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IMPROVING SPEAKING SKILLS BY USING PROJECT-BASED LEARNING WITH THE DUOLINGO APPLICATION FOR THE SECOND GRADE STUDENTS OF SMAKON ACEH

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Abstract

This study aims to evaluate the effectiveness of using the Duolingo application in Project-Based Learning (PjBL) to enhance the speaking skills of second-grade students at SMAKON Aceh. Involving 18 students, the analysis focused on pre-test and post-test scores. Before the intervention, students showed a deficient average score of 43, highlighting the need for improvement in their speaking skills. Following the intervention using the Duolingo application, the post-test results showed a statistically significant impact on students' speaking proficiency. The average post-test score significantly increased to 76, indicating substantial improvement. The n-Gain score of 0.57 (57%) further supported the acceptance of the alternative hypothesis, emphasizing significant disparities in speaking abilities among students using the Duolingo application in PjBL. These findings highlight the positive impact of Duolingo in enhancing speaking abilities, with the application proving effective in helping students organize their thoughts and ideas effectively.
Keyword: Application Duolingo, Speaking comprehension, Project-Based learning

INTRODUCTION

Speaking was a fundamental aspect of language proficiency crucial for effective communication. As Adelina (2020: 189) noted, it served as a means not only to transfer information but also to express emotions, feelings, and ideas to others. Particularly in the context of English language learning, speaking was a key competence that students had to possess to articulate thoughts and ideas fluently in various situations.

However, preliminary research findings indicated that students often faced challenges in developing their English speaking skills. Vesselinov and Grego (2019:90) emphasized the role of motivation in the progress of learning a new language. In this context, initial research findings revealed that students experienced low motivation in learning English. Other challenges involved difficulties in finding the right words, a limited vocabulary, and a lack of confidence (Tarigan, 2019). Therefore, innovative

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strategies were needed not only to boost student motivation but also to help them overcome these barriers, particularly in the context of speaking skills.

In addressing these challenges, the use of learning technologies such as the Duolingo application emerged as an intriguing solution. Marfuah (2020: 620) noted that Duolingo, as a free online language learning platform, offered various up-to-date techniques in language learning. With diverse language options, including English, Duolingo provided structured exercises to help enhance students' speaking skills. Mutaqin's research (2016) showed a positive and significant relationship between the use of Duolingo as a learning medium and students' confidence in speaking English.

Furthermore, Project Based Learning (PJBL) also emerged as an engaging approach to improving students' speaking skills. Juliani's research (2019) on "Improving Students' Speaking Skills through Project Based Learning using Instagram" demonstrated the effectiveness of PJBL. In this context, PJBL added value by allowing students to demonstrate their speaking skills in their own style. In a project, students not only focused on mastering speaking skills but were also exposed to real-life situations that required creative thinking, teamwork, and the direct application of the learned language.

This study drew inspiration from both PJBL and the use of the Duolingo application. Thus, the proposed learning project, titled "Improving speaking skills by using Project Based Learning with the Duolingo application for the second-grade students of SMAKON ACEH," aimed to create a holistic learning experience. Through this project, students would not only have the opportunity to enhance their speaking skills with modern technological support but also to apply their English language understanding in real-life situations.

In SMAKON ACEH, several problems were identified concerning students' English language learning, particularly in developing speaking skills. One major issue was the level of boredom and low motivation during speaking learning activities. Students found these activities monotonous and uninteresting, creating an uninspiring atmosphere for active participation. Difficulty in conveying ideas in English also posed a significant challenge, involving obstacles such as finding the right words, limited vocabulary, and a lack of self-confidence. In an environment where teaching methods lacked variation and educational facilities and infrastructure were limited, English language learning failed to achieve optimal results (Hermayanti, 2017: 12).

Therefore, choosing SMAKON ACEH as the research object presented an opportunity to address these concrete problems and develop innovative solutions. By

combining Project Based Learning and utilizing the Duolingo application, this research sought to make a substantial contribution to improving the quality of English speaking learning at the secondary school level. Through an in-depth understanding of the specific challenges faced by students in SMAKON ACEH, the study aimed to provide valuable insights for curriculum development, effective teaching methods, and increased motivation and learning outcomes in the context of English language learning.

Duolingo took center stage in efforts to enhance students' speaking skills at SMAKON ACEH. As a free online language learning platform, Duolingo offered innovative and diverse learning methods. Besides providing translation assignments to enrich vocabulary and grammar, Duolingo also offered exercises for pronunciation and listening practice, enabling students to hone their speaking skills directly (Tarigan, 2019: 890). Duolingo's advantages not only lay in its user-friendly interface but also in the availability of various languages, including English, and the incorporation of contemporary learning techniques in each session.

The use of Duolingo as a learning medium had a significant impact on student motivation. Grego and Vesselinov (2019: 392) highlighted student satisfaction and enjoyment in learning languages using Duolingo. The ease of use of this application made it accessible to various age groups, creating comfort as a learning medium in online classes. Through interactive exercises and learning games provided by Duolingo, it was expected that students would actively engage and enjoy the learning process, ultimately enhancing their learning outcomes (Marfuah, 2020: 620).

This research aimed to explore the full potential of Duolingo as a learning tool supporting the improvement of students' speaking skills. By leveraging this technological advantage, the proposed learning project was expected to create an effective, efficient, and enjoyable learning experience for SMAKON ACEH students. The integration of Duolingo into the Project Based Learning method was anticipated to create an engaging learning atmosphere and have a positive impact on learning outcomes, fostering a generation of students capable of confidently and competently communicating in English.

Previous research conducted by Mutaqin (2016) presented relevant findings regarding the use of Duolingo as a language-learning tool. The research results revealed that the use of the Duolingo application had a positive and significant relationship with students' increased confidence in speaking English. The implication was that the application was not only effective in improving language skills but also contributed to students' psychological aspects, particularly in enhancing their confidence in

communication. Therefore, this research sought to broaden the understanding of Duolingo's positive potential as a learning tool that could have a positive impact not only on students' speaking skills but also on related psychological aspects.

Additionally, research by Juliani (2019) focusing on "Improving Students' Speaking Skills through Project Based Learning using Instagram" also provided valuable contributions. The research demonstrated that the Project Based Learning approach could enhance students' speaking skills in English. Through Instagram-based projects, students had the opportunity to apply their speaking skills in a contextual environment aligned with their lifestyles. The implications of this research supported the project-based learning approach in enhancing students' speaking skills. Therefore, this research aimed to adopt and integrate positive elements from previous studies to provide a robust theoretical and practical foundation in addressing English language learning challenges at SMAKON ACEH.

However, the improving students' speaking skills involves a combination of two main approaches: Project-Based Learning (PJBL) and the use of the Duolingo application. The learning project is designed to create a contextual learning situation, while Duolingo is used as a supplement to enhance vocabulary, grammar, and pronunciation. Teachers act as facilitators, guiding students in designing the project and providing guidance on Duolingo usage. Continuous evaluation is conducted through feedback sessions, as well as formative and summative assessments, to monitor students' progress in speaking skills and project implementation.

RESEARCH METHOD

Research Design is a pattern of relationship between the variables to be studied (Sugiyono 2017: 65). The research design aims to explain the problems to be studied by looking at the research variables as well. The research design for researchers is the basis for conducting research. The research design used by researchers is a Pre-Experimental Design in the form of a One-Group Pretest-Posttest Design.

According to Sugiyono (2017: 117) that the population is a generalization area consisting of objects or subjects that have certain qualities and characteristics set by researchers to study and then determine conclusions. The population in the study consisted of all 43 students in class XI at SMAKON Banda Aceh for the academic year 2023/2024.

The sample is part of the number and characteristics possessed by the population (Sugiyono, 2017: 118). The sampling technique used by researchers is a purposive sampling technique. Purposive sampling technique is a sampling technique based on certain considerations from a researcher. Sampling in this study was determined by the researchers themselves, not taken randomly, namely based on student learning activities.

Table 1. of Students' samples of SMAKON Banda Aceh

Class	Total
XI IPA 1	18 students

REASERACH INSTRUMEN

The contents of the test in the form of an essay meet the speaking ability, namely calculating the surface area and volume of prisms and pyramids, with indicators: (1) Students can find out the existing vocabulary; (2) Students can use Duolingo APPLICATIONs related to everyday life; (3) Students can answer the questions given; (4) Students can adapt the use of Duoling in language learning which can help improve speaking skills; (5) Designing project-based activities and designing activities that involve students actively in speaking. For example, holding small group discussions, interview simulations, role playing, or presentations in front of the class. Test questions can be seen in the attachment to the following thesis. The test method is used to obtain research data, which are then analyzed to obtain answers or problems and to test the proposed hypotheses.

TECHNIQUE OF DATA COLLECTION

Test techniques include oral tests, written tests, and action tests. Oral tests are in the form of oral questions in class which are carried out during class learning or at the end of learning. Written test is a test that is carried out in writing, both questions and answers. While the action test or performance test is a test that is carried out with answers using deeds or actions. The written test can be in the form of a description (essay/subjective) or objective (objective test). The description test is in the form of questions that require students to answer in the form of describing, explaining, discussing, comparing, giving reasons, and other similar forms according to the demands of the question. While objective tests can be in the form of true-false, multiple choice, matching, or short answer (filling in) questions. The researcher determines the problem in the research, namely regarding Improving Speaking Skills by Using Project-Based Learning with Duolingo APPLICATION for the Second Grade Students of SMAKON Banda Aceh, so that the test

be related to this problem. The test was used by researchers to determine the effectiveness of Improving Speaking Skills by Using Project-Based Learning with Duolingo APPLICATION for the Second Grade Students of SMAKON Banda Aceh.

TECHNIQUE OF DATA ANALYSIS

In completing the data, the next step is data analysis. The data analysis method is a method for processing finding data into research. What researchers focus on is analyzing the effectiveness of students' speaking skills in the project-based learning (PJBL) learning using APPLICATION Duolingo. In this study, researchers used statistical analysis. In measuring data, researchers used Statistical Product and Service Solution (SPSS 22) as a statistical program APPLICATION that has high ability in statistical calculations. The SPSS 22 APPLICATION used provides information that is more accurate so that lost data can be avoided.

RESULT

It is important to understand the N-Gain interpretation categories. These categories provide a guide for assessing the effectiveness of a learning method based on the extent to which students' skills improve. Here are the interpretations of each category:

Table 2. Category of interpretation of the effectiveness of n-Gain

Percentage (%)	Interpretation
<40	Low
40-55	Less
56-75	Sufficient
>76	Effective

With this interpretation grounded, let's focus on the experimental N-Gain score table. This table includes pre-test and post-test scores for each student, accompanied by the N-Gain percentage and interpretation criteria. This table analysis provides a clearer picture of the extent to which the Project-Based Learning (PjBL) applicationroach with the Duolingo APPLICATION has contributed to improving students' speaking skills at SMAKON Aceh.

Table 3. Of n-Gain score Experimental

No	Scores		n-gain (%)	Criteria
	Pre	**Post**		
1	44	76	57.14	Sufficient
2	48	76	53.85	Less
3	36	76	68.75	Sufficient
4	52	76	50.00	Less
5	28	68	66.67	Sufficient
6	44	68	50.00	Less
7	40	72	60.00	Sufficient
8	48	72	46.15	Less
9	56	72	36.36	Low
10	28	72	72.22	Sufficient
11	28	72	66.67	Sufficient
12	28	72	66.67	Sufficient
13	52	76	50.00	Less
14	52	72	50.00	Less
15	48	76	53.85	Less
16	48	80	69.23	Sufficient
17	40	72	60.00	Sufficient
18	52	76	50.00	Less
Mean			**57%**	**Sufficient**

Based on the N-Gain score table above, the experimental class demonstrates a notable improvement with an average N-Gain score of 57%, falling within the "Sufficient" category. This signifies that the implementation of Project-Based Learning (PjBL) with the Duolingo APPLICATION has effectively contributed to enhancing the students' speaking skills at SMAKON Aceh. The results indicate a meaningful progress, with the majority of individual N-Gain scores positioning within the "Sufficient" range. This implies that the applicationroach has successfully facilitated a considerable advancement in the students' ability to express themselves in English, showcasing the effectiveness of the instructional method employed.

The Wilcoxon Signed-Rank Test is employed to assess a hypothesis using paired or sequential data that do not follow a normal distribution. It is commonly utilized to compare two sets of data, taking into account the connection between the samples. In the Wilcoxon Test, the null hypothesis (H0) posits that there is no noteworthy distinction between the two sets of data, while the alternative hypothesis (Ha) suggests that there is a notable difference. If the asymp.sig value (p-value) derived from the Wilcoxon Test falls below a pre-defined significance level, such as $\alpha = 0.05$, you have grounds to reject the null hypothesis (Ho) and support the alternative hypothesis (Ha). In other words, it

indicates there is sufficient evidence to conclude that a significant difference exists between the two data groups

Table 3. of Result Rank of Wilcoxon Test

		N	Mean Rank	Sum of Ranks
Post Test-Pre Test	Negative Ranks	0[a]	.00	.00
	Positive Ranks	18[b]	9.50	171.00
	Ties	0[c]		
	Total	18		

Based on the data from the test results that have been carried out, it can be concluded from the data rank table that for the negative rank of the 18 samples there is no decrease in both the mean rank and the sum of rank. then, the positive rank of the 18 samples achieved a good increase from the mean rank of 9.50 and the sum of rank of 171.00. Ties, there is no such thing as an exact match. The conclusion from this table is that the pre-test and post-test have increased

Table 4. of Result of statistic

Z	**-3.740[b]**
Asymp.Sig. (2-tailed)	**<,001**

Based on taking the hypothesis:

1. If the significance value is <0.05 then the hypothesis is accepted
2. If the significance value is > 0.05 then the hypothesis is rejected

Ha: There is an effect of the effectiveness of using Project-Based Learning with the Duolingo APPLICATION in improving students' speaking skills in Second Grade Students at SMAKON Banda Aceh

Ho: There is no effect on the effectiveness of using Project-Based Learning with the Duolingo APPLICATION in improving students' speaking skills in Second Grade Students at SMAKON Banda Aceh.

Based on the table above the asymp.sig value is 0.001 on the Wilcoxon test, this value is lower than the specified value. Then, in the context of a significance level of 0.05 (α = 0.05), it can be concluded that Ha is accepted and there is a significant difference between the pre-test and post-test.

DISCUSSION

In this section, the discussion explores the analysis of the results of using the Duolingo APPLICATION in project-based learning, which aims to improve students' speaking skills. This is proven by the performance scores of 18 students both on the pre-

test and post-test. This study found that, before the intervention involving the Duolingo APPLICATION, students showed an average score of 43. As a result, their speaking skills were lacking before the intervention was carried out.

Based on the research findings, a robust interpretation is presented to underscore the importance of this research. After carrying out the post-test, the results showed that there was a statistically significant influence on students' speaking abilities between those who received learning through the Duolingo APPLICATION and those before receiving instruction through the Duolingo APPLICATION in Project-Based Learning (PjBL). The average post-test score was recorded at 76, which shows a substantial improvement in students' speaking skills due to the influence of the Duolingo APPLICATION.

Apart from that, the n-Gain score of 0.57 or 57% is included in the "Enough" category, further confirming the acceptance of the alternative hypothesis (Ha) and rejecting the null hypothesis (Ho). In essence, this underlines the existence of significant disparities in the speaking abilities of students who undergo learning using the Duolingo APPLICATION in Project Based Learning (PjBL).

Based on research conducted by Chairi et al. (2023), Project Based Learning (PjBL) has proven to be very effective when integrated with contextually relevant educational APPLICATIONs or media. In this study, the research involved 18 students. Based on the analysis of the results mentioned, it can be concluded that the use of the Duolingo APPLICATION for teaching speaking has a positive impact on improving students' speaking abilities. Research from Dearestiani et al, (2023) shows that using the Duolingo APPLICATION has proven to be effective in improving speaking skills. in Hafifah, (2021) This APPLICATION has proven to be effective in helping students organize their thoughts and ideas effectively.

(Garcia, 2013) states that Duolingo is a free web-based language learning platform with the main aim of helping individuals acquire new languages. This is achieved by offering a variety of learning activities that can be accessed via a web interface and mobile application. Duolingo employs a variety of contemporary language learning strategies, making the learning experience more accessible, engaging and fun for students. This applicationroach fosters a sense of learning during the educational journey, captures the learner's interest and makes the language acquisition process more understandable and enjoyable.

CONCLUSION AND SUGGESTION

Conclusion

In this study, the combination of project-based learning (PjBL) with the Duolingo APPLICATION was found to have had a significantly positive impact on students' speaking abilities at SMAKON Banda Aceh. The research findings indicated that the use of Duolingo within the context of PjBL not only enhanced students' speaking skills but also boosted enthusiasm for learning, increased satisfaction, and made the learning process more engaging.

The average scores on the pre-test (47), surpassing the average scores on the post-test (73), demonstrated a substantial positive influence of the Duolingo APPLICATION in improving students' speaking abilities. Additionally, the n-Gain scores of 0.57 or 57%, categorized as "Sufficient," provided additional support for the positive impact of the Duolingo APPLICATION in this learning context.

The Wilcoxon test confirmed a significant difference between pre-test and post-test scores, indicating that the Duolingo APPLICATION effectively enhanced students' speaking abilities. Therefore, the answer to the research question, "How effective was the combination of project-based learning and the Duolingo APPLICATION in improving second-grade students' speaking skills at SMAKON ACEH?" can be formulated as highly effective, with research findings supporting the positive contribution of the combination of PjBL and the Duolingo APPLICATION to the improvement of students' speaking skills at SMAKON Banda Aceh.

Suggestion

In light of the research findings showcasing the significant positive impact of integrating Duolingo into project-based learning at SMAKON Banda Aceh, several key suggestions emerge for enhancing and sustaining these benefits. Firstly, it is recommended to formally integrate Duolingo into the official language curriculum across various grade levels. This involves developing specific modules that align with the APPLICATION's features, ensuring a systematic and widespread adoption. Additionally, providing comprehensive teacher training on Duolingo's functionalities and its effective incorporation into project-based learning empower educators to create engaging lessons that capitalize on technology-assisted language learning.

Continuous monitoring and evaluation mechanisms should be established as the second recommendation. This ensures a systematic tracking of students' progress in speaking skills when utilizing Duolingo within the project-based learning framework.

Regular assessments and feedback loops not only refine the overall applicationroach but also ensure that the positive outcomes observed in the research are sustained over time. Moreover, initiatives to expand technology access among students, such as providing equitable access to smartphones or tablets, be crucial in maximizing the benefits of Duolingo.

Lastly, fostering a collaborative learning environment and involving parents in the language learning journey are essential components of sustaining the positive impact of Duolingo. Encouraging group projects, discussions facilitated by the APPLICATION, and creating a sense of community among students can enhance peer-to-peer interactions. Simultaneously, educating parents about Duolingo's benefits and encouraging its use at home create a holistic language learning experience for students. By implementing these suggestions, SMAKON Banda Aceh can further enhance the integration of Duolingo into project-based learning, ensuring a continuous and effective language learning experience for its students.

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