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Improving English speaking skills through project-based learning (PjBL): A case study of computer assisted language learning (CALL)

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Abstract - The mini research aims to assist students of 2nd semester at Electronic Department of PNJ to improve their English-speaking skills. Since the Project-Based Learning has been put into the curriculum, every subject must be connected to it. The study was conducted through the following stages: observation, coaching and action. It involved 44 students of the 2nd semester and a teacher as a facilitator. The students were asked to do final project based on Computer Assisted Language Learning (CALL). The results were mini videos which were upload in social media (YouTube). The impact of this activity was significant. Students' score in speaking skills were improved 75%. It means that project based on CALL motivates students and "force" students to speak actively.

Keywords: English speaking skills; project-based learning; CALL; English learning

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1. Introduction

The ability to communicate effectively in English has become a critical skill in today's globalized world, where English serves as a lingua franca in various domains, including education, business, and technology. Despite its importance, developing English speaking skills remains a challenge for many learners, particularly in non-native contexts, where opportunities for authentic communication and practical application of the language are often limited. Traditional teaching methods, which focus heavily on grammar and vocabulary without sufficient emphasis on communicative competence, often fail to address this issue comprehensively. Consequently, there is a growing need for innovative approaches that actively engage students in meaningful language use.

Project-Based Learning (PjBL) has gained recognition as an effective pedagogical approach to enhance students' English-speaking skills, as it emphasizes collaboration, problem-solving, and real-world applications. By engaging learners in projects that require active use of the target language, PjBL creates opportunities for authentic communication, thus fostering fluency and confidence. Furthermore, the integration of Computer-Assisted Language Learning (CALL) tools into PjBL offers additional advantages, as technology can provide interactive and flexible platforms for practice, immediate feedback, and exposure to diverse linguistic resources.

The urgency of studying this topic lies in addressing the persistent gap between traditional language instruction and the practical needs of learners in real-life communication scenarios. As digital tools continue to transform education, combining PjBL with CALL has the potential to revolutionize how English-speaking skills are taught, making the learning process more engaging and effective. Therefore, this study aims to explore the effectiveness of PjBL supported by CALL in improving learners' English-speaking skills, focusing on its implementation and outcomes in an educational context. English subject is one of compulsory subjects in all departments in Politeknik Negeri Jakarta (PNJ). Commonly students will get this subject since they are sitting in the first or second semester. They will get only 4 semesters for the whole program in PNJ. This is because English subject treats as the minor subject in Engineering department.

In learning a language, there are 4 (four) important skills that must be taught (Muthaharoh, 2017). They are listening skill, reading skill, speaking skill and writing skill. Therefore, teachers of English might be able to divide the teaching time which is limited in a week to teach those four skills.

This study focuses in speaking skill because it may indicate that someone could express their ideas in English actively and correctly (Ratnawati et al., 2018). This may also indicate the success of mastering English (Yunita et al., 2017). According to Ruspa (2019), by mastering good English, students may be able to mingle with other foreign people and could do successful English presentation. She also adds that mastering vocabularies and grammar will support much to do speaking skill successfully.

In addition to it, another focus of this study is the use of technology. Computer-Assisted Language Learning (CALL) has been popular to be used in academic situation since 1980s (Warschauer, 1996). CALL has been very much helping in the language learning process significantly to improve their skills (Carol & Jamieson, 2019). CALL itself has been developed since 1960s (Davies, et. al, 2016). It started from home, then developed to schools and offices. It was then developed significantly in the year of 2000 in the emerged of Moodle, and E-Learning. Through the time, the use of CALL was then spread into the social media. Nowadays, CALL is common technology used in Facebook, Instagram, YouTube, and many others. Frankly speaking, students are much assisted by CALL trough YouTube or internet in improving their language skills. Kafryawan (2023) states that smartphones nowadays have been a learning media tool for students to learn a language and improve their language proficiency as well in remote areas. In addition to it, Chen and Hsu (2020) add that speaking skill will be better if students may master more vocabularies.

Meanwhile, Project Based Learning (PjBL) has been popular for the past few years (Silma et al, 2024). PjBL is a kind of learning program which uses the project as a final result of certain program at schools or in universities. This program is compulsory for schools or universities in order to make students more creative. According to the Ministry of Education (2013), PjBL will make students explore, research, evaluate, and do analysis on something. The students will be more creative and curious on something then they will study something naturally. Learning process will be fun for them. Bransfor and Stein (1993) add that learning based on project is a kind of comprehensive approach which involves students to do research which is cooperative and sustainable. Project-Based Learning is designed to give a chance to students to explore many various subjects by using many possible ways which are fruitful for them and doing collaborative experiments.

The article by Waly and Ashadi (2024) explores the integration of Project-Based Learning (PBL) and Information and Communication Technology (ICT) in English as a Foreign Language (EFL) classrooms, and it emphasizes nurturing students' 4Cs skills, which include critical thinking, creativity, communication, and collaboration. While the study highlights the effectiveness of this approach in enhancing students' skills, it also acknowledges the challenges of implementation, such as teacher readiness and technological access, and it offers solutions through professional development and resource allocation.

Suryani et al. (2024) investigate how digital technology combined with PBL can improve learners' English writing skills, and their findings reveal that this method fosters better engagement and creativity among students. Although the study provides compelling evidence through quantitative analysis, it also underlines the importance of proper guidance in integrating technology effectively, and it calls for further exploration of its long-term impacts on writing proficiency. Muyassaroh and Prasetiyowati (2024) focus on the implementation of PBL in teaching speaking skills to vocational school students, and their research illustrates that PBL encourages active participation and boosts learners' confidence. However, the study points out that vocational contexts require tailored content to align with students' specific career needs, and it suggests incorporating industry-relevant themes to enhance practical applicability.

Almulla (2020) presents a broader perspective on PBL, demonstrating its effectiveness in engaging students across various disciplines, and it highlights the role of collaboration in fostering deeper learning. The study identifies flexibility and creativity as key advantages of PBL, but it also notes that inconsistent teacher facilitation can hinder its success, and it recommends structured training programs to address this issue.

Collectively, these articles underscore the value of PBL in promoting student-centred learning and skill development, and they emphasize the need for ongoing research and support to optimize its application in diverse educational settings.

The result of the study will be fruitful for both English teachers and students to implement speaking methods based on CALL. For students, CALL will be very much effective to improve speaking skills and build their confidence. For English teachers, CALL may assist them to monitor and check students' speaking skill achievement and progress.

2. Method

This small-scale study employs a descriptive qualitative research method. This method is utilized to compare the students' speaking abilities before and after the speaking practice process. Additionally, the descriptive qualitative research method is used to analyse and elaborate on the obtained results. According to Sundler et al (2019), this descriptive qualitative method is a form of research that can be narrated. Furthermore, this method aims to describe the processes and strategies used in analysing and interpreting data.

The research was conducted not as a standalone project but in parallel with the ongoing semester. The study took place over six months, during which the researchers served as the English instructor for the class. The respondents observed were also the researchers' students. In this study, no special treatment was given to the students being researched; everything proceeded naturally. The use of CALL had already been implemented in this class for some time. This aligns with Peterson and Wang's (2022) assertion that respondents should be provided with an environment free of tension during the research process to maximize the results.

In this study, the researchers analyses the impact of using CALL on the changes in speaking skills among second-semester students in the Electrical Engineering Department, Industrial Electronics Study Program, at Politeknik Negeri Jakarta (PNJ). The number of respondents analysed comprises 24 students from various high school backgrounds across Indonesia.

The selection of respondents in this study was based on specific reasons. At PNJ, the English course is taught from the second semester and continues until the fourth semester. After conducting a brief observation, the researchers found that many second-semester students were not yet proficient in speaking, despite having studied English for at least six years in junior and senior high school. This observation revealed several reasons: first, the students lacked confidence when speaking in public, and second, they had insufficient opportunities to practice speaking due to limited practice time. Therefore, the researchers conducted an experiment aimed at improving students' English speaking skills.

2.1 Research Design

This study employs a descriptive qualitative method. The first activity conducted was observation in the classroom, as the researchers aimed to see how learning outcomes could be implemented in that setting. This aligns with Mills (2003), who states that observation is carried out by a researchers to gather information on a teacher's instructional methods and how students receive and understand those teachings. The descriptive qualitative method is often used in language and social research, as it allows researchers to gain a deep understanding of specific issues (Zuchri, 2021). The validity of this research can be justified, as the research output, in the form of CALL products, can be seen, observed, and assessed based on the evaluation criteria established by the institution. During the development process, the researchers also engaged in observations.

2.1 Data Collection

The researchers, who also assumed the role of English instructors, designed a hands-on project aimed at enhancing students' English speaking skills through the creation of English-language videos. This activity spanned approximately one month, during which students engaged in a structured process to plan, create, and present their video projects. To prepare students for this task, the researchers had previously conducted lessons covering six key topics from the English learning curriculum. These topics were carefully selected to provide a foundational understanding of essential language concepts, ensuring that students were equipped with the necessary vocabulary, grammar, and conversational skills.

Recognizing the importance of student autonomy and motivation in language learning, the researchers allowed participants to choose their preferred topic from the six previously taught. This approach was intended to increase engagement by aligning the projects with the students' interests and personal experiences, thereby encouraging creativity and authentic expression.

Throughout the project period, the researchers facilitated the process by offering guidance on video production techniques, scriptwriting, and pronunciation, as well as providing constructive feedback during rehearsals. Collaborative work was also encouraged, as students were permitted to work in pairs or small groups, fostering teamwork and peer learning. By the end of the semester, the final videos were showcased in a class presentation, creating an opportunity for students to demonstrate their speaking abilities and reflect on their progress. This innovative approach not only aimed to improve speaking proficiency but also to build students' confidence and communication skills in a real-world context. In these videos, which lasted between 7 to 10 minutes, the students explained the topics they had learned. Subsequently, these videos were uploaded to the social media platform YouTube, making them accessible to the public worldwide. The video can be viewed at the following link: https://youtu.be/ZJ62393jAhE.

3. Results and Discussion

The collected data consists of mini-project videos in which students explained specific course topics they had previously studied. These videos were required to have durations between 7 and 9 minutes. A total of 24 students were divided into 6 groups, with each group assigned a unique topic for their video project. The table below summarizes the topics chosen by each group, the duration of their respective videos, and the average scores awarded based on predetermined assessment criteria.

Table 1 List of Groups, Topics, and Average Scores

Group	Topic	Duration (in minute)	Average Score
1	*Shapes*	8	83.5
2	*Imperative Sentences*	9	86.5
3	*Math Symbols*	8	80
4	*Tenses*	9	82
5	*Tools*	7	82.5
6	*Angles*	8	81

The data provided offers insights into the performance of six student groups who created English-language video projects on various topics. These projects varied in topic, duration, and average score, allowing for a critical analysis of the relationship between these factors and overall outcomes. The topics covered—Shapes, Imperative Sentences, Math Symbols, Tenses, Tools, and Angles—suggest a mix of conceptual and practical learning materials. Group 2, which worked on Imperative Sentences, achieved the highest average score of 86.5, indicating that this topic might have been easier to execute or more

engaging for students, possibly due to its direct relevance to real-life communication. Conversely, Group 3, focusing on Math Symbols, recorded the lowest average score of 80, suggesting that abstract topics may present challenges in applying linguistic elements or making the content engaging for audiences.

The duration of the videos ranged from 7 to 9 minutes, with no direct correlation between length and performance. For instance, Group 5, with the shortest video at 7 minutes, achieved a commendable score of 82.5, higher than some groups with longer durations, such as Group 3 and Group 6, whose scores were 80 and 81, respectively. This suggests that video quality, content delivery, and execution likely had more influence on scores than length.

The scores show a relatively narrow range, from 80 to 86.5, indicating that most groups performed at a comparable level. This consistency reflects either a well-balanced evaluation rubric or the students' relatively uniform understanding of the material. However, the close scoring range could also indicate a lack of significant differentiation in performance quality, raising questions about whether the scoring criteria were sufficiently sensitive to variations in creativity, fluency, and complexity.

The data highlights the importance of topic selection in determining student engagement and performance. More practical or directly applicable topics like Imperative Sentences may encourage better performance, while abstract ones like Math Symbols may require additional scaffolding to support effective language use. Furthermore, the lack of a clear relationship between video duration and scores suggests that students should prioritize the quality of content and language use over length. The data provides valuable feedback on the strengths and areas for improvement in using project-based learning for developing English speaking skills, emphasizing the importance of balancing topic difficulty, support, and evaluation metrics.

Ur (2000) explains the rationale for why students often engage in group work, highlighting the collaborative nature of problem-solving and the ability to jointly seek appropriate solutions. Additionally, group work allows students to provide feedback to one another when mistakes are made. Students who exhibit strong communication skills are often appointed as group leaders, serving as role models for other members of the group.

In this study, the researchers also identified the specific language components to be assessed in the students' videos. The language components evaluated include: 1) Pronunciation, 2) Structure, 3) Vocabulary, 4) Fluency, and 5) Content. These components were observed and subsequently rated.

Table 1 outlines the topics selected by each student group for their final project. The final product, in the form of a video, was analysed and assessed based on a predetermined grading rubric established by the institution. The assessment range for scoring is provided below.

Table 2 Grade Rang

Mark	Range	Description
A	86-100	Excellent
A-	80 - 85	Very Good
B+	75 - 79	Good
B	69 - 74	Fairly Good
B-	63 - 68	Satisfactory
C+	55 - 62	Adequate

Based on Table 2, the researchers conducted observations and evaluations of each Computer-Assisted Language Learning (CALL) project completed by the students, subsequently assessing their performance. The researchers deliberately refrained from reporting scores below C+ in Table 2, as any score below this threshold is considered a failure. According to the polytechnic regulations, if a second-semester student receives a grade of C more than three times, they are deemed to have failed and must retake the course or face expulsion. Therefore, grades denoted with the letter C were excluded from the evaluation.

Table 2 illustrates the scores attained by students in their speaking skills assessment, indicating that their speaking abilities are notably strong. The students demonstrated fluency in English, speaking naturally and without reliance on written texts. This suggests that they are capable of conversing effectively in English under comfortable conditions, without experiencing undue pressure. Additionally, the influence of social media (in this context, CALL) may significantly impact an individual's level of confidence.

The grading table provides a framework to evaluate students' performances across a range of categories, from "Excellent" to "Adequate," with letter grades assigned based on specific numerical ranges. This grading scale is applied to the video project data to analyze the distribution and overall performance of the groups.

Group 2 is the only group in the "Excellent" category, scoring 86.5, which reflects outstanding performance in both execution and language use. Their topic, Imperative Sentences, appears to have resonated well with evaluators, potentially due to its practicality and relatability.

The remaining groups fall into the "Very Good" range, with scores between 80 and 85. Groups 1, 3, 4, 5, and 6 demonstrate consistent proficiency but do not reach the highest tier, which suggests room for improvement in creativity, language fluency, or content delivery.

The grading table defines a relatively narrow range for "Very Good" (80-85), which encompasses five out of six groups. While this reflects a general competence among students, it raises concerns about whether the evaluation criteria effectively capture finer distinctions in quality. The clustering of scores in this range could suggest either lenient grading practices or a lack of variation in performance across groups.

A comparison of topics with grades highlights some key insights. Groups with practical or action-oriented topics, such as Imperative Sentences and Tools, scored higher, potentially because these topics allowed for clearer and more dynamic demonstrations of English speaking skills.

Groups tackling more abstract or technical topics, such as Math Symbols and Angles, scored lower within the "Very Good" range. This suggests that such topics may pose additional challenges for students in terms of engaging delivery and accurate language use.

High Performance: The excellent performance of Group 2 indicates that the project-based approach was successful in fostering high engagement and mastery for at least one group. However, this outcome also underscores the importance of topic selection and student interest in achieving optimal results.

The clustering of groups in the "Very Good" category reflects consistent teaching and learning outcomes, but it may also suggest a need for more rigorous evaluation metrics to identify and encourage exceptional performance.

Room for Improvement: No groups scored below "Very Good," indicating that all groups met a minimum threshold of competence. However, the absence of groups in the lower grades could either suggest effective teaching strategies or an overly lenient grading standard that does not differentiate adequately between performances.

Prior to recording their videos, the researchers, acting as their English instructor, provided the students with the opportunity to present in class during lesson time. Each group was allotted 7 to 10 minutes to present their chosen topics. During these in-class presentations, many students appeared somewhat awkward and lacked confidence. It was evident that several were nervous and struggled with fluency. This lack of confidence was likely due to the requirement to speak without relying on a script or scenario. Consequently, the scores they received were merely average (see Table 3). In contrast, their speaking skills improved significantly during the video recordings.

Table 3 Average Scores of Student Components

Component	Basic Score (in class)	Recorded
Pronunciation	62.5	75.5
Fluency	65.5	82.5
Vocabulary	68	78.5
Structure	52.5	75.5
Content	67.5	82.5

Table 3 illustrates the improvement in scores across each component. This indicates that the students are prepared to speak in class without prior rehearsal. During the recording process, they had already undergone several practice sessions without being observed by a large audience, allowing them to practice freely. Moreover, they had the time and opportunity to improvise, particularly knowing that their recordings would be viewed by many. This motivation encouraged them to perform to the best of their abilities.

In the recordings uploaded to YouTube, the students exhibited a high level of confidence, starting with greetings and then proceeding with individual self-introductions. Prior to the recordings, they practiced articulating specific words and constructing sentences in English correctly and accurately. This practice could be repeated until they felt assured that their recordings were of a quality suitable for viewing.

With the aid of CALL, they were able to learn from their previous mistakes by reviewing their recorded performances. Following this, they could repeat what they intended to say and ultimately speak fluently while recording their explanations on specific topics onto the computer. Subsequently, they made any necessary edits to their recordings.

The data presents the evaluation of five components of English speaking skills—Pronunciation, Fluency, Vocabulary, Structure, and Content—assessed both during in-class performance (basic score) and through recorded video projects. A comparison of these scores reveals trends in student performance, areas of improvement, and potential implications for teaching and learning strategies.

Pronunciation shows a notable improvement between the in-class assessment and recorded projects, with an increase of 13 points. This suggests that students benefitted from the opportunity to rehearse and refine their pronunciation while preparing the recorded videos. The improvement also indicates that project-based learning, particularly when combined with digital tools, offers a supportive environment for enhancing articulation and clarity.

Fluency demonstrates the highest improvement among all components, with a 17-point increase. This significant progress may result from repeated practice during video creation, allowing students to build confidence and reduce hesitation. It highlights the value of project-based tasks in fostering smoother and more natural speech production.

Vocabulary saw a moderate improvement of 10.5 points, suggesting that students were able to expand their word choice and employ richer language in their projects. However, the smaller gain compared to other components might indicate that students focused more on fluency and pronunciation than actively integrating advanced vocabulary into their speaking.

Structure exhibited the most dramatic improvement, with a 23-point increase, moving from the weakest area to one of substantial competence. This reflects that students likely reviewed and polished their grammatical accuracy during project preparation, emphasizing the importance of structured practice and feedback in reinforcing sentence construction skills.

Content shows a 15-point improvement, indicating that students developed better coherence and depth in their speech during the recorded tasks. The video project may have encouraged more thoughtful organization and presentation of ideas, aligning content with the objectives of effective communication.

Rehearsal and Revision Impact: The recorded video format allowed students to rehearse and refine their performance, resulting in significant gains across all components. This supports the efficacy of project-based learning combined with digital tools in creating opportunities for iterative improvement.

Structure as a Key Focus Area: The substantial improvement in structure highlights that students can greatly benefit from explicit grammar instruction paired with practical application. However, the initially low score suggests that grammar remains a foundational challenge for many learners.

Balanced Development: While all components improved, vocabulary saw a comparatively smaller gain. This points to the need for targeted strategies to enhance lexical richness, such as incorporating vocabulary-building exercises into project preparation.

The table below presents an excerpt from one of the videos created by the students. Table 4 provides a brief transcription of the content from one of the videos uploaded to YouTube, focusing on the topic of Imperative Sentences. Prior to recording, the students had studied what imperative sentences are and how to construct them. They first developed a scenario and then practiced their presentation. A short dialogue excerpt can be seen in Table 4 below.

Table 4 Transcript of Dialogue

1.	1st speaker	(Introduction): Hello everyone. My name is Muhammad Hasan, but you call me Hasan. I am going to tell you about imperative sentences…….
2.	2nd speaker	(2nd and 3rdspeakers were in the workshop) Hi, do you know the regulations in the workshop?
3.	3rd speaker	Yes, sure. One of them is “please wear safety helmets while working the workshop…… (etc…)
4.	4th speaker	4th speaker came:

		Wow, I forgot to bring my safety shoes!! There is a sign “please wear safety shoes while working in the workshop”

As shown in the table above, the sentence structure created by one of the groups is both organized and precise. The transcription demonstrates that the sentences are well-structured, allowing the students to express their ideas clearly and accurately. This achievement can be attributed to the students having the opportunity to practice outside of the classroom, where they enjoyed flexibility in terms of both time and location. They were also able to explore the knowledge they desired within the virtual realm.

Generation Z is particularly familiar with the rapidly evolving world of social media. This generation can access YouTube channels containing any information they seek. Therefore, the implementation of CALL-based projects aligns well with the realities of Generation Z, who engage daily with gadgets such as laptops and smartphones. They are deeply connected to modern technology. As researchers, it is essential to integrate advancements in technology with academic knowledge.

The dialogue provided illustrates an example of a group project focusing on the topic of imperative sentences within a specific context, namely workshop safety regulations. The group employs a role-play format to convey the topic's relevance and demonstrate the use of imperative sentences in a practical scenario. Below is a critical analysis of the dialogue, focusing on its strengths, weaknesses, and areas for improvement.

The group places imperative sentences in a real-world context by discussing workshop regulations. This approach makes the learning relatable and practical, helping the audience understand how imperative sentences function in daily life. The use of multiple speakers and a conversational format enhances audience engagement. By assigning distinct roles (e.g., introducer, workshop participants), the presentation feels dynamic and interactive.

Examples such as "Please wear safety helmets while working in the workshop" and "Please wear safety shoes" clearly demonstrate the use of polite imperative forms. These examples align well with the topic and serve as useful illustrations. Including four speakers allows for diversity in presentation style and voice, which adds depth to the performance. Each speaker’s contribution highlights different aspects of imperative sentence usage, reinforcing the lesson.

The dialogue heavily relies on simple imperative structures, such as "Please wear..." While these examples are clear, they lack variety. Incorporating a broader range of imperatives (e.g., commands, requests, instructions) could enrich the presentation. The repetition of similar imperative phrases ("Please wear safety helmets", "Please wear safety shoes") may make the dialogue feel monotonous. Diversifying the content or expanding the conversation to include more nuanced scenarios would improve interest and educational value. The dialogue could integrate more workshop-related terminology, such as "operate machinery," "follow safety protocols," or "report hazards." This would enhance students’ vocabulary while maintaining relevance to the topic.

The interaction between speakers is somewhat fragmented. For example, the first speaker introduces the topic but does not engage with the subsequent speakers. Adding transitions or questions between speakers could create a more cohesive and engaging dialogue.

As shown in the table above, the sentence structures created by one of the groups are both organized and precise. This indicates that the students effectively applied their understanding of imperative sentences, which are essential for conveying clear instructions or commands (Yule, 1998). The transcription demonstrates that their sentences are well-structured, enabling them to express their ideas clearly and accurately. Effective sentence structure enhances communication and ensures that the intended message is conveyed, which is vital in language learning (Richards & Schmidt, 2010).

The students' achievements can be attributed to their opportunities for practice outside of the classroom, where they enjoyed flexibility in both time and location. Research indicates that practice in varied contexts enhances language acquisition, allowing learners to internalize grammatical structures more effectively (Lightbown & Spada, 2013). Additionally, the students were able to explore the knowledge they desired within the virtual realm, as technology in education facilitates access to diverse resources and fosters independent learning (Mayer, 2014).

Generation Z, in particular, is familiar with the rapidly evolving world of social media. This generation has grown up in a digital environment, leading to increased adaptability and proficiency in using online platforms for learning and social interaction (Twenge, 2017). They can easily access YouTube channels that contain a wealth of information on various topics. YouTube serves as a significant educational resource, offering content that supports diverse learning styles and preferences (López, 2020). Consequently, the implementation of CALL-based projects aligns well with the realities

of Generation Z, who engage daily with gadgets such as laptops and smartphones. The integration of Computer-Assisted Language Learning (CALL) in education caters to the preferences and habits of modern learners, making learning more engaging and relevant (Godwin-Jones, 2018).

Moreover, this generation is deeply connected to modern technology, which has transformed the learning landscape. Their constant engagement with technology allows for more interactive and personalized educational experiences (Hwang & Chen, 2017). As researchers, it is essential to integrate advancements in technology with academic knowledge. The fusion of technological advancements and pedagogical approaches is crucial for developing effective educational strategies that meet the needs of contemporary learners (Anderson & Dron, 2011).

4. Conclusion

This study presents key findings that highlight the effectiveness of Project-Based Learning (PjBL) integrated with Computer-Assisted Language Learning (CALL) in enhancing students' speaking skills. By encouraging students to engage in practice through creating and uploading assignments on platforms like YouTube, the study demonstrates how technology and innovative teaching methods can improve language proficiency in a practical and enjoyable way.

One of the most significant outcomes of this study is the practicality of CALL as a learning medium. CALL serves as an accessible and flexible tool that empowers students to practice speaking independently, providing them with the opportunity to engage with the language outside of the classroom setting. Unlike traditional methods, where students may hesitate to speak due to a lack of confidence or fear of making mistakes, CALL facilitates a safe and controlled environment for students to practice at their own pace. This autonomy is critical for fostering self-assurance, especially when speaking a foreign language, which often involves overcoming psychological barriers like fear of judgment or failure. By recording their speech and reviewing it later, students are able to identify areas of improvement, which they can address before submitting their final video project.

The data gathered from the study further supports the conclusion that PjBL, in conjunction with CALL, significantly boosts students' speaking skills. The increase in speaking scores, averaging between 80 and 87 (A- and A grades), is a clear indicator that this approach is not only practical but also effective in achieving the desired learning outcomes. The higher grades suggest that students have become more proficient in their speaking abilities, likely due to the continuous practice and feedback loops facilitated by the combination of PjBL and CALL. The iterative process of creating, refining, and sharing their video projects has had a positive impact on their overall speaking performance.

In comparison to traditional in-class speaking practice, where students may not always have the opportunity to engage in extended or repeated speaking activities, PjBL provides a more dynamic and immersive learning experience. By integrating technology and allowing students to upload their projects to YouTube, they not only gain speaking practice but also develop digital literacy skills, which are essential in the modern, technology-driven world. The added layer of using a public platform like YouTube motivates students to produce higher-quality work, knowing that their peers and possibly even a broader audience may view their videos. This external motivation can further enhance their commitment to improvement and self-expression in English.

Additionally, the findings suggest that the flexibility of PjBL, coupled with the accessibility of CALL tools, has a significant impact on student engagement. Students have greater control over their learning process, which leads to increased engagement, motivation, and responsibility. This sense of ownership over their learning fosters a more personalized educational experience, where students can tailor their practice to their individual needs and preferences.

Furthermore, the study underscores the value of feedback in the learning process. Through the iterative nature of PjBL, students have the chance to review their own work, receive feedback from peers and instructors, and make adjustments accordingly. This process encourages critical thinking and self-reflection, which are integral components of language learning.

In conclusion, the integration of Project-Based Learning and Computer-Assisted Language Learning has proven to be an effective strategy for improving students' speaking skills. The increase in speaking scores, along with the enhanced confidence and engagement observed in the students, supports the claim that these methods not only improve language proficiency but also empower students to take control of their learning. As such, educators should consider incorporating PjBL and CALL into their teaching practices to provide students with a more interactive, engaging, and effective language learning experience. Future studies could further explore the long-term effects of this approach, including its

impact on other language skills such as writing, listening, and reading, as well as its potential scalability in different educational settings.

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