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Research paper

Enhancing Saudi EFL Learners' Speaking and Pronunciation Skills Through Duolingo

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Abstract

With the growing global importance of English proficiency, especially in academic and professional domains, improving oral communication skills among English as a Foreign Language (EFL) learners has become a crucial objective in language education. In Saudi Arabia, many university students face challenges in speaking fluently and pronouncing English accurately due to limited exposure to authentic spoken English and communicative practice. Mobile-assisted language learning (MALL) tools like Duolingo, which incorporate gamified and AI-driven elements, offer an innovative solution to supplement traditional classroom methods. This research is important because it exam-ines the effectiveness of the Duolingo app in enhancing the pronunciation and speaking skills of Saudi EFL, specifically, pronunciation accuracy, fluency, stress, and intonation. A quasi-experimental design was employed, involving 130 Saudi EFL students from Najran University who were purposively selected based on their similar English proficiency levels. They were divided into an experimental group using Duolingo and a control group following traditional speaking activities. Quantitative data were collected through pre- and post-tests, while qualitative insights were gathered from student surveys. The findings reveal that the experimental group demonstrated significant improvements in pronunciation and speaking fluency, with statistical significance in phoneme accuracy, stress, and intonation. Furthermore, survey responses indicate a positive perception of Duolingo's interactive features, with students reporting increased confidence and motivation to practice spoken English. The study highlights the potential of AI-driven mobile applications in supplementing conventional language instruction, offering valuable implications for EFL educators seeking to integrate technology into pronunciation training.

Keywords: *English-speaking skills; Pronunciation; Speaking Proficiency; AI Applications; Duolingo; EFL learners*

1. Introduction

Language learning technology has dramatically changed how English as a Foreign Language (EFL) students learn English. Within the wide range of technological tools now available, mobile applications stand out because of their user-friendly accessibility combined with adaptable functionality and interactive elements. Duolingo represents a popular language-learning platform that integrates gamification elements and adaptive learning techniques to address individual educational requirements. Duolingo has garnered acclaim for teaching vocabulary and grammar, but researchers have yet to fully examine its effectiveness in speech and pronunciation training for Saudi EFL students [1].

The mastery of pronunciation continues to be a significant hurdle for language learners when their mother tongue presents substantial phonetic differences from English. Many Saudi Arabian students face difficulties with English pronunciation because Arabic and English phonetic systems differ significantly, despite English being a second language taught in schools. Effective communication faces obstacles because accurate pronunciation is essential for achieving both speaking fluency and the ability to be understood. Students must increase their pronunciation abilities to build confidence and develop better speaking skills during everyday conversations.

This study investigates how well the Duolingo app works to enhance Saudi EFL students' pronunciation and speaking abilities. Through the implementation of Duolingo's AI capabilities for speech recognition and customized feedback, the study intends to examine if regular app usage produces tangible enhancements in the pronunciation precision and speaking abilities of Saudi EFL students. The researchers aim to evaluate students' motivation to use the app for learning purposes and how consistent practice affects language learning. Furthermore, the findings of this study could serve as a foundation for future studies on integrating technology into language education, helping educators design more effective strategies to enhance the speaking skills of their students.

This research adds to the EFL context because it addresses a common challenge faced by Saudi EFL learners: limited opportunities to practice and improve their pronunciation and speaking skills through traditional instruction alone. By evaluating the effectiveness of the Duolingo app, which incorporates AI-powered speech recognition and personalized feedback, the study explores how technology can supplement conventional teaching methods and offer learners consistent, individualized speaking practice. It not only assesses measurable improvements in pronunciation accuracy and fluency but also examines students' motivation and willingness to engage with the app as a

learning tool. The novelty of this study lies in its specific focus on the impact of Duolingo's speaking features within the Saudi EFL context, an area that remains underexplored. Furthermore, by considering both linguistic outcomes and learner engagement, the study offers a comprehensive perspective on how mobile-assisted language learning can be integrated effectively into modern language education.

2. Literature Review

In the past few decades, the importance of technology in language learning has attracted more and more focused researchers. Moreover, there is an increasing amount of literature verifying that mobile applications can efficiently improve EFL learners' speaking and pronunciation abilities. This part provides a literature review of computer-assisted language learning (CALL), mobile-assisted language learning (MALL), and the use of Duolingo as a tool to enhance EFL learners' pronunciation and speaking skills.

2.1 Technology in Language Learning: CALL and MALL Approaches

2.1.1 Computer-Assisted Language Learning (CALL)

CALL is increasingly viewed as an effective approach in EFL learning and acquisition. [2] divided CALL into three stages: behaviorist CALL, communicative CALL, and integrative CALL. During its present stage, CALL utilizes multimedia, artificial intelligence, and interactive applications to enhance learner personalization. According to research, CALL facilitates language learning, motivation, and learner autonomy[3]. Specifically, studies indicate that speech recognition software and interactive drilling in CALL courses significantly improve learners' pronunciation and speaking accuracy [4].

2.1.2 Mobile-Assisted Language Learning (MALL)

With the advent of smartphones, mobile-assisted language learning (MALL) is now a common phenomenon in the acquisition of second languages. Mobile apps provide ubiquitous access, flexibility, and customized learning experiences [5] [6]. EFL learners have on-the-go learning experiences because they can practice listening, speaking, and pronunciation on their own time. Research has found that MALL promotes greater speaking confidence and engagement, particularly with learners who may feel anxious in traditional classroom settings [7] [8]. .

2.2 The Role of Pronunciation and Speaking Skills in EFL Learning

Effective English communication is very much dependent on pronunciation and speaking skills. Pronunciation is one of the key factors of speech intelligibility, and poor pronunciation can lead to confusion even if a speaker has good grammar and vocabulary skills [9], [10]. [11] stressed the importance of stress, intonation, and rhythm in delivering natural and intelligible speech. Even though [12] and [13] expressed that students' lack of knowledge of the English language and the dominance of the mother tongue accent, them to pronounce English words incorrectly.

Traditional approaches to teaching pronunciation, such as phonetic drills and classroom repetition, have been widely criticized as tedious and limited in offering individualized feedback to students in correcting their pronunciation issues [14]. It is for this purpose that interactive computer-based programs and applications have been designed to provide individualized feedback to enable students to locate and correct their pronunciation mistakes. It is possible through this to ascertain the degree to which AI assists in the English language learning process [15] [16].

2.3 The Effectiveness of Duolingo in EFL Learning

2.3.1 Overview of Duolingo

Duolingo is a well-known language-learning application that offers a gamified language-learning process. It also features speech recognition technology for evaluating and providing immediate feedback on pronunciation. The app offers interactive exercises in vocabulary, grammar, and pronunciation that encourage daily practice [17]. Gamification has shown promise as an effective strategy for increasing user motivation, promoting positive behavioral shifts, and creating engaging learning or work environments [18]. By integrating game-like elements such as rewards, points, and leader boards, it can stimulate a sense of achievement and drive individuals to stay committed to their goals.

2.3.2 Previous Research on Duolingo in EFL Learning

Numerous studies have been conducted to see how effective Duolingo is in enhancing various language skills [19]. In a study, [20] established that students who used Duolingo improved significantly in listening comprehension and vocabulary gain. [21] did a large-scale study and established that 34 hours of use of Duolingo was equivalent to one semester of university-level language learning.

In speaking and pronunciation, research has shown mixed but generally positive results. [4] found that speech recognition systems allow students to self-identify and self-correct pronunciation errors. Some research, however, argues that while Duolingo enhances word-level pronunciation, it may be less effective in teaching connected speech, intonation, and natural fluency [22]. This limitation is especially relevant for Saudi EFL learners, whose L1 phonetic inventory differs significantly from English, particularly in vowel length, certain consonantal sounds (e.g., /p/ vs. /b/), and stress-timing; potentially making the absence of detailed, phonetic-level feedback a greater challenge.

2.3.3 Duolingo and Pronunciation Training

Speech recognition technology-based pronunciation practice has been one of Duolingo's greatest strengths. Studies indicate that apps providing real-time feedback on pronunciation mistakes are more effective in helping students improve their mispronunciation than classroom instruction [23]. Duolingo encourages repetition and self-correction, which engrains correct patterns of pronunciation over time.

Benefits of Duolingo for pronunciation and speaking improvement:

Immediate Feedback: The app identifies mistakes in pronunciation and provides tips to correct them.
Gamification: Reward system raises motivation and participation.
Repetitive Practice: Pre-defined exercises of progressive intensity strengthen correct pronunciation through repetition.
Low-Anxiety Learning Environment: Practice speaking privately in a stress-free environment to eliminate embarrassment, thereby reducing language anxiety [24].
However, some disadvantages have been found. For example, Duolingo's speech recognition does not provide detailed articulatory feedback or phonetic visualizations, and it often registers "correct" responses even when subtle pronunciation errors persist. This is particularly problematic for Saudi learners, who may require explicit guidance to master sounds absent in Arabic. Moreover, some learners tend to engage passively with listening activities rather than actively practicing speaking, limiting the tool's effectiveness.

2.3.4 Comparison with Other MALL Tools

In comparison to other mobile-assisted language learning (MALL) applications, such as Elsa Speak, Duolingo's speech recognition tends to be less detailed. Elsa Speak provides more precise phoneme-level assessments, visual guidance on mouth movements, and focused drills to address pronunciation challenges. It offers features that can be particularly advantageous for learners experiencing first language interference. Although Duolingo stands out for its engaging design and balanced coverage of multiple language skills, its broad, generalist approach may not deliver the same depth of corrective feedback as specialized pronunciation tools. Consequently, in Saudi EFL settings, Duolingo may serve best as a motivational and supplementary resource rather than as the sole method for pronunciation training.

2.3.5 Studies on Duolingo's Impact on Saudi EFL Learners

The effectiveness of Duolingo for Saudi EFL learners has not been widely studied, but recent studies have investigated the role of computer resources in building English competence. For instance, [1] investigated the effectiveness of Dulingo in improving the different English skills: writing, reading, speaking, listening, and vocabulary in his study of Saudi EFL students' perception of Dulingo.
In addition, [25] studied the impact of mobile applications on the pronunciation of Saudi students and found out that students using speech apps like Duolingo consistently demonstrated greater pronunciation accuracy than those using traditional instruction.
Yet another study by [26] examined Saudi university students' perceptions of AI and determined that the majority of participants indicated that AI applications are engaging and effective in pronunciation practice, notably because of their adaptability and self-paced learning environment.
This current research builds on those results using experimental studies with a goal to determine whether Duolingo significantly enhances Saudi EFL learners' pronunciation and oral performance over a longer period under controlled conditions.
There is evidence in favor of Duolingo's effectiveness in language learning, particularly pronunciation practice through speech recognition technology and gamification. However, there are some studies that have recognized flaws in its feedback system and linked speech training, particularly for learners whose L1 differs phonetically from English. By situating Duolingo within a broader MALL landscape and considering its specific applicability to Saudi learners, this study offers practical insights for integrating mobile-assisted pronunciation training into EFL classrooms.
It aims to address the following research questions:

1. To what extent does the use of Duolingo improve the pronunciation accuracy of Saudi EFL students?
2. How does Duolingo impact the speaking fluency and intelligibility of Saudi EFL learners?
1. What are the perceptions of Saudi EFL students regarding the effectiveness of Duolingo in improving their pronunciation and speaking skills?

3. Methodology

This experimental study aims to investigate the effectiveness of the Duolingo application in improving the pronunciation and speaking skills of Saudi EFL learners. The methodology part outlines the research design, participants, materials, procedures, data collection instruments, and data analysis techniques used in the study.

3.1 Research Design

A pre-test and post-test quasi-experimental design was used to assess the effectiveness of the Duolingo app. The design involves testing the speaking and pronunciation skills of the participants before and after using the app for 6 weeks. The experiment was divided into an experimental group, which used the Duolingo app as part of their language practice, and a control group, which did not use the app but followed the conventional language learning practice.

3.2 Participants

The participants were 130 Saudi EFL students enrolled in the Preparatory Year Program at Najran University in Saudi Arabia. Their age ranged between 18-22, and they are all females since the researchers work in the female section and due to some constraints in collecting the data from the male section. In Saudi Arabian universities, male departments are separated from female departments, which makes it hard to conduct research in the male departments. Limiting the study to female Saudi EFL learners means the findings may not generalize to male students, who could differ in motivation, engagement, or responsiveness to Duolingo. The students were randomly assigned to one of two groups:
Experimental Group (65 students): These students were given access to the Duolingo app for a period of 6 weeks and were instructed to complete a set amount of speaking exercises each week.
Control Group (65 students): These students continued with their regular English curriculum, which involved traditional in-class speaking practice without the use of Duolingo or any other language learning apps.

3.3 Materials

The following materials were used in this study:

Duolingo App: The experimental group used the Duolingo app for a period of 6 weeks. The app's speech recognition and interactive speaking exercises were employed to assess pronunciation and speaking skills. Duolingo provides instant feedback on pronunciation, helping learners practice speaking in context.
Pre-test and Post-test: These were developed specifically for this study to assess the participants' pronunciation and speaking skills before and after using Duolingo.
The pre-test and post-test consisted of three main sections:
Pronunciation of Individual Sounds (Phonemes): Participants were required to read a list of words to assess their ability to pronounce specific sounds correctly.
Stress and Intonation: A set of sentences was provided, where participants had to focus on stress and intonation patterns.
Short Dialogue: A short conversational dialogue was provided for participants to read aloud, simulating a real-life speaking scenario.
Assessment Rubric: A rubric was developed to evaluate pronunciation on several criteria, such as:
Clarity (whether the word is easily understood)
Accuracy (whether sounds are produced correctly)
Intonation (whether the correct pitch and rhythm are used)
Stress (whether the stress patterns in multi-syllable words and sentences are correct)
Survey: A survey was administered to participants at the end of the study to measure their perceived effectiveness of Duolingo for improving their speaking skills, as well as their attitudes toward using the app.

3.4 Procedures

1. Pre-test Administration:
The study began with the administration of the pre-test to both the experimental and control groups. This test was used to assess the participants' initial pronunciation and speaking abilities.
2. Experimental Group Training:
The experimental group was instructed to use the Duolingo app for 20 minutes per day for 6 weeks. The focus was on exercises that involved speaking and pronunciation. These exercises included:
a. Listening to and repeating words and sentences.
b. Speech recognition tasks where the app would evaluate pronunciation.
c. Pronunciation tips provided by the app based on user performance.
3. Control Group Training:
The control group did not use the Duolingo app. Instead, they followed a traditional curriculum that included speaking exercises in class with feedback from the instructor, focusing on pronunciation and conversation practice through role-playing activities, group discussions, and direct teacher-student interactions. Speaking exercises included role-playing scenarios (e.g., ordering food, job interviews, and giving directions), pair and group discussions on familiar and academic topics, and dialogue reading to practice stress and intonation patterns. Students engaged in these activities approximately three times per week over the six weeks.
4. Post-test Administration:
After the 6 weeks, both groups were administered the post-test, which was identical to the pre-test. This test measured any improvements in pronunciation, stress, intonation, and overall speaking fluency.
5. Survey:
After the post-test, the experimental group completed a survey that asked about their experience with the Duolingo app, its effectiveness in improving their speaking and pronunciation skills, and their overall satisfaction with the app. The survey also included questions about their motivation and willingness to communicate in English.

3.5 Data Collection Methods

The following data collection methods were used to gather both quantitative and qualitative data:
1. Pre-test and Post-test Scores:
The pre-test and post-test results were used to evaluate improvements in pronunciation and speaking skills. The tests were scored based on the established rubric.
2. Survey Results:
The survey responses from the experimental group were analyzed to assess their perceptions of Duolingo's impact on their speaking and pronunciation skills.
3. Teacher Feedback:
For the control group, the instructor's feedback and observations of students' speaking progress were also recorded and compared to the experimental group.

3.6 Data Analysis

The data were analyzed using both quantitative and qualitative methods:
Quantitative Analysis:
The pre-test and post-test scores for both groups were analyzed using paired sample t-tests to determine whether there were significant differences in pronunciation and speaking abilities between the pre-test and post-test. Additionally, independent sample t-tests were conducted to compare the experimental group's improvement with that of the control group.
Qualitative Analysis:
The survey responses were analyzed using thematic analysis to identify patterns and themes related to students' experiences with Duolingo, their perceived improvements, and their motivation for learning.

3.7 Ethical Considerations

Informed Consent: All the participants were provided with an informed consent form stating the purpose of the study, procedures to be conducted, and the rights of the participants. Participation was voluntary, and the students were guaranteed their answers would remain confidential.
Confidentiality: All data collected was anonymized, and participants' identities were protected.
Right to Withdraw: The participants were told that they could withdraw from the study at any time without penalty.
This research design ensures a rigorous and controlled method of measuring the impact of the Duolingo app on improving Saudi EFL learners' pronunciation and speaking skills. By using pre-tests, post-tests, and student surveys, the study aims to provide conclusive evidence of the impact of the app on language learning outcomes.

4. Results

4.1 Pre-test and Post-test Results

The pre-test and post-test assessed three main areas of pronunciation and speaking: pronunciation of individual sounds (phonemes), stress and intonation, and short dialogue fluency. The scores for each participant were recorded on a 5-point scale based on clarity, accuracy, stress, and intonation. The results are summarized in the tables below.

Table 1: Pre-test and Post-test Scores for the Experimental Group

Test Area	Pre-test Mean Score	Post-test Mean Score	Improvement	Statistical Significance (p-value)	Cohen's d
Pronunciation of Individual Sounds	2.8	4.1	+1.3	0.0005 (Significant)	1.15 (large)
Stress and Intonation	3.0	4.2	+1.2	0.0010 (Significant)	1.15 (large)
Short Dialogue Fluency	3.2	4.3	+1.1	0.0020 (Significant)	0.95 (large)

The experimental group showed significant improvements in all three areas. The largest improvement was in the pronunciation of individual sounds, with an increase of 1.3 points (from 2.8 to 4.1), followed by stress and intonation (1.2 points) and short dialogue fluency (1.1 points). The effect sizes for all areas were large (Cohen's $d > 0.8$), indicating that the improvements were not only statistically significant but also practically meaningful.
In addition, the statistical analysis revealed that the differences between the pre-test and post-test scores were highly significant ($p < 0.05$), suggesting that Duolingo effectively contributed to enhancing the students' speaking and pronunciation skills.

Table 2: Pre-test and Post-test Scores for the Control Group

Test Area	Pre-test Mean Score	Post-test Mean Score	Improvement	Statistical Significance (p-value)	Cohen's d
Pronunciation of Individual Sounds	3.0	3.3	+0.3	0.12 (Not Significant)	0.25 (small)
Stress and Intonation	3.2	3.4	+0.2	0.18 (Not Significant)	0.18 (small)
Short Dialogue Fluency	3.1	3.5	+0.4	0.15 (Not Significant)	0.30 (small)

The control group exhibited minor improvements in their speaking abilities over the 6 weeks, but these changes were not statistically significant ($p > 0.05$). Effect sizes were small (Cohen's $d < 0.3$). However, the lack of significant improvement suggests that traditional in-class speaking activities were not as effective in enhancing the students' pronunciation and speaking fluency as the Duolingo app.

4.2 Perceptions of Students Toward Using Duolingo

After the completion of the post-test, students in the experimental group completed a survey to express their perceptions of the Duolingo app's effectiveness in improving their speaking skills. The responses were recorded on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). The following table summarizes the survey results.

Table 3: Students' Perceptions Toward Using Duolingo

Survey Question	Mean Score (out of 5)
Duolingo helped me improve my pronunciation.	4.4
Duolingo encouraged me to practice speaking regularly.	4.5
I found Duolingo's speech recognition feature helpful in improving my pronunciation.	4.6
Using Duolingo made me feel more confident in speaking English.	4.3
I would recommend Duolingo to others for improving speaking skills.	4.7
I enjoyed using Duolingo to practice speaking.	4.5

The survey results show that students in the experimental group had positive perceptions of Duolingo as a tool for improving their speaking skills. The highest-rated statement was "I would recommend Duolingo to others for improving speaking skills", with a mean score of 4.7, suggesting that students found the app valuable and effective. Students also rated the speech recognition feature highly, with a mean score of 4.6, indicating that they felt the app's feedback on their pronunciation was instrumental in their progress.

4.2.1 Thematic Analysis of Survey Responses

As part of the post-intervention survey, students answered an open-ended question inviting them to share their experiences and perceptions of using Duolingo for speaking and pronunciation practice. A thematic analysis of these responses revealed three key themes that illustrate how the app influenced learner engagement, confidence, and awareness of pronunciation.

Motivation through Gamification: Students consistently mentioned that certain features in Dulingo, such as points, streaks, and progress tracking, motivated them to practice regularly. Student. S mentioned: “I wanted to complete my daily target because I didn’t want to lose my streak—it made me open the app every day”.

Confidence in Speaking: Many students reported that practicing privately with the app reduced their anxiety about speaking in front of others. Student. D: “I practiced saying the words many times, so I felt more ready to talk without being shy”.

Awareness of Pronunciation Accuracy: Students valued Duolingo’s immediate feedback, which helped them recognize and correct specific pronunciation errors that might have gone unnoticed in traditional classroom settings. As Student M said: “The app told me exactly when I said the sound wrong, so I could fix it right away”.

5. Summary of Findings

The pre-test and post-test results indicate that Duolingo played a significant role in the pronunciation and speaking fluency of Saudi EFL learners. The experimental group showed significant improvement in all aspects measured, with notable improvement being observed in pronunciation accuracy. The control group did not demonstrate significant improvements within the same period.

Additionally, the students' survey responses reflected strong positive perceptions toward Duolingo, particularly in terms of its effectiveness in encouraging regular practice, improving pronunciation, and boosting confidence in speaking English.

6. Discussion

The results of this study confirm that the use of the Duolingo app has had a positive impact on the pronunciation and speaking skills of Saudi EFL learners. The experimental group, who trained with Duolingo for 6 weeks, showed measurable gains in their ability to pronounce individual sounds, stress patterns, and overall speaking fluency when compared to their initial pre-test scores. These improvements were also seen in the comparison between the post-test scores of the experimental group and the control group, which did not employ the application. The improvement is compatible with that of [5] in which they compared the English-speaking skills of college students before and after using AI tools.

Improvement in Pronunciation of Individual Sounds

One of the most noticeable differences in the experimental group was in their pronunciation of individual English sounds. Students improved significantly in vowel sounds (e.g., the difference between "sheep" /ʃiːp/ and "ship" /ʃɪp/) and consonant sounds (e.g., the "th" sound in the word "through" /θruː/). Duolingo's speech recognition feature was crucial to this improvement through its instant feedback and correction. Students were asked to repeat words and sentences multiple times until the app accepted their pronunciation as correct, allowing them to master their speech gradually.

Duolingo's game-based setting also enabled students to practice consistently, which was likely to be the cause of the gains registered. Since students completed daily lessons and got immediate feedback, they could correct mistakes and internalize accurate pronunciation patterns, which resulted in more accurate and natural-sounding English phoneme production. It meets the results of [27] Using AI applications can help students by providing instant feedback on their pronunciation mistakes.

Enhancements in Stress and Intonation

Another aspect that improved was stress and intonation. The experimental group students had better control over sentence stress, stressing key words in sentences such as "I'm going to the store" and "Can you help me with this?". Their modulation of intonation, particularly in question and statement sentences, also showed great improvement. Duolingo's interactive courses, frequently requiring students to match speech patterns and repeat sentences with correct stress, helped to solidify these important features of natural speech.

The ability to listen and mimic native speakers in the program enabled students to learn a more native-like intonation and rhythm. This type of learning experience is especially helpful for non-native speakers since it gives them a chance to listen and practice natural speech that may not be easily taught in regular classroom instruction. That meets with results from [23] study in that using computer-assisted pronunciation training would help to improve all speaking skills.

Increased Fluency and Confidence in Speaking

One of the more significant findings in this study was the enhancement in the experimental group's fluency in speaking English. The practice of speaking consistently available through Duolingo provided students with a platform to incrementally develop the confidence to speak English. Fluency was observable in the post-test interviews, where students spoke fluently and made fewer hesitations than they did during the pre-test. Most students reported that they were more comfortable speaking English once they had employed the app, through their survey responses.

Duolingo's adaptive mechanism was the key to all this progress. Through fluctuating exercise difficulty levels based on individual performance, the app permitted students to challenge themselves but not be overwhelmed. Through this tailored level of challenge, they were retained for the long term, as their overall speaking ability came on in small increments. This result agrees with that of [28] in that EFL students feel confident, encouraged, and less anxious when using AI applications.

Comparison with the Control Group

When the control group and the experimental group were compared, improvements in the experimental group were statistically significant. Even though the control group improved its pronunciation and fluency of speaking slightly, they were not comparable to the improvements made by the experimental group. The control group learners, who were training with traditional in-class exercises, did not receive the same level of frequency of individualized feedback and targeted speaking practice as Duolingo. Although they were doing a daily speaking exercise, these did not offer the same rate or level of targeted corrective feedback as the Duolingo app.

Also, the control group was not given access to a platform for regular, autonomous practice. Without access to such an engaging and interactive tool, their progress might have fallen behind that of the other group.

Students’ Perceptions and Motivation

The experimental group also documented the enabling impact of Duolingo in inspiring and motivating students to study languages through their survey. The majority of the students responded that they liked the gamification and interactive aspects of the app because they felt a

sense of accomplishment after they did speaking drills and received instant feedback. Students have stated that they found the app enjoyable to study from and helped them to rehearse speaking English in a casual, one-on-one environment, which increased their confidence level when speaking the language. This result agrees with that of [1] in that students have a positive impact on using Dulingo as an English learning tool.

Besides, the flexibility of Duolingo allowed students to practice speaking anytime and wherever they wished, accommodating their own schedule and making it easier to integrate speaking practice into their daily routines. Such accessibility likely contributed to the greater level of speaking practice and, consequently, the acquisition of speaking skills.

7. Conclusion

In conclusion, the findings of this study indicate that Duolingo can serve as an effective tool for improving Saudi EFL students' speaking and pronunciation. The app's speech recognition, instant feedback, and gamified learning enabled the students to be actively involved in a personalized process that facilitated frequent practice and improvement. The results also suggest that Duolingo can enhance traditional language learning by offering additional speaking practice beyond the classroom setting, thereby accelerating the attainment of critical speaking skills such as pronunciation, fluency, and intonation.

The success of the experimental group in this research indicates that language-learning software like Duolingo has excellent potential in assisting EFL students in developing their speaking skills, especially in combination with regular, focused practice. These findings indicate that instructors can consider incorporating Duolingo into their instructional practices to allow the students to have more chances at speaking practice, which will contribute to their overall language ability. Future research could investigate Dulingo's effectiveness for a broader and more diverse population of learners. It could also explore Duolingo's effectiveness over a full academic year or compare it with tools like Elsa Speak to assess relative strengths in pronunciation training.

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