



Developing Interactive Educational Game on The Students' Speaking Ability at SMP Negeri 4 Gunungsitoli Selatan

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DOI: <https://doi.org/10.29303/jcar.v8i1.13510>

Received: 05 November 2025

Revised: 25 Januari 2026

Accepted: 10 Februari 2026

Abstract: This research aimed to develop an interactive educational game to improve students' English speaking skills, focusing on the topics of Past Events and No Littering. The study employed the ADDIE development model, which consists of Analysis, Design, Development, Implementation, and Evaluation stages. Data were collected through classroom observation, semi-structured interviews with teachers and students, questionnaires, expert validation sheets, and speaking performance tests. The speaking tests were administered in the form of pre-test and post-test, using oral tasks such as short monologues and guided dialogues that assessed fluency, pronunciation, vocabulary, and grammatical accuracy. The interactive educational game was developed using the Wordwall platform and integrated game-based learning features to promote active participation, motivation, and meaningful speaking practice. The results of media and material expert validation indicated that the product achieved a "Very Good" category with an average feasibility score of 90%. Statistical analysis of students' speaking performance showed an improvement in the mean score from the pre-test to the post-test, indicating a positive effect of the game on students' speaking ability. In addition, students' responses during the implementation phase revealed high levels of engagement and motivation. Based on these findings, the developed interactive educational game is feasible and effective as a supplementary learning medium for enhancing students' English speaking skills. Future research is recommended to apply the game on a larger sample and over a longer period, as well as to integrate similar game-based media into other English language skills such as listening or writing.

Keywords: Interactive Educational Game, Speaking Skills, Game Based Learning, ADDIE Model, Wordwall.

Introduction

Speaking ability is one of the most essential skills in language learning, particularly at the junior high school level, because it functions not only as a tool for communication but also as a medium for expressing ideas, opinions, and feelings (Alfatihah et al., 2022). Speaking is defined as a complex process involving the production of meaning through several interrelated stages, including sound production, message reception, and information processing, which indicates that

speaking is an interactive activity rather than a one-way process (Gudu, 2015). This interactive nature requires active participation from both speakers and listeners in order to achieve effective communication (Shumin, 2002).

Furthermore, Brown as cited in Menggo & Gunas (2022) emphasizes that speaking is a form of oral production that can be observed directly and empirically. This characteristic allows speaking ability to be measured through real performance-based assessment, which strengthens the validity and

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reliability of speaking tests (Menggo & Gunas, 2022). Therefore, speaking skills play a crucial role not only in daily communication but also in the evaluation of students' language competence (Murcia, 2007). Consequently, educators are encouraged to apply appropriate instructional strategies and assessment methods that accurately reflect students' speaking performance in authentic contexts (Hammond & Snyder, 2000).

In the context of English learning at SMP Negeri 4 Gunungsitoli Selatan, English is a compulsory subject taught from the seventh to the ninth grade with the expectation that students are able to master basic communication skills, particularly speaking (Syed et al., 2019). The learning objectives emphasize students' ability to interact using English by exchanging ideas, experiences, and opinions with teachers and peers in various contexts (Beltran & Peercy, 2014). Specifically, this study focuses on eighth-grade students in Chapter 4 with the topic "No Littering," which is relevant to environmental awareness and provides opportunities for students to express past events using simple sentence structures (Arikan, 2009). The learning objectives for this topic include talking about past incidents, formulating questions for short interviews, and identifying main ideas and detailed information related to past events (Schluter et al., 2008).

However, based on preliminary observations and interviews with English teachers at SMP Negeri 4 Gunungsitoli Selatan, many students experience difficulties in understanding and using English orally, particularly in speaking activities (Teacher Interview, 2024). Classroom interaction tends to be teacher-centered, with students participating passively and rarely practicing speaking with peers or teachers (Adaba, 2017). Students also show low confidence in using newly learned vocabulary and expressing personal experiences related to the topic discussed, which results in less meaningful classroom interaction (Wu et al., 2011). Although Project Based Learning and manual games have been implemented as suggested in the teaching module, these methods have not been optimally effective due to limited student engagement and lack of interactive media support (Muir et al., 2022).

The evaluation results further indicate that students' speaking scores did not reach the minimum Criteria for Achieving Learning Objectives set by the school, which is 70. The average scores demonstrate that students' speaking competence remains underdeveloped, suggesting a mismatch between instructional strategies and students' learning needs (Gilakjani, 2012). This condition highlights a pedagogical gap between the expected learning outcomes and the

actual classroom reality, particularly in fostering active speaking practice.

To address this gap, the researcher proposes the development of an interactive educational game as an alternative learning medium. Interactive educational games are designed to promote active learning by encouraging student participation, motivation, and repeated practice through meaningful interaction (Mellecker et al., 2013). Compared to conventional PBL and manual games, interactive digital games provide immediate feedback, varied task formats, and a more engaging learning environment that supports speaking practice in a low-anxiety setting (Bepari & Imam, 2025). These characteristics are particularly beneficial for junior high school students who require stimulating and student-centered learning experiences to develop speaking confidence (Larasati, 2018).

This study specifically employs the Wordwall platform, which has been widely recognized as an effective game-based learning tool for language instruction. Previous studies indicate that Wordwall can enhance students' motivation, vocabulary mastery, and classroom interaction through its interactive features such as quizzes, matching games, and speaking prompts (Anjani et al., 2025). However, most existing studies focus on vocabulary or reading skills, while empirical research on the development of Wordwall-based interactive games for speaking skills at the junior high school level remains limited. This gap underscores the novelty and significance of the present study.

Therefore, this research aims to develop an interactive educational game using the ADDIE model to enhance students' speaking ability at SMP Negeri 4 Gunungsitoli Selatan. Almazayad & Alqarawy (2020) state that the ADDIE model provides a systematic framework that ensures alignment between learning objectives, instructional design, and evaluation. The main contribution of this study lies in the development of a Wordwall-based interactive educational game specifically designed for speaking skills, integrated with contextual topics and aligned with curriculum demands. By doing so, this research is expected to offer both theoretical contributions to game-based language learning and practical implications for English teachers in improving students' speaking competence.

Method

Development generally refers to the process of growth, progress, or enhancement in various contexts, such as economic, social, educational, and personal dimensions. In a broad sense, it encompasses changes that lead to enhanced capabilities, quality of life, and

well-being. Meanwhile, Research is a systematic process of inquiry aimed at discovering new information, validating existing knowledge, or solving specific problems. It involves the collection, analysis, and interpretation of data to answer questions or test hypotheses. Research can be conducted in various fields, including the sciences, humanities, social sciences, and applied disciplines, and can take many forms, such as qualitative, quantitative, or mixed-methods approaches. Smith (2025) argue that research and experimental development (R&D) Activities are described as methodical and creative effort done to expand the body of knowledge, including knowledge about people, culture, and society, and to develop new applications based on the knowledge already in existence. Roth (2003) explains that research and development (R&D) activities are an important part of one's efforts to enhance the knowledge base and create innovations. Miller et al (2020) emphasize that research and development (R&D) in education is a complex process aimed at producing or improving products to enhance effectiveness. With a systematic and iterative approach, development research can lead to innovative and effective products and services.

So, based on the views of the three experts, research and development (R&D) activities are significant and complex processes that contribute to knowledge expansion and innovation. In addition to providing knowledge, R&D prioritizes using appropriate research techniques and having a thorough understanding of student needs

Research and development (R&D) is an important approach in creating effective learning solutions, with the ADDIE model as one of the systematic frameworks widely used to design, implement and evaluate innovative learning programs that meet the needs of learners. As (Sukriadi & Arif, 2021) state that ADDIE (Analyze-design-development-implementation-evaluate) is a classroom-oriented development model. ADDIE model development is synonymous with learning system development. In addition Abuhassna et al., (2024) argue the ADDIE model is a framework for instructional design that can be enhanced by integrating technology.

The conclusion that can be drawn from this paragraph is that the application of the ADDIE model in the development of learning solutions, such as interactive educational Game, is very relevant and effective to meet students' needs. By following the systematic steps in the ADDIE model (analysis, design, development, implementation, and evaluation) the process of developing learning programs can produce innovations that are interesting and in line with learning

needs. In addition, the integration of technology in instructional design can enhance students' learning experience, thus creating a more interactive and effective learning environment. This shows that the ADDIE model serves not only as a framework, but also as a tool that can enhance the quality of education through a structured and technology-based approach.

Result and Discussion

This study focuses on the development of interactive educational games as a learning medium to enhance the speaking skills of eighth-grade students at SMP Negeri 4 Gunungsitoli Selatan. The design of this game-based learning medium is tailored to the characteristics and needs of the students, as evidenced by the results of validation by media, material, and language experts. The development process follows the ADDIE model, which includes five structured stages: Analysis, Design, Development, Implementation, and Evaluation. Each stage is carefully executed to produce a product that supports students' speaking practice in an enjoyable and meaningful way. The steps in designing and creating this interactive game can be explained as follows:

Analysis

As part of the needs analysis stage, researchers collected data at SMP Negeri 4 Gunungsitoli Selatan to examine the learning conditions and challenges that students face in developing their English-speaking skills. This analysis was conducted through classroom observations and interviews with English teachers and eighth-grade students. The data obtained from this stage served as the basis for designing learning media appropriate to the identified needs. Findings from observations and interviews conducted at SMP Negeri 4 Gunungsitoli Selatan indicate that there are several major issues preventing students from developing their speaking skills.

From the observation and interviews, it can be concluded that students still face a number of challenges in speaking skills, particularly in vocabulary, grammar, sentence structure, and pronunciation. Students also tend to be passive when asked to speak in English due to a lack of confidence and fear of making mistakes. However, students show a high level of interest when learning is presented through enjoyable and interactive activities, such as simple games or role-playing exercises. This aligns with teachers' assessments, which emphasize the need for creative strategies to encourage students to speak more confidently and actively engage in the learning process.

In addition, the results of the observation show that students tend to have learning styles and are accustomed to using technology, although it is still rarely utilized in learning. Teachers also emphasize that the media used so far is still limited to textbooks, which are less interesting to students. Therefore, both in terms of student needs and characteristics, it is clear that the use of interactive educational games is highly relevant for implementation. This medium not only enhances learning motivation and aids in understanding difficult vocabulary through practice but also encourages student interaction, builds self-confidence, and directly trains their speaking skills in a more enjoyable learning environment.

Design

The design stage is a follow-up to the needs analysis process that was previously conducted on students at SMP Negeri 4 Gunungsitoli Selatan. In this stage, researchers began to make a design for interactive educational game components aimed at overcoming students' problems in English speaking skills. The researcher has determined the learning objectives that are talk about past incident or event; make questions for a short interview; identify the main idea and detailed information on a series of past incidents or events and tell a series of past events. The researcher also selected the appropriate learning method that re Game based learning, and the learning media using project store featuring interactive educational game which has all been created in the learning teaching module.

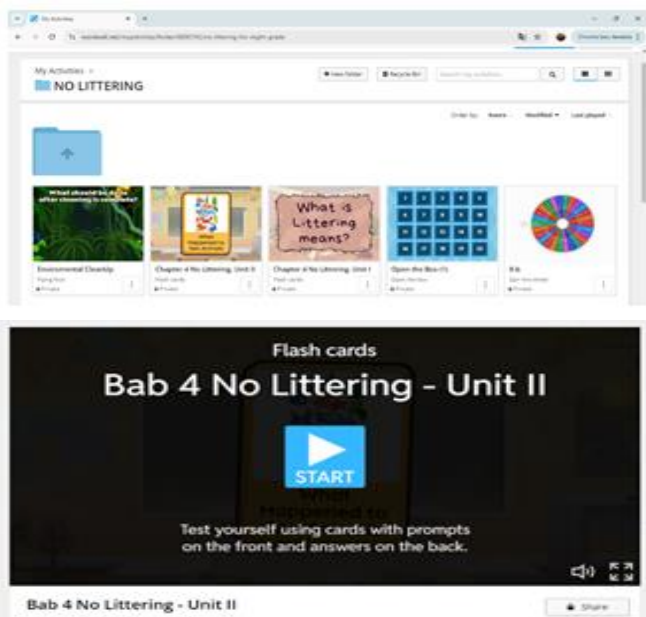


Figure 1. Front Page and Menu of Website

Each section of the material is designed to support the progressive mastery of speaking skills, starting from basic exercises (such as selecting past tense verbs) to productive activities (storytelling and short interviews). The content is enhanced with visuals and audio support to make it more engaging and easier for students to understand. All materials are based on the English for Nusantara textbook and input from subject teachers to ensure alignment with local context and student needs.

Develop

At this stage, the input of experts is crucial to ensure the quality and suitability of the product being developed. Validation is conducted by three types of experts: design experts to evaluate the visual aspects and interactivity of the game; language experts to ensure the accuracy of the structure and use of English; and content experts to assess the relevance of the game's content to the curriculum and the needs of junior high school students. The validation results from these experts serve as a reference for revising and refining the product before proceeding to the implementation and evaluation stages.

Table 1 Validator's Name

No	Name	Job/Position
1	A	Lecturer in English Education Study Program
2	B	Lecturer in Information Technology Education Study Program
3	C	English teacher at SMP Negeri 4 Gunungsitoli Selatan

Design Validation

After undergoing a design validation process by lecturer in the Information Technology Education Study Program, the assessment results showed a score of 90%. This score is categorized as "very good," indicating that the interactive educational game design developed has met the required criteria in terms of aesthetics, visual structure, and user comfort. Aspects such as color selection, icon consistency, text readability, and layout organization are deemed consistent with the principles of good instructional design.

This validation result serves as an indicator that the designed game can present an appearance that is not only appealing but also supports student engagement

during the learning process. The high scores obtained indicate that this design is suitable for middle school students, considering their age, visual needs, and technical limitations. Therefore, the product design can be considered suitable and ready for implementation as an educational tool that can enhance students' speaking skills through an interactive and enjoyable approach.

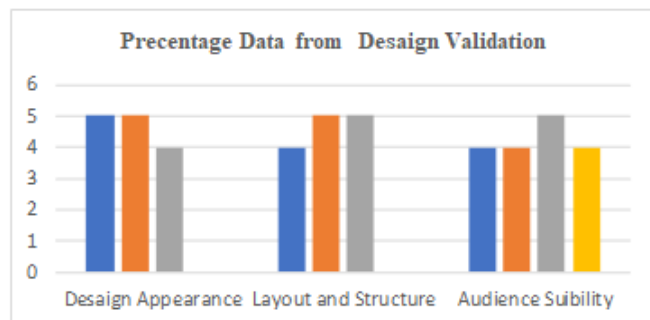


Figure 2. Percentage Data from Design Validation

Linguistic Validation

The validation results conducted as an expert in the field of English, indicate that the linguistic aspects of the developed learning media have achieved a very good level of suitability. From the assessment process, which included grammar, word choice, clarity of instructions, and appropriateness of language use in context, a percentage of 97.14% was obtained. This score reflects that the language used in the game is appropriate for the needs and abilities of junior high school students, both in terms of structure and meaning. The accuracy of the language and the ease of understanding each part of the material make this media suitable for use as a means to enhance students' speaking skills in a fun and meaningful learning environment. The following is a diagram of the results of language experts' validation of the learning media that has been developed.

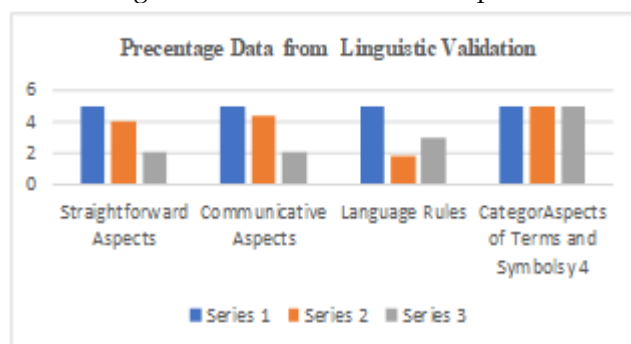


Figure 4. Percentage Data from Linguistic Validation

Material Expert Validation

The learning media design was also validated who has a background in education and experience in implementing interactive teaching media in schools.

Based on her assessment, this interactive educational game received a score of 92.5%, which is categorized as very good. This achievement indicates that the visual aspects and interface of the game meet the feasibility standards from the perspective of educators in the field. The assessment covers color accuracy, icon clarity, navigation comfort, and alignment with the material being presented. The high percentage obtained reflects that the game design is considered effective in supporting an engaging learning process that aligns with the characteristics of junior high school students. The following diagram presents the results of the validation of the material aspects of the designed learning media.

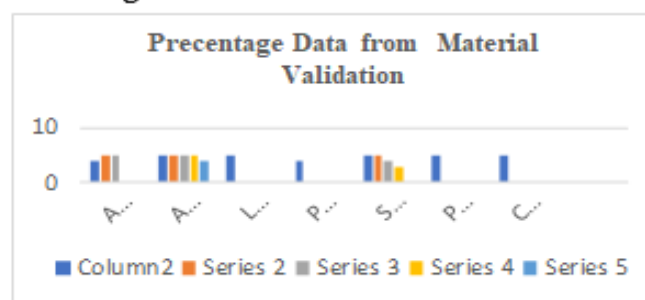


Figure 5. Percentage Data from Material Validation

Implementation

The implementation stage was conducted in two instructional sessions for both the experimental and control groups. The learning activities focused on developing students' speaking skills, particularly related to the topics of past events and environmental awareness. In the experimental group, students were taught using the interactive educational game developed through the Wordwall platform, while the control group received instruction through conventional teaching methods without the use of interactive game media. Both groups were provided with the same learning objectives, materials, and time allocation to ensure comparability.

Results of the Quasi-Experimental Group

The analysis of pre-test and post-test scores in the experimental group revealed a meaningful improvement in students' speaking ability after the implementation of the interactive educational game. In the pre-test, the total score obtained by students was 1,115, with a mean score of 55.75. This result indicates that most students had not yet achieved the expected speaking competence and demonstrated limited ability in expressing ideas orally, particularly in terms of fluency, vocabulary usage, and grammatical accuracy.

After the treatment was applied, the post-test results showed a substantial increase, with a total score of 1,515 and a mean score of 75.75. The improvement of 20 points in the mean score reflects not only a numerical increase but also a significant pedagogical impact. In the context of learning, this improvement suggests that students were able to move from a low to a satisfactory level of speaking competence, approaching or exceeding the minimum learning achievement criteria set by the school.

This increase indicates that the interactive educational game facilitated more active student engagement, provided repeated opportunities for speaking practice, and reduced students' anxiety in using English. The game-based learning environment encouraged students to participate more confidently in speaking activities, allowing them to practice pronunciation, vocabulary, and sentence structures in a meaningful and enjoyable way. Therefore, the 20% improvement can be interpreted as evidence that the interactive educational game was effective in supporting students' speaking development and enhancing the overall quality of classroom interaction.

The implementation process was carried out in two sessions for each group, with the material focusing on speaking skills, specifically about past events and environmental awareness.

The result of quasi-experimental group

The results of the analysis of pre-test and post-test scores in the experimental group showed a significant increase in students' abilities after the use of interactive educational game media. During the pre-test, the total student score was 1,115 with an average of 55.75 or equivalent to 55.75%. This figure illustrates that most students have not understood the material optimally. After being given treatment through interactive learning media, the post-test scores increased to a total of 1,515 with an average of 75.75 or 75.75%. That is, there was an increase of 20 points or about 20% from the previous average score. This increase indicates that the media used is able to help students understand the material and enhance their skills, especially in the speaking aspect.

The Result of Control Group

The results of the pre-test and post-test measurements in the control class showed an increase in student ability, although not very significant. The total pre-test score obtained was 1,110 with an average of 55.5%. After the learning process took place without the use of interactive media, the post-test score increased to 1,200 with an average of 60%. This increase of 4.5% reflects an increase in students' understanding of the material, but the increase is relatively slow and tends to

be stable, indicating that the learning approach used has not provided maximum encouragement to student development.

Evaluation

The implementation was carried out after the product passed expert validation. Students were given speaking tests and questionnaires. This stage aimed to measure both the practicality of the developed media. In particular, the evaluation stage was designed to determine how practical the product was for classroom use, including its ease of application, clarity of instructions, and usefulness in supporting students' speaking activities.

Conclusion

Based on the research results and discussions presented, it can be concluded that the development of interactive educational games based on Wordwall through the ADDIE model has proven to be feasible and effective in improving the English speaking skills of Grade VIII students at SMP Negeri 4 Gunungsitoli Selatan. This study aimed to develop interactive learning media and test its effectiveness in speaking learning, particularly on the topics of Past Events and No Littering, and these objectives have been achieved.

The validation results by media experts, subject matter experts, and language experts indicate that the developed product is in the excellent category, in terms of design, subject matter suitability, and language. Findings from the implementation stage through quasi-experimental design show a significant increase in the speaking skills of students in the experimental group. The average speaking score increased from 55.75 on the pre-test to 75.75 on the post-test. This increase reflects real improvements in fluency, vocabulary mastery, pronunciation, and sentence structure accuracy. Pedagogically, this improvement shows that the use of interactive games can create a more active and enjoyable learning environment and encourage students to speak English.

In addition, students' responses to the use of interactive educational games showed high levels of motivation and engagement. Students became more confident in expressing their ideas and experiences, and more actively participated in learning activities. Thus, interactive educational games not only serve as a supporting medium, but also as an effective means of overcoming the limitations of conventional learning methods and manual games that were previously used.

Research Implications

The findings of this study have practical implications for various parties. For teachers, interactive educational games can be used as an alternative innovative learning medium to improve the quality of speaking skills and create more active classroom interactions. For schools, the results of this study can be used as a basis for encouraging the use of digital learning technology as part of the development of learning based on the Merdeka Curriculum. For learning media developers, this study provides an example of the development of Wordwall-based media that is integrated with speaking learning objectives and student needs.

Recommendations for Further Research

Based on the limitations of this study, it is recommended that future research involve a larger sample size and a longer implementation period to obtain more generalised results. Further research could also develop interactive educational games for other English language skills such as listening, reading, or writing. In addition, the use of other digital platforms could be explored and compared to determine their effectiveness in improving students' speaking skills.

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