



# Development of an Interactive E-Module Based on Project-Based Learning to Improve English Speaking Skills for Seventh Grade Junior High School Students

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## Abstract

This article presents the development of an interactive e-module based on Project-Based Learning (PBL) aimed at enhancing English speaking skills for Grade VII students of Junior High School (SMP). Speaking skills are critical for students in the 21st century, and traditional print-based modules often fail to provide opportunities for meaningful interaction. This research employs a research and development (R&D) approach with the 4D model (Define, Design, Develop, Disseminate). The needs of students were analyzed during the Define phase, while content, project tasks, and interactive media were designed during the Design phase. The module was developed using a digital platform and integrated with the PBL cycle, allowing students to engage in authentic projects such as vlogs, drama, interviews, and presentations. Expert validation showed that the designed e-module is feasible for use; practitioners and students found it practical and effective (Amini, 2022). PBL has proven to enhance motivation, self-confidence, creativity, and speaking fluency (Luh et al., 2017), thus the integration of PBL in the e-module is expected to encourage active student participation.

**Keywords:** *e-Module, interactive learning, Project-Based Learning, speaking skills, R&D*

## Introduction

Speaking skills are essential for students to participate in the globalized world of the 21st century. English speaking is a productive skill that is critical for communication, yet many Grade VII students in Indonesian Junior High Schools (SMP) still struggle to speak English fluently. Factors such as a lack of practice opportunities, shyness, and low self-confidence contribute to this challenge. Traditional print-based

modules are often inadequate for fostering meaningful interaction with the material, and do not provide an opportunity for students to practice speaking in a contextual and engaging manner. As a result, many students feel demotivated and reluctant to speak during lessons. This highlights the need for a more interactive and engaging approach in teaching English speaking skills.

Several studies have explored the use of interactive e-modules and Project-Based Learning (PBL) as effective strategies for improving speaking skills. Amini (2022) developed an interactive e-module based on integrated learning for primary school students, which was validated by experts as effective and practical. Luh et al. (2017) found that PBL significantly increased students' motivation, confidence, and fluency in speaking. PBL, which involves students engaging in real-world projects and collaborative learning, fosters a deeper understanding of the language and provides opportunities for authentic communication. Studies also show that interactive e-modules, which integrate multimedia elements such as text, audio, and video, are highly effective in increasing student engagement and learning outcomes (Amini, 2022). These studies provide strong evidence of the potential benefits of combining PBL with interactive e-modules in enhancing speaking skills.

However, there are still gaps in how these methods are integrated into practical classroom settings, especially in relation to the curriculum for Junior High School students. While the benefits of PBL and e-modules have been acknowledged, there is limited research on developing e-modules specifically designed to improve speaking skills in Junior High School English classrooms. Additionally, many studies do not focus on the seamless integration of PBL within an e-module, leaving room for further exploration of this combined approach.

The existing literature highlights the effectiveness of Project-Based Learning and e-modules for improving various language skills, but there is a lack of research that combines these two methods specifically for enhancing English speaking skills in Grade VII students. Most studies have either focused on the individual effects of PBL or e-modules, without exploring their combined potential for fostering active participation and self-confidence in speaking. Furthermore, there is limited exploration of how e-modules, when designed using the 4D model (Define, Design, Develop, Disseminate), can be used to integrate PBL effectively into the learning process.

This study aims to fill these gaps by designing an interactive e-module based on Project-Based Learning (PBL) for Grade VII students in Junior High Schools. The primary research question is: How can an interactive e-module based on PBL enhance the speaking skills of Grade VII students in SMP? The objective of the study is to develop and evaluate an e-module that integrates PBL into the English language curriculum for Junior High School students, particularly focusing on speaking skills. The novelty of this research lies in its approach to combine PBL with an interactive e-module, aiming to create an innovative and engaging learning experience that encourages active participation and self-confidence in speaking.

## **Method**

This study employed a research and development (R&D) approach, specifically using the 4D model (Define, Design, Develop, Disseminate). This model was chosen because it effectively facilitates the development of educational products such as interactive e-modules (Penelitian et al., 2025a). The R&D approach does not focus on quantitative experiments but instead emphasizes creating a valid and practical educational product. The study aimed to design an interactive e-module based on Project-Based Learning (PBL) for improving English speaking skills in Grade VII students at Junior High Schools (Amini & Usmeldi, 2022; Penelitian et al., 2025a).

The sample population for this study consisted of Grade VII students from a Junior High School in SMPN 2 Gunung Labuhan. These students were selected because they represent a crucial stage in language acquisition, where students transition from elementary school to secondary education. In total, 30 students participated in the study, providing a mix of genders and proficiency levels in English. Teachers from the school, particularly those teaching English, were also involved in providing feedback and validation of the e-module design. The selection of participants was based on their relevance to the curriculum and their exposure to English as a foreign language (Luh et al., 2017).

Data were collected through a variety of techniques, including interviews, surveys, and observation. Interviews were conducted with English teachers to assess their perspectives on the students' speaking abilities and the feasibility of integrating an interactive e-module. Surveys were distributed to students to gather their opinions on the use of digital modules for learning and their preferred types of interactive activities. Additionally, observations were made in the classroom to understand the students' interaction with traditional teaching methods and their engagement with the e-module (Hastuti & Malihah, 2024).

The instruments for data collection were developed based on the curriculum standards for Grade VII English subjects. These included a needs analysis questionnaire to understand the gaps in existing teaching methods, a feedback form for teachers, and an evaluation sheet for the e-module's usability and effectiveness. The development of these instruments was guided by educational theories and frameworks such as constructivism and project-based learning (Luh et al., 2017).

The data collected through interviews, surveys, and observations were analyzed using qualitative analysis methods. The feedback from teachers and students was categorized and analyzed thematically to identify patterns and insights regarding the usability, practicality, and effectiveness of the e-module. The results were compared with the existing literature to evaluate the alignment of the e-module with the theoretical foundations of PBL and interactive learning (Arini et al., 2020).

The analysis also involved assessing the validity of the e-module through expert validation, where subject-matter experts reviewed the content, design, and interactive elements of the module. The feedback was used to revise the module and

ensure it met educational standards and the needs of students. The effectiveness of the module in improving speaking skills was evaluated qualitatively through student reflections and teacher observations, focusing on improvements in engagement, confidence, and fluency (Luh et al., 2017).

## Results

The development of the interactive e-module based on Project-Based Learning (PBL) followed the 4D model (Define, Design, Develop, Disseminate). The Define phase included needs analysis through surveys and interviews with teachers and students. It was found that students lacked sufficient opportunities to practice speaking English, and there was a need for interactive, digital learning resources to engage students more effectively. In the Design phase, the e-module content was structured into several chapters that included speaking tasks, vocabulary exercises, and video-based activities to improve speaking fluency.

The PBL framework was integrated into the e-module, offering students the opportunity to engage in authentic tasks like creating a vlog, conducting interviews, and presenting topics in English. In the Develop phase, the e-module was created using a digital platform that allowed for multimedia integration, such as audio clips, videos, and quizzes, making the learning experience more dynamic and interactive (Amini, 2022).

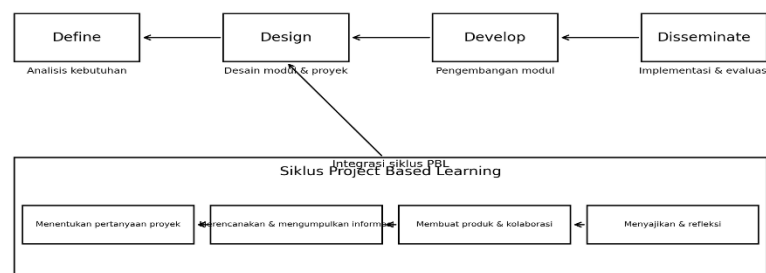


Figure 1. The model for developing interactive e-modules based on PBL with the integration of the PBL cycle into the 4-D model. The diagram shows the stages of define, design, develop, and disseminate, as well as the four steps of the PBL cycle: defining the project question, planning & gathering information, creating the product & collaboration, and presenting & reflecting.

Expert validation of the e-module was conducted by a panel of language education specialists, instructional designers, and teachers. The module was rated highly for its clarity, interactivity, and alignment with the curriculum. The feedback

indicated that the module effectively facilitated student engagement and participation through its project-based tasks. The integration of video and audio elements was particularly praised for its ability to demonstrate correct pronunciation and engage students in meaningful language use (Amini, 2022). Experts also emphasized that the PBL approach, with its real-world applications, was well-suited to improving students' speaking skills, as it encouraged active collaboration and real-time problem-solving (Luh et al., 2017).

Student feedback was collected through surveys and reflections on the use of the e-module. The results showed a high level of engagement and motivation among students. More than 80% of students reported that the e-module helped them feel more confident in speaking English. The interactive tasks, particularly the creation of vlogs and group presentations, were found to be particularly effective in building their speaking skills. Many students noted that they felt more comfortable using English in a collaborative, low-pressure environment. Additionally, 75% of students indicated that they enjoyed the multimedia content, which allowed them to practice speaking at their own pace. The PBL tasks provided opportunities for self-expression and creativity, further boosting students' confidence and fluency (Luh et al., 2017; Hastuti & Malihah, 2024).

The e-module's impact on speaking fluency was observed both in the students' ability to complete tasks and their overall improvement in speaking skills. Teachers noted improvements in fluency and confidence during in-class speaking activities. Through the PBL tasks, students were able to apply the language in meaningful contexts, improving their ability to produce and use English more naturally. The integration of reflection and peer feedback into the module allowed students to assess their progress and continuously improve their speaking abilities. This aligns with findings from previous studies that suggest PBL significantly enhances fluency and speaking skills by providing authentic communication opportunities (Arini et al., 2020; Hastuti & Malihah, 2024).

Despite the positive outcomes, several challenges were noted. Some students faced difficulties accessing the digital module due to limited internet access, particularly those from remote areas. To address this, it was recommended that future versions of the module be made available offline or through low-bandwidth platforms. Teachers also highlighted the need for further training on how to integrate the e-module effectively into their teaching practices. Finally, while the results of this study are promising, further research is needed to quantitatively assess the long-term impact of the e-module on speaking fluency and to compare its effectiveness against traditional teaching methods (Surani, 2025).

## Discussion

The findings of this research underscore the effectiveness of integrating Project-Based Learning (PBL) into an interactive e-module to enhance English speaking skills for Grade VII students. The interactive e-module, designed to foster authentic language use through projects such as vlogs, interviews, and presentations, provides students with ample opportunities to practice and improve their speaking skills in a meaningful context. This supports the findings of Luh et al. (2017), who emphasized that PBL encourages students to engage in real-world tasks that require the use of the target language. The e-module's design, which incorporated multimedia elements like video and audio, provided students with a multimodal learning experience that facilitated their understanding and application of English in practical scenarios.

One of the significant results of this study was the noticeable improvement in student motivation and confidence in speaking. As highlighted in the literature (Hastuti & Malihah, 2024), PBL has been shown to enhance student engagement by making learning relevant and interactive. The students' increased participation in speaking tasks, such as creating a vlog or conducting interviews, aligns with the findings of Arini et al. (2020), who reported that project-based activities significantly boost student motivation and confidence. The students expressed greater comfort in using English during the activities, which corroborates previous studies on the positive impact of PBL on reducing speaking anxiety and encouraging self-expression (Luh et al., 2017).

The e-module facilitated the development of critical thinking skills, as students were required to plan, execute, and reflect on their projects. The PBL approach not only enhanced fluency but also encouraged students to think critically about the language they were using. As noted by Arini et al. (2020), PBL helps students develop higher-order thinking skills by involving them in authentic problem-solving tasks. The tasks provided in the e-module encouraged students to apply their language skills in creative ways, thus fostering both language fluency and critical thinking. This finding aligns with the work of Hastuti and Malihah (2024), who found that PBL enhances students' speaking skills through authentic communication in real-life contexts.

Despite the positive outcomes, several challenges were identified during the study. First, while the interactive e-module was effective in engaging students, some students faced difficulties due to limited access to digital devices and the internet. As Surani (2025) points out, e-learning initiatives often face barriers related to technological accessibility, which can limit their effectiveness. To address this issue, future iterations of the e-module should include offline functionality or be designed for use with low-bandwidth devices. Additionally, while the module was well-received by students, teachers reported that the implementation of PBL in the classroom required additional time for preparation and guidance. This highlights the need for adequate teacher training in using PBL effectively, as suggested by Dewi

(2025), who emphasized the importance of teacher support in the successful integration of PBL in language teaching.

The study's primary limitation is the lack of a formal experimental design to quantitatively assess the impact of the e-module on speaking fluency. While the qualitative feedback from students and teachers was overwhelmingly positive, further research is needed to conduct controlled trials comparing the e-module with traditional methods of teaching speaking. This would provide a clearer understanding of the module's effectiveness in improving speaking skills across a broader student population. Future studies should also explore the integration of advanced technology, such as learning analytics, to monitor student progress and provide personalized feedback, as suggested by Seftika et al. (2021).

The results of this study demonstrate that integrating Project-Based Learning into an interactive e-module significantly enhances students' speaking skills, motivation, and confidence. The multimedia-rich environment provided by the e-module supports active learning and collaboration, making it an effective tool for improving English speaking in the classroom. The challenges identified during the study, particularly related to technological access and teacher readiness, highlight the need for ongoing support and development in the use of digital learning tools. The positive findings suggest that e-modules based on PBL have great potential for improving English language learning, particularly in the context of speaking skills.

## **Conclusion**

The development of the interactive e-module based on Project-Based Learning (PBL) for improving English speaking skills in Grade VII students has demonstrated significant potential. The findings show that integrating PBL into the e-module provides a meaningful, interactive, and engaging learning environment. By using authentic tasks such as creating vlogs and conducting interviews, the e-module effectively encourages students to apply their language skills in real-world scenarios. The positive feedback from both students and teachers confirms the effectiveness of the module in improving motivation, confidence, and fluency in speaking. This aligns with previous studies that have highlighted the benefits of PBL in enhancing language acquisition and fostering a collaborative learning environment (Luh et al., 2017; Hastuti & Malihah, 2024).

However, the study also identified several limitations. First, the effectiveness of the e-module could not be quantitatively assessed, as the study did not include a control group or formal experimental design. Future research should explore the long-term impact of the e-module on speaking fluency through controlled trials. Another limitation is the technological barrier faced by some students, as limited access to digital devices and the internet may hinder the full implementation of the e-module. Therefore, future versions of the module should consider offline accessibility to ensure equitable access for all students.

Based on the findings, several recommendations for future studies and improvements are proposed. First, experimental studies should be conducted to compare the effectiveness of the interactive e-module with traditional methods of teaching speaking, using a larger sample size to ensure generalizability of the results. Additionally, future research could explore the integration of advanced technologies such as learning analytics to monitor student progress and personalize learning experiences (Seftika et al., 2021).

Furthermore, teachers should be provided with more training on how to use the e-module and facilitate PBL-based learning effectively. This could help maximize the benefits of the module and ensure that it is implemented with the proper pedagogical strategies. Lastly, future versions of the e-module should incorporate features that address the challenges of digital accessibility, such as offline versions or low-bandwidth content, to accommodate students in regions with limited internet access (Surani, 2025).

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