and create more interactive learning environments. For instance, e-modules have been reported to improve learning outcomes for a variety of students (Kumar et al., 2023). E-modules are electronically delivered teaching materials designed to facilitate and support active learning (Delita et al., 2022). As explained by Permana & Antoni (2022), unlike a printed module, an e-module offers interactive features that make it possible to add pictures, sound, video, animations, and formative assessment activities. This interactivity allows students to work through the material at a comfortable pace and in a style that fits their needs (Asmianto et al., 2022). According to Indrawati et al., (2022), students were genuinely excited about the idea of using e-modules for writing lessons. E-modules offer a digital solution for teaching writing that students can easily understand.

However, writing remains a challenging language skill for many students, especially in the context of English as a Foreign Language. Writing skills are an important skill that helps us express our ideas and build credibility (Chicho, 2022). Within the context of English as a foreign language in Indonesia, writing is a challenging skill that requires not only mastery of grammar and vocabulary but also the ability to structure ideas coherently and think critically (Altun, 2023). Due to this complexity, writing often becomes a major obstacle for Indonesian

students (Rachmawati & Fadhilawati, 2024). These writing difficulties are particularly evident when students are asked to produce certain types of texts that require accurate language and clear structure, especially at the vocational high school level. One type of writing taught in vocational high schools is a procedure text. A procedure text is designed to guide readers through the steps of making or doing something (Pamuji, 2023). Procedure texts can be found in many aspects of daily life, such as manuals, guidelines, lab procedures, and recipes (Mejia-Domenzain et al., 2025). Writing procedure texts requires students to sequence steps correctly with appropriate connectors, use specific action verbs, and terms related to the topic. For vocational students, the task is harder since procedure texts often contain specialized vocabulary connected to their field. Despite its relevance to students' daily lives and future careers, many vocational high school students struggle with writing procedure texts. Unfortunately, students' difficulties lie in their lack of a rich vocabulary. This vocabulary issue relates to the quantity of words that students are familiar with and also to their ability to use the right words when writing procedure texts. This is consistent with Asnas & Hidayanti (2024), who found that students generally have difficulty writing due to limited vocabulary.

To help students overcome this vocabulary limitation, one strategy that can be applied is scaffolding. Whenever students encounter difficulty in reaching a certain level of understanding, the teacher steps in to provide the necessary assistance. Scaffolding is intended to respond to this challenge by breaking the writing process into manageable steps supported by the teacher. Scaffolding is defined as a step-by-step guidance provided to help students achieve long-term learning objectives (Nguyen & Truong, 2025). This concept is grounded in Vygotsky's (1978, as cited in Ahmed Abdel-Al Ibrahim et al., 2023) The Zone of Proximal Development, or ZPD, is an idea from psychologist Lev Vygotsky. It explains the gap between what a learner can do alone and what they can do with help from someone more experienced, like a teacher or a peer. In this study, vocabulary scaffolding refers to a sequential support integrated into the e-module to overcome students' vocabulary limitations. This support includes vocabulary lists, contextual examples, and guided exercises that build students' word knowledge and confidence in using new vocabulary in their writing. The Task-Based Learning (TBL) approach was adopted as the main pedagogical framework for designing the writing activities in the e-module. This approach consists of three stages: pre-task, during task, and post-task, which are expected to give students direct opportunities to practice their skills in meaningful and communicative contexts. This aligns with the view of Jackson (2022), who emphasizes that the main goal of TBL is to encourage students to use language practically through purposeful activities.

Previous studies have been conducted by several researchers. Sumiati et al., (2023) developed a Google Sites e-module for writing procedure texts for the seventh grade students, and the product was found valid, practical, and able to improve students' writing skills based on the increase from pretest (54.95) to posttest (81.21). However, this study did not incorporate any vocabulary-focused support within the e-module design. Jannah (2024) developed an interactive e-module for writing procedure text based on a multidisciplinary approach, and it was declared highly feasible, yet the product was not specifically directed to vocabulary development. Tania & Astutik (2024) developed a flipbook e-module for vocabulary mastery and found it feasible as an independent learning media, but the e-module was not linked to the procedure text. Chairinkam & Yawiloeng (2024) demonstrated that scaffolding strategies in writing have also significantly improved EFL students' writing skills, although their study relied on conventional classroom-based scaffolding rather than integrating it into a digital learning tool. Syahrianita & Kalsum (2025) also developed an e-module that effectively improved

students' vocabulary mastery, with an increase from pretest (57.75) to posttest (93.90), yet this development was not connected to any text type.

Overall, these studies show that e-modules and scaffolding strategies can be effective when used separately, whether to improve writing skills, support vocabulary learning, or work as an independent learning tool. However, none of these studies has combined vocabulary scaffolding with procedure text writing in one e-module, especially for vocational high school students, whose limited vocabulary makes it hard for them to write accurate and well-organized procedure texts. This gap shows that an e-module is needed which not only teaches procedure text but also gives structured vocabulary support during the learning process. Therefore, this study aims to bridge this gap by developing a procedure text e-module with vocabulary scaffolding, specifically designed to help the tenth grade vocational high school students use vocabulary more accurately in their procedure text writing. This study addresses three research questions:

- (1) How is the process of developing a Procedure text e-module with vocabulary scaffolding for grade X students?
- (2) How feasible is the developed e-module based on expert validation?
- (3) What are the students' responses to the developed Procedure text e-module?

METHOD

This study adopts a Research and Development (R&D) method, a systematic procedure applied in both academic and industrial fields that aims to produce innovations in the form of new, applicable products, systems, or models (Agustin et al., 2026). The framework chosen here is the ADDIE model. According to Branch (2010) The ADDIE model has five stages: Analyze, Design, Develop, Implement, and Evaluate.

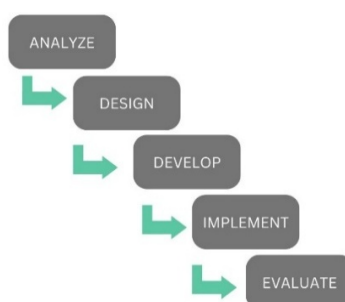


Figure 1. ADDIE Model Development Stages

This study was carried out at one of the vocational high schools in Cimahi. The subjects were 33 students from Class X-2, which represented the entire population of that class. Participants were chosen through purposive sampling, a technique used because it allows the researcher to select participants who are most relevant to the research objectives, rather than through random selection (Amiliya & Ismiyanti, 2025). This class was specifically selected based on the English teacher's recommendation, as Class X-2 was identified as having difficulty in writing procedure texts compared to the other classes, particularly due to limited vocabulary, which aligned directly with the focus of this study. In the preliminary field testing, 10 students took part in the trial. In the main field testing, all 33 students from the same class gave their responses to the e-module.

The first stage, Analysis, aimed to identify the learning needs and obstacles present in teaching grade X students. Data were collected through interviews with English teachers. The interview

consisted of 10 open-ended questions covering the curriculum used, the teaching methods and media applied in the classroom, and the difficulties students faced in writing procedure texts. Each interview lasted 40 minutes and was audio recorded with the teacher's consent before being transcribed for analysis. During the Design phase, these interview findings served as the foundation for creating the e-module. Activities carried out included determining learning objectives, selecting appropriate Procedure text material, and designing the e-module's layout using Canva. To structure the writing activities, the Task-Based Learning (TBL) approach was applied, consisting of three stages: pre-task, during task, and post-task. In addition, an expert validation form and a questionnaire for student feedback were developed. The validation form and questionnaire items were constructed based on indicators of e-module feasibility covering content accuracy, media design, usability, and pedagogical aspects.

In the development phase, the initial draft was turned into a finished product and then reviewed by subject matter experts and media experts to assess its feasibility in terms of visual design, usability, technical aspects, and pedagogical aspects. Validation was carried out by three validators: two media experts, each holding a master's degree in a related field, and one subject matter expert holding a bachelor's degree in English Education with more than 3 years of teaching experience. Their feedback guided revisions before the e-module was ready for classroom implementation. In the Implementation stage, the revised e-module was tested with grade X-2 students at one of the vocational high schools in Cimahi. Finally, in the Evaluate stage, students completed a questionnaire to provide their responses after using the e-module.

The data collection technique was a student questionnaire about their responses to the e-module, and the e-module's feasibility was collected through validation questionnaires completed by two categories of experts, namely subject matter experts and media experts. Each questionnaire was carefully designed to include questions that directly addressed specific aspects of the product being evaluated. A four-point Likert scale was used: (a) 4 = Very Good, (b) 3 = Good, (c) 2 = Fairly Good, and (d) 1 = Not Good. After data collection was completed, the results from the expert validation questionnaires and the student response data were examined through descriptive quantitative analysis. The scores obtained were then calculated using the formula below:

$$NA = \frac{PS}{MS} \times (100\%)$$

Where: NA = Final Score
PS = Score Obtained
MS = Maximum Score

Table 1. The Criteria for Interpreting Score Ranges

Percentage	Category
0% -20%	Invalid
21% -40%	Less Valid
41% -60%	Fairly Valid
61% -80%	Valid
81% -100%	Very Valid

(Adapted from Harahap et al., 2024)

The criteria for evaluating student response scores are as follows:

Table 2. The Criteria for Interpreting Score Ranges

Percentage	Category
0% -50%	Not Positive
51% -70%	Less Positive
71% -84%	Positive
85% -100%	Very Positive

(Adapted from Mardiana & Harti, 2022)

RESULTS AND DISCUSSION

Results

In line with the objectives of this study, this section describes the development process of the procedure text e-module using vocabulary scaffolding for the tenth grade students, following the ADDIE model. Each stage is described to show how the e-module was designed to support students' writing performance.

1. Analysis Phase

This study started with an analysis phase to find out the needs and obstacles involved in teaching Procedure text writing to the tenth grade students at one of the vocational high schools in Cimahi. During this phase, interviews were carried out with an English teacher to gather information on the curriculum in use, the teaching methods and media commonly applied, the difficulties students face when writing Procedure text, and what teachers hoped for in terms of digital teaching materials. The findings from these interviews then became the foundation for designing and developing an e-module that would suit both the students' needs and the actual classroom situation.

Based on the interview results, it was found that the school implements the Merdeka Curriculum, with a time allocation of four hours per week for the English class. Regarding the teaching methods and media used in the classroom, the teacher explained that to make the limited class time more effective, the methods used in teaching procedure text writing are “diskusi, tugas individual, dan presentasi singkat” (“discussion, individual assignments, and short presentations”). These methods were chosen so that students still had the opportunity to practice writing individually while also being able to present their work within a limited amount of time. The need analysis also revealed that most students face significant challenges in writing procedure texts, particularly due to limited vocabulary and a weak motivation to learn (Puspitasari et al., 2024). The teacher confirmed by stating that the main obstacles faced by students are “kurangnya motivasi belajar siswa dan keterbatasan kosakata” (“students’ lack of learning motivation and limited vocabulary”). The teacher acknowledged that many students still feel confused when working on writing assignments because they don't have enough words to say what they mean. Furthermore, students’ willingness to improve their English skills remains low. To address this vocabulary limitation, the teacher explained that students are currently assisted through dictionaries and textbooks. In terms of the features expected in the e-module, the teacher emphasized that visual appeal and interactivity are important to keep students engaged. She stated that the e-module should have “design yang menarik dan quiz yang menarik” (“an attractive design and interesting quizzes”) so that students would feel more motivated and enthusiastic about learning.

2. Design Phase

During the design phase, Canva was chosen as the tool for building an engaging and interactive e-module (Taufan et al., 2023). The finished design was then converted into a digital flipbook using Heyzine Flipbook to make navigation and access easier for students (Febriantje et al., 2024). The e-module contains the main components and structure designed to support students' learning process. It is equipped with interactive elements such as video lessons, exercises integrated with Google Forms, and various multimedia elements. The whole setup is designed to facilitate learning through a Task-Based Learning (TBL) approach. Following feedback from the validators, this e-module went through several revisions to enhance its usability. The final version, incorporating all the modifications and refinements, is presented in Table 3 below.



Figure 2. Final Design of E-module

3. Develop Phase

After the product was developed, it was then validated by experts to obtain their reviews and assessments. This step is necessary before the product is used in the classroom. The e-module was validated by three experts: two media experts from IKIP Siliwangi and one subject matter

expert from one of the vocational high schools in Cimahi. Table 4 presents the feasibility results obtained from this validation.

Table 3. The Recapitulation of Expert Validation

Validation	Percentage	Category
Media expert 1	95%	Very Valid
Media expert 2	92.5%	Very Valid
Subject matter expert	97.5%	Very Valid
Average	95%	Very Valid

Based on the recapitulation of the product feasibility test results presented in Table 4, Media Expert 1 gave a percentage score of 95% with a “very valid” category, while Media Expert 2 provided a score of 92.5%, also categorized as “very valid”. These results indicate that the developed e-module has a high level of feasibility, and only minor refinements are needed before classroom use. The suggestions from the validators for further improvement concerned only the visual design aspects to better match the theme of the e-module. The researcher has made the necessary revisions based on their feedback. The subject matter expert gave a score of 97.5%, likewise “very valid”, confirming that the e-module satisfies the material feasibility criteria. Overall, the feasibility test results from both subject matter and media experts show that the Procedure text e-module with vocabulary scaffolding is highly feasible for use. This is supported by the final average percentage of 95%, which meets the criteria for very high feasibility across all evaluation aspects.

4. Implementation Phase

During the implementation phase, the E-modules that had successfully passed the validation process were then tested with 33 students from the tenth grade at one of the vocational high schools in Cimahi. Students were free to explore and use the e-module independently throughout the learning process. They seemed quite enthusiastic and active throughout the session. Afterward, students completed a questionnaire to capture their feedback on the developed product. The questionnaire consisted of 10 statements divided into four assessment aspects: usability, material and vocabulary scaffolding, technical quality, and student interest. The data collected from this questionnaire were then processed and discussed further in the evaluation phase.

5. Evaluate Phase

Evaluation is the final ADDIE stage. After the implementation process was completed, the next step was to evaluate the e-module that had been developed. The evaluation aimed to assess the e-module through students' responses after using the product. The assessment was conducted by analyzing the data from the student response questionnaires distributed after the main field testing, these results appear in Table 5.

Table 4. The Recapitulation of Students Responses

Statement	Score Obtained	NA (%)	Category
This e-module is easy to use.	112	84.85%	Positive
The instructions in the e-module are clear and easy to understand.	111	84.09%	Positive

I did not experience any difficulties when navigating the e-module.	99	75.00%	Positive
The procedure text materials in the e-module are easy to understand.	107	81.06%	Positive
The structure of procedure texts is presented clearly in the e-module.	108	81.82%	Positive
The examples of procedure texts in the e-module are relevant to everyday life.	108	81.82%	Positive
The display of the e-module (colors, images, and typography) is attractive.	113	85.61%	Very positive
This e-module runs smoothly on the device I used.	111	84.09%	Positive
This e-module motivates me to learn how to write procedure texts.	106	80.30%	Positive
The vocabulary scaffolding in this e-module supports me in writing procedure texts.	110	83.33%	Positive
Total	1,085	82.20%	Positive

As Table 5 shows, the overall average score from 33 respondents was 82.20%, which is considered “Positive”. The highest percentage was found in statement seven (85.61%), while the lowest was in statement three (75.00%). Out of the ten statements, nine were rated as “Positive” and one as “Very Positive.” Therefore, it can be concluded that the procedure text e-module with vocabulary scaffolding received a positive response from students

Discussion

This section discusses the findings in relation to the three research questions: the development process, the feasibility of the e-module, and students' responses. The findings of this study suggest that the current teaching materials have not yet fully embraced the use of digital technology. The teacher interview showed that students still rely on textbooks that lack interactive elements. This situation appears to be less supportive of students' learning motivation, as the materials used tend not to provide an engaging learning experience. In addition, limited vocabulary emerged as a major obstacle faced by students in writing procedure texts. However, the solutions implemented so far have been limited to the conventional use of dictionaries. A conventional textbook shows vocabulary as separate words with definitions to memorize, but it does not provide much support or examples to help understand how to use those words in real situations. The interpretation of these findings leads to the understanding that students' learning difficulties are not only due to limited vocabulary, but also from low motivation caused by teaching materials that are less interactive and less relevant to today's student learning styles. The e-module developed in this study was therefore designed to be responsive to student needs. This is expected to offer an alternative solution aligned with current developments. This result aligns with the view of Firiani & Fadhilawati (2022), who state that digital e-modules can overcome the limitations of conventional textbooks by presenting more adaptive and student-centered content. Furthermore, the inclusion of multimedia features in the

e-module also strengthens its learning potential, as stated by Rahmiati et al., (2023), who argue that an interactive e-module can create a more dynamic and motivating learning atmosphere.

In the development process, this e-module was created using several supporting applications, such as Canva for visual design, Heyzine Flipbook for digital format conversion, and Google Forms for creating exercises. This combination of tools proved to be a good match for creating a product that is visually appealing, easy to access, and rich in multimedia features. This is consistent with the findings of Assalam et al., (2025), which states that Canva enables the development of attractive and user-friendly digital modules. The choice of Canva and Heyzine Flipbook as development tools, and Task-Based Learning (TBL) as the pedagogical approach, was not incidental to these outcomes. Sami et al., (2025) have shown that Task-Based Learning (TBL) provides students to actively engage with one another, which in turn supports the development of stronger language skills. A key strength of this approach lies in its emphasis on meaningful communication. When students work on tasks that require them to use language for real purposes, they become more confident in using English naturally and spontaneously. Another aspect is that the tasks are designed to reflect situations students might actually encounter outside the classroom, so the learning feels relevant and useful. At the same time, the whole approach places students at the center of the learning process. That is the reason why the vocabulary scaffolding was integrated into the procedure writing tasks rather than being presented as an independent glossary. Instead of memorizing words on their own, students were guided to use them while actually working on a writing task, which made the learning experience more practical and meaningful. As a result, the e-module was able to address vocabulary deficiencies more naturally.

In terms of feasibility, the validation results from three experts in the field of English language education showed an average score of 95%, which categorizes this e-module as “very valid.” This positive outcome can be explained by the alignment between the e-module's design principles and established material design criteria. Experts' minor changes focused only on the visual look, not on the content or how interactive it is. This suggests that the main teaching structure, such as the sequence of lessons, vocabulary scaffolding, and task design, was already set up correctly. It supports the belief that when materials follow a clear educational plan, revisions are usually minimal and mostly just for appearance. Meanwhile, student responses were also “positive”, with an average score of 82.20% obtained from the questionnaire. This idea can be understood through Vygotsky's concept of the Zone of Proximal Development and scaffolding. According to Al hamdani & Yousif (2025), Vygotsky explained that students can complete difficult tasks with support from a more skilled person or a useful tool. In this research, the e-module with vocabulary scaffolding worked as that support. Vocabulary was provided within the task itself, so students did not have to search for words on their own, which they used to do with a dictionary. This allowed them to focus on bigger ideas like the structure and sequencing. This particular choice helps explain why the vocabulary scaffolding received such positive ratings from students. These findings carry an implication for classroom practice. It is suggested that English teachers consider embedding vocabulary support within the writing task itself when teaching procedure text.

CONCLUSION

Based on a needs analysis, the teacher identified the need for e-module development, especially to address students' vocabulary challenges and utilizing digital technology in the classroom. The validation results showed that the e-module was rated “very valid” by subject matter and media experts. Also, the students' responses during the main field testing showed a “positive”

category. Therefore, based on both expert validation and students' responses, this Procedure text e-module with vocabulary scaffolding is considered feasible and holds potential to support the learning process of writing procedure texts more effectively for the tenth grade students. These findings imply that integrating vocabulary scaffolding into digital learning materials can serve as a practical strategy for English teachers in vocational schools to address students' vocabulary difficulties in writing. It should be acknowledged that this study has its limitations. For future research, it is recommended that the e-module be tested in more varied classroom settings, exploring different kinds of texts, and involving a larger student population. In addition, further studies might explore the effects of using the e-module over a longer period of time on students' language abilities.

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