



THE ROLE OF LANGUAGE LEARNING APPS AND SOFTWARE IN DEVELOPING ENGLISH LANGUAGE PROFICIENCY AMONG BACHELOR IN ELEMENTARY EDUCATION STUDENTS: A SEQUENTIAL EXPLANATORY STUDY

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Abstract

This study investigated the role of language learning apps and software, specifically the Duolingo app, in developing the English language proficiency among first-year Bachelor's in Elementary Education (BEED) students at Davao de Oro State College. The study was conducted in response to the existing gap in understanding how digital language tools specifically support the development of English proficiency among BEED students. Guided by this gap, the study's objective was to determine the extent to which language learning apps can enhance vocabulary, pronunciation, and comprehension. Utilizing a mixed-method sequential explanatory research design, the study employed both quantitative and qualitative methods to provide a comprehensive analysis of the data. The conducted pretest and posttest results demonstrated a statistically significant improvement in students' English language proficiency, in terms of vocabulary, pronunciation, and comprehension. Supported by the thematic analysis of interviews and focus group discussions based on students' impressions and perceptions, it was revealed that students found Duolingo to be a practical, user-friendly, and engaging learning tool for developing English language proficiency. They highlighted the application's flexibility, interactive design, immediate feedback, and progress monitoring, as well as the autonomy it provides in their language learning journey. However, it was also emphasized that the challenges in terms of accessibility barriers are due to internet dependency and coming across unfamiliar words. Despite these minor challenges, the findings suggest that integrating digital language tools, such as Duolingo, can significantly aid in developing English language proficiency and supporting more interactive, student-centered approaches in teacher education programs.

Keywords: *English Language Proficiency, Language Learning Apps, Duolingo, BEED students*

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INTRODUCTION

The English language has become a widely used medium for communication around the world. It serves as a universal language utilized across various industries and in Education as a primary medium of instruction. English is a crucial subject in schools and a pivotal factor in globalization. Consequently, it has become imperative for students to learn English to communicate and share information internationally (Isadaud et al., 2022).

Moreover, English language proficiency is of great importance in the context of teaching and communication with students. In a general sense, language proficiency refers to the ability to communicate effectively in a specific language for a particular purpose. Proficient users are those who command the use of the language for various communication purposes, such that they understand the language with ease; articulate many ideas in both spoken and written forms without difficulty; and engage with other language speakers with ease (Richards, 2017).

One of the universities in Australia, as a key player in the international student market, has made significant efforts to equip international students who speak English as an Additional Language (EAL) with the skills needed for employment or further studies. Considering these initiatives, however, recent research and journalism challenge the effectiveness of these projects, especially given the proficiency of EAL graduates. The study poses important issues about the provision of adequate language support to EAL students in Australia. It also highlights that some existing interventions aimed at improving the English proficiency levels of EAL students are not effective. However, this approach presents its own in-house challenges for academic staff, as it necessitates that the development of the English language be embedded within the discipline of teaching and learning (Arkoudis & Doughney, 2016).

Junior high school students in Palu, Indonesia, like their counterparts nationwide, face challenges in mastering the English language. Many are 'passive learners', which leads to low achievement in the four skills of speaking, listening, reading, and writing. Accordingly, teachers are advised to employ various learning strategies to motivate students more effectively. Nevertheless, many teachers still lack sufficient knowledge and experience to utilize these strategies effectively (Rengur et al., 2024).

In the Philippines, English has been emphasized in schools, government establishments,

and even within businesses. However, despite its widespread use in the country, a decline in proficiency levels among Filipino students, particularly college students, has been observed. In this regard, the description cannot be omitted, as it outlines the importance of English in today's competitive global market. It is used as the lingua franca in business, diplomacy, science, and technology (Kirkpatrick, 2012). With the forces of globalization in the economy, employers are seeking individuals who possess a strong command of the English language (Olney, 2016). Despite the high stakes, recent studies indicate a worrying decline in the English proficiency of Filipino graduates. The average scores of Filipino college students on the Test of English for International Communication (TOEIC) suggest that many are below the required level of proficiency (Meniado, 2019).

Additionally, the faculty members teaching English at the University of Mindanao-Tagum Campus are concerned about the students' ability to communicate effectively in the language. Due to the students' frequent inability to follow written instructions and the lack of clarity in announcements and guidelines, they tend to make several mistakes. To address the issue and enhance students' proficiency in the English language, college instructors have employed various instructional techniques. However, it is observed that even as these attempts are made to alleviate the problem of oral and written communication within the shortest time possible and to involve students in activities meant to enhance their oral skills, the problem remains (Pascual, 2019).

In the modern world, the need to improve English language proficiency for Bachelor of Elementary Education (BEED) students remains indispensable, given that English is the globalized language. However, in situations where English is the medium of instruction, a problem has been observed concerning students' difficulty in developing English language proficiency, and there is a need to formulate ways of alleviating the students' problems with English Language Learning. Additionally, mobile and computer-based language learning applications have been developed to address these issues. Thus, this research aims to determine the extent to which the language learning apps and software can develop the English language proficiency of BEED students at Davao de Oro State College.

METHODS

Research Design

This study employed a mixed-method

approach, specifically a sequential explanatory design. This design integrates both quantitative and qualitative data within a single study (Creswell, 2013), allowing the researchers to investigate the role of language learning applications and software in developing English language proficiency. The quantitative phase assessed the effectiveness of language learning tools in improving students' vocabulary, pronunciation, and comprehension, while the qualitative phase explored participants' experiences and perceptions regarding these tools.

To ensure the quality of the qualitative findings, this study followed Lincoln and Guba's (1988) criteria of credibility, transferability, dependability, and confirmability. Credibility is established through the use of both interviews and focus group discussions. Transferability was supported by providing a clear description of the participants and the setting. Dependability was ensured by documenting the steps of data collection and analysis. Confirmability was achieved by using direct participants answers to demonstrate that the findings originated from the data, rather than from the researchers' personal views.

Research Locale and Respondents/Participants

The study was conducted at Davao de Oro State College (DDOSC) - Main Campus, located in Compostela, Davao de Oro Province. The respondents were first-year Bachelor of Elementary Education (BEED) students enrolled during the Academic Year 2024-2025. Out of a population of 110 students, 90 participants were selected using simple random sampling, as determined through the Raosoft Sample Size Calculator. BEED students were chosen due to the importance of English proficiency in their academic training and future teaching profession.

For the quantitative phase, participants included first-year BEED students who were present during data collection and willing to complete both the pretest and posttest. For the qualitative phase, a subset of participants was selected from the same population. Nine (9) students participated in in-depth interviews and nine (9) in focus group discussions, selected through purposive sampling based on their willingness to participate. Inclusion required official enrollment in the BEED program and signed informed consent. Participation was voluntary, and participants were free to withdraw at any time without penalty.

Research Instrument

The study utilized pre-test and post-test instruments to collect quantitative data on students'

English language proficiency. These instruments were adapted from Gemarino (2024) and assessed vocabulary, pronunciation, and comprehension. For the qualitative phase, in-depth interviews (IDIs) and focus group discussions (FGDs) were conducted using open-ended questions designed to elicit students' experiences, perceptions, and challenges in using language learning applications. All instruments underwent validation by internal and external experts prior to administration.

Data Gathering Procedure

Approval to conduct the study was secured from the DDOSC Research Ethics Committee, followed by permission from the Academic Director and the BEED Program Head. Participants were informed of the study's purpose, and written informed consent was obtained.

A pre-test was administered to assess participants' baseline English language proficiency. This was followed by a one-week intervention using the Duolingo application, wherein participants engaged in independent learning for approximately 15 minutes daily. After the intervention, a post-test was administered to measure changes in English language proficiency. Subsequently, in-depth interviews and focus group discussions were conducted to gather qualitative data regarding students' learning experiences.

Data Analysis

The study employed a sequential explanatory mixed-method design. Quantitative data from the pretest and posttest were analyzed using descriptive and inferential statistics, including the median and the Wilcoxon signed-rank test, to determine changes in students' English language proficiency. Qualitative data were analyzed using thematic analysis by Braun & Clarke (2006), which involved the following steps: familiarizing oneself with the data, generating initial codes, searching for themes, reviewing themes, defining themes, and write-up. These steps guided the systematic organization and interpretation of the interview and focus group discussion data to explain and support the quantitative findings.

Ethical Considerations

This study adhered to established ethical standards for research involving human participants and received approval from the Davao de Oro State College Research Ethics Committee (REC), protocol code 582-02-2025. Participants were fully informed about the study's objectives, procedures, potential

risks, and benefits, and provided voluntary informed consent. Participation was optional, with the freedom to withdraw at any time without penalty. Privacy and confidentiality were maintained by securely storing data and anonymizing participant information in accordance with the Data Privacy Act of 2012. Only students enrolled in the Bachelor of Elementary Education (BEED) program were included, with no vulnerable populations involved, and no financial incentives were provided.

The researchers adhered to ethical principles such as avoiding conflicts of interest, ensuring fairness, and maintaining transparency. Community considerations were observed by keeping administrators, faculty, and participants informed, and any collaborative efforts were guided by clear terms of reference. Risks were minimal, and care was taken to prevent any discomfort or harm. The study followed all

legal and ethical requirements, emphasizing respect, justice, and integrity, while ensuring that findings accurately reflected participants' contributions and experiences.

RESULTS AND DISCUSSION

Quantative Results

Based on the results gathered, four emergent themes surfaced from the participants' shared experiences, thoughts, and reflections. These themes show how students utilized YouTube to enhance their phonetic skills in various contexts. The four emergent themes were: (1) Learning Motivation Driven by Academic Performance and Self-Improvement; (2) Preference for Familiar or Culturally Relevant Creators; (3) Concept Mastery Through Multimedia Explanation; and (4) Situational Usage Based on Academic Needs.

Table 1. Level of English language proficiency of the BEED students during the pretest

Indicators	Median	Minimum	Maximum	Verbal Interpretation
Vocabulary	12	8	28	Low
Pronunciation	11	6	22	Low
Comprehension	12	6	24	Low
OVERALL	35	20	67	Low

As shown in Table 1, the median vocabulary pretest score was 12, with a range of 8 to 28, indicating a low level of vocabulary skills prior to the intervention. In pronunciation, the median score was 11, ranging from a minimum of 6 to a maximum of 22, with an interpretation of 'low', indicating that the student shows limited pronunciation ability with frequent errors. For comprehension, the median score was 12, ranging from a minimum of 6 to a maximum of 24, indicating a low level of comprehension, which suggests that students had limited comprehension skills. The median pretest score overall was 35, with a minimum score of 20 and a maximum score of 67, indicating that the students' overall level of proficiency prior to the intervention was low.

To further understand the results, Table 1 shows that the overall median of 35 indicates students have limited English language proficiency

skills, with an identified level of low proficiency in this area. This overall low level of proficiency indicated that, prior to the intervention, students had difficulty with vocabulary, pronunciation, and comprehension.

Overall, these scores indicate that the students faced significant challenges in fundamental aspects of English language proficiency prior to the intervention. The low minimum and maximum scores in every indicator further emphasized the struggles many students were experiencing in these areas.

To address the second research objective aimed to determine the level of English language proficiency among BEED students after the intervention, a posttest was administered. The results were measured using the median as the primary statistical measure. The use of median was appropriate due to the non-normal distribution of the posttest scores, as confirmed by the Shapiro-Wilk test.

Table 2. Level of English Language Proficiency of the BEED students during the posttest

Indicators	Median	Minimum	Maximum	Verbal Interpretation
Vocabulary	24	8	33	High
Pronunciation	18	9	30	Moderate
Comprehension	20	8	28	High
OVERALL	60	30	84	High

After the usage of the intervention, from Table 2, in comparison with the results for the vocabulary pretest with a median of 12, it was highlighted that the vocabulary for the posttest had a median score of 24, with a range score from a minimum of 8 to a maximum of 28, with an interpretation of high. Indicating that students' scores improved, they also demonstrated good vocabulary skills with few errors. The pronunciation in the posttest showed a median of 18, compared to the pretest median of 11, with a range score in the posttest of 9 to 30, indicating a moderate interpretation. This suggests that students are demonstrating developing pronunciation skills, albeit with some errors. For comprehension in the pretest, the median score is 12, compared to the posttest median of 20, with a range of 8 to 28, indicating a high level of comprehension, which suggests that students possess good comprehension skills. It shows a positive shift from the pretest results. The median posttest score overall was 60, with a minimum score of 30 and a maximum score of 84. This indicates that the overall level of proficiency

of the students has improved significantly after the intervention.

To further interpret these findings, the median score of 60 from Table 2 indicated a substantial improvement in the students' English language proficiency after the intervention. This improvement is significant when compared to the pretest median score of 35, as shown in Table 3, suggesting that the students made considerable progress in vocabulary, pronunciation, and comprehension. As seen in Table 2, which breaks down the individual components of the posttest, the improvement across all components reinforces the effectiveness of the intervention in developing students' language proficiency.

In summary, the post-test results indicated a substantial improvement in the students' English language proficiency, with development in vocabulary, pronunciation, and comprehension. These findings suggest that the intervention successfully addressed the students' weaknesses and resulted in measurable progress across all components, such as vocabulary, pronunciation, and comprehension.

Table 3. Difference Between the Results of the Pretest and Posttest of the BEED students

Rank	N	Mean Rank	Sum of Ranks	z	p-value	r	Remarks
Negative Ranks	0	0	0	-8.24	<.001	0.87	Reject H_0
Positive Ranks	90	45.5	4095				
Ties	0						
Total	90						

Note: Negative Ranks: $Post < Pre$; Positive Ranks: $Post > Pre$, Ties: $Post = Pre$

To address the third objective, which aimed to investigate the significant difference in students' English language proficiency before and after using the language learning application, a Wilcoxon signed-rank test was conducted to determine whether there was a statistically significant difference in students' English language proficiency before and after the intervention.

Results revealed a significant difference between the scores in the pretest and posttest, as indicated by a p -value of $<.001$ with a large effect size of $r = 0.87$. Moreover, positive ranks of 90 indicate that all students experienced a significant increase in scores from the pretest to the posttest. Since the p -value obtained, $p < .001$, is less than the common significance threshold of 0.05, the null hypothesis was rejected. This suggests that there is sufficient evidence to conclude that a significant difference exists in the English language proficiency of the students before and after the intervention, which utilized the language learning application. Furthermore, this result allowed the researchers to

confidently claim that the observed improvement in students' performance is not due to chance, but is likely attributable to the effectiveness of the Duolingo app in developing vocabulary, pronunciation, and comprehension skills among 1st year BEED students.

Based on several journals and studies that discuss the effectiveness of the Duolingo application, it has shown statistically significant improvements in language abilities as a result of using the app (Jiang et al., 2021). Incorporating Duolingo into the process of learning English as a foreign language has yielded favorable consequences for both the teaching and learning processes. A person's ability to master grammar and vocabulary, as well as their skills in listening, speaking, reading, and writing, can all improve through the use of Duolingo. Due to this, incorporating Duolingo into teaching and learning activities is strongly recommended as a means of helping students achieve higher levels of mastery, success, and motivation (Irzawati, 2023).

Qualitative Findings

Positive Impact of User-Centered Design and Interaction

“Using Duolingo is fun and easy. The app gives short lessons, and I earn points after finishing them. It feels like a game, so learning doesn’t feel boring. I like how I can practice anytime I want.” — IDI 6

“Using Duolingo isn’t new for me because I’ve already used it back when I was eager to learn Japanese. As of now, my experience with Duolingo was great, it helped me enhance my vocabulary, pronunciation, forming sentences. and comprehension. Though I understand the English language, I find it difficult to speak, maybe because of a lack of practice.’ — IDI 8

“One of the advantages of using language learning apps and software is that they are easy to access on phones, especially with advanced technology. It’s also good for those who enjoy self-learning, as it motivates them.” — FGD 9

According to Usman (2023), the student body received positive feedback regarding the use of Duolingo as a tool for learning English. The platform provided the kids with a dependable internet connection and sufficient data allocation, and it was entertaining, engaging, intuitive, modern, and easy to use. Installing the application only requires having a Facebook or email account. Individuals with limited English language skills can learn the basics of the language using this program, which is suitable for learners of all skill levels. The product’s multiformat accessibility was well received by the users, who placed special focus on how convenient it was to access it via cellphones. Additionally, mobile-assisted language learning (MALL) is gaining popularity among individuals seeking to learn a second language. MALL applications are utilized to learn vocabulary, access grammar exercises, improve writing skills, and enhance reading comprehension (Finardi et al., 2007).

Accessibility Barriers Due to Internet Dependency

“Poor internet connection. Sometimes, I wasn’t able to use the app properly

because of low or unstable internet.”

— IDI 1

“As for the disadvantages, one is that you need an internet connection before you can use the app, which can be a limitation for some users.” — IDI 3

“Need for an internet connection when using the app, which is hard for those who don’t have access.” — FGD 9

In a study by Suherman et al. (2024), many students encountered various challenges while using Duolingo, both due to external factors and the app’s limitations. A frequent issue was limited internet access, which made it difficult for students to maintain regular practice. Without a stable connection or adequate data, students often struggled to consistently engage with the app. Additionally, Perez (2020) notes that using Duolingo requires a reliable internet connection and compatible devices. On the other hand, not all learners have access to adequate facilities. This circumstance has the potential to create issues.

Challenges in Understanding Unfamiliar Vocabulary

“Some words are difficult to understand because of their complexity, or they are unfamiliar to me. Sometimes, I make mistakes, and I can’t immediately correct them. I can only do it right after the task, which is also good. I can feel that they are wrong, but I’m unsure how to fix them. That’s my experience.” — FGD 1

“At the same time, it also poses challenges, one I encountered while using the Duolingo app, including encountering unfamiliar words that I don’t understand right away.” — FGD 2

“Another difficulty is choosing English as a language to learn when you’re unfamiliar with many of the words - that’s also one of the challenges.” — FGD 9

According to a study by Suherman et al. (2024), one challenge of using Duolingo is when students encounter advanced vocabulary and unfamiliar grammatical structures. As the lessons progressed, some found it challenging to keep up

with more complex content, especially verbs and sentence constructions they had not encountered before.

Flexible and Autonomous Learning Experience

“You can learn anywhere, anytime, and they often use games and quizzes to make learning fun. And another, many apps are free or have affordable options.” — IDI 5

“I can study anytime and anywhere. It’s fun and interactive. I can learn at my own pace.” — IDI 6

“Duolingo can be a valuable tool in the classroom setting by allowing students to practice outside of class. They can use Duolingo to continue learning a language during their free time or after school hours.” — FGD 8

In the study by Hao et al. (2019), allowing learners to choose what they want to learn based on their interests provides them with autonomy and the opportunity to learn the language enjoyably, as there is less pressure, and they can also learn outside of school. Additionally, it can enhance students’ motivation and confidence, leading to a more positive attitude towards language learning and improved academic achievement.

Additionally, some participants recognized Duolingo’s potential as a valuable tool for reinforcing classroom learning, noting that it allows students to practice outside of class and continue their language development during free time or after school hours. The Duolingo application is straightforward to use; it can be accessed anywhere and at any time (Febrianti et al., 2024). These insights show that the flexibility and autonomy provided by Duolingo empower learners to engage in a more personalized, enjoyable, and effective learning experience.

The Duolingo app offers a flexible and autonomous learning experience, allowing users to engage with language learning at their own pace and convenience. This adaptability is a significant factor in its effectiveness, as learners can access the app at any time and from anywhere, tailoring their study sessions to fit their personal schedules and preferences (Saraswati et al., 2021).

Enrichment of Vocabulary and Sentence Construction

“The advantages of using Duolingo are that it helps build comprehension skills, vocabulary, and pronunciation. Those are the main benefits I’ve observed.” — IDI 3

“The advantages of language learning apps, of course, are that you will be able to learn other languages, especially if you are consistent in using it. It can also help you if you want to enhance your vocabulary or get good at speaking the language.” — IDI 8

“After using the language learning app, my English has improved. It also encouraged me to speak English with more confidence. It introduced me to unfamiliar words that I can now use in my academics, especially in writing essays.” — FGD 9

Moreover, it was repeatedly highlighted how Duolingo helps in acquiring new vocabulary, practicing grammar, and forming coherent sentences. Its contributions to vocabulary building, pronunciation, and comprehension are widely acknowledged. Many respondents shared that consistent use of the app enabled them to learn unfamiliar words, improve sentence structure, and build confidence in both written and spoken English. Teaching English vocabulary using technology can enhance learners’ motivation to learn (Wang & Young, 2014).

In line with this, Chen et al. (2019) found that using an English Vocabulary learning application improves learners’ learning performance. Findings from this study suggest that Duolingo can be effectively integrated into classroom instruction to help students become more familiar with essential vocabulary, thereby enhancing their academic performance.

Supporting Foundational Language Skills in Early Education

“It can help students, particularly those in elementary school, since that stage is the foundation of learning. The app can support sentence-building and overall language development, which is very important for young learners. What I also like about Duolingo is that it reads words

out loud, and learners can repeat after it. If I become a teacher in the future, I'd use those features in my teaching. It would help students learn faster and more effectively." — IDI 2

"Think it helps by developing students' pronunciation, vocabulary, and comprehension skills, especially for young learners. That's all." — IDI 3

"Teachers can use Duolingo as a fun activity in class. Maybe after lessons, students can use the app to review. It can make learning English exciting because it feels like a game. It can also help students who are shy to speak." — IDI 7

According to Butler (2022), the Duolingo app features various special elements designed exclusively for children, including interactive games, engaging visuals, and motivating rewards. All of these will contribute to creating an exciting and enjoyable learning environment for youngsters. So that young children are driven to continue learning and expanding their English vocabulary. The progress monitoring function allows children and parents to observe detailed learning progress (Fadhli et al., 2022). This tool allows youngsters to recognize their accomplishments, create motivation, and identify areas for growth. Parents may also monitor their children's growth and give appropriate support based on their children's learning requirements (Jiang et al., 2021). Aside from that, the Duolingo app offers several learning exercises to help youngsters expand their English vocabulary.

In addition, the use of this application can also be used by teachers as an evaluation of student progress, the fun features motivate children and adults to learn in different ways, the user's encouragement and involvement in using the app further deepen their understanding of English, which can be influenced by factors such as learning objectives, interactive features, and measurable achievements (Pardosi, 2022).

Immediate Performance Feedback and Progress Monitoring

"Teachers can also check students' progress and give support. It's a good way to review lessons and learn vocabulary." — IDI 6

"And since Duolingo has a tracking system, teachers can evaluate the progress of their students and in what areas they need the most help." — IDI 8

"It also supports teaching and learning by providing real-time feedback and tracking student progress while using the app." — FGD 1

There are three available types of feedbacks in Duolingo: (1) corrective feedback, which lets the learner know whether their answer is right or wrong, and guides the learner to correct the mistake (e.g., pop-up messages that are displayed in Duolingo showing the user earning or losing points); (2) status feedback, which shows the current status of learning task completion or problem solving, and how much of the learning objectives has been achieved (e.g., level indicators, experience bars, daily streak and word strength indicators); and (3) conceptual feedback, which prompts the learner to reconsider, or even think deeper about, his/her understanding of the learning content (e.g., the pop-up messages that reveal hints after making mistakes).

While the first and second types of feedback are dominant in Duolingo, the third (conceptual feedback) is less available, which limits creative thinking and/or the ability to provide sophisticated answers to various questions/tasks. In most situations, progression in Duolingo does not allow more than a single (orthodox) correct answer, which is unlike real-life conversations or learning situations (Bauer, 2024).

In conclusion, the Duolingo application was viewed by the participants as a beneficial tool for developing English language proficiency. It supported both independent learning and classroom instruction. While challenges related to internet access and complex vocabulary were noted, the app's strengths in engagement, flexibility, and skill development outweighed its limitations.

Integration of Quantitative Results and Qualitative Findings

The quantitative findings demonstrated a significant improvement in the English language proficiency of BEED students after using the Duolingo application. Results from the Wilcoxon signed-rank test revealed a highly significant difference between the pretest and posttest scores ($p < 0.001$), which is below the 0.05 threshold for statistical significance. This statistical evidence led to the rejection of the

null hypothesis, indicating that the gains in student performance were attributable to the intervention. All 90 students showed positive gains, with no negative ranks or ties, signifying that every participant improved. The calculated effect size ($r = 0.87$) further confirmed a strong and meaningful impact of Duolingo on vocabulary, pronunciation, and comprehension skills.

The qualitative findings corroborated these statistical results by providing insight into how the students experienced the learning process. Participants described Duolingo as enjoyable, interactive, and user-friendly, highlighting features such as game-like activities, rewards, and short lessons that made learning more engaging and enjoyable. These motivational elements helped sustain their interest, which aligns with the overall upward trend in test scores. Participants also reported improvements in vocabulary knowledge, sentence construction, pronunciation practice, and reading comprehension skills, which were directly reflected in the quantitative gains. Although challenges such as unstable internet access and difficulty with unfamiliar vocabulary were noted, these issues did not diminish the overall effectiveness of the application. The flexibility to learn at their own pace and revisit lessons supported students' autonomy, reinforcing the improvements captured in the test results.

Collectively, the integration of quantitative and qualitative findings provides strong evidence that the Duolingo application effectively enhances English language proficiency among BEED students. The qualitative insights provide further explanation and support for the quantitative improvements, demonstrating that both the measurable outcomes and student experiences validate the value of language learning apps in academic contexts.

CONCLUSION

Based on the study's findings, the use of language learning apps and software, specifically Duolingo, has a significant and positive impact on the English language proficiency of BEED students. Before the intervention, students generally exhibited low proficiency levels in key areas, including vocabulary, pronunciation, and comprehension. Following the implementation of the intervention, the posttest results showed improvements across all indicators, with the increase in median scores supported by statistical analysis. In addition to the quantitative data, students also shared positive experiences with the app, noting increased motivation, confidence, and engagement in language

learning. These results suggest that integrating language learning software into English instruction can effectively enhance students' proficiency and support a more interactive and learner-centered approach in teacher education.

Overall, the results suggest that language learning apps and software such as Duolingo can effectively support the development of English language proficiency. These tools not only enhance academic outcomes but also contribute to creating an engaging and student-centered learning environment. It is therefore recommended that teacher education programs consider integrating such applications as supplementary tools in English instruction, particularly for future educators who must be equipped with strong communication skills.

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Conflict of Interest

The authors declare that there are no financial, professional, or personal conflicts of interest that could have influenced the design, conduct, or interpretation of this study.

Ethical Statement

This study adhered to ethical standards for research involving human participants and was approved by the Davao de Oro State College Research Ethics Committee (REC) under protocol code 582-02-2025, ensuring voluntary participation, informed consent, confidentiality, and compliance with all legal and institutional guidelines.

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