DEVELOPING PRONUNCIATION SKILLS FOR HIGH SCHOOL STUDENTS THROUGH THE DUOLINGO APPLICATION

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ABSTRACT

English has grown in popularity and is now taught in many schools and used in everyday life in many nations. It has received attention and is now considered a fundamental ability for all students. Additionally, there has been a growing emphasis on helping pupils improve their pronunciation. The efficacy of the Duolingo in helping high school students improve their pronunciation was examined in the research that followed. Based on a 7-week experimental process at a high school, 50 students participated simultaneously. They were divided into two groups. With the control group, they studied according to the traditional teaching method at school. Meanwhile, the remaining 25 students in the experimental group used the Duolingo app to support their pronunciation skills. Data collection methods included pre-test and post-test to evaluate the results before and after the experiment. A questionnaire was designed to survey the difficulties that students encountered in the process of learning phonetic skills. A series of findings and monitoring have shown that the Duolingo is really effective and has a positive impact on students. This study indicated the Duolingo's benefits and its potential for development when integrated into general education programs and education as a whole. At the same time, the study shows that Duolingo has made important contributions to becoming a creative tool that is accessible to various disciplines, as well as innovating and fostering effective and exciting learning experiences.

Keywords: English teaching, pronunciation, Duolingo, Mobile-Asisted Language Learning.

1. INTRODUCTION

It is clear that pronunciation is the most obvious and reliable indicator of a person's linguistic competence. In general, mispronunciation or improper pronunciation will create inconvenience and impede communication. Furthermore, mispronunciation causes unneeded misunderstandings and might result in a lack of sympathy for the other person. Observing someone talk and paying attention to their pronunciation is an easy way to determine whether or not they are utilizing language properly. Hismanoglu (2006) claimed that pronunciation education is essential and strongly related to communication teaching. Pronunciation is necessary for effective communication. Indeed, a productive dialogue requires that the information heard and received be clear and meaningful. Pronunciation skills are incredibly useful, influencing the underlying foundation of the language. As a result, a person with low language skills is unable to enunciate appropriately and communicates in an odd manner. In short, speech skills require practice and growth. To accomplish the ultimate aim of being able to utilize English effectively, students must enhance their pronunciation.

The typical teaching technique at school still prioritizes theoretical underpinnings over practice. However, English pronunciation necessitates active learning by learners. Only long-term practice can correct speech faults. However, a school class lacks the necessary time and space to work.

Furthermore, traditional training methodologies have made pronouncing skills boring, necessitating innovation and originality in both teaching and learning methods (Santoso et al., 2019). Indeed, Chuyen et al. (2021) argued that many Vietnamese high school students are unable to pronounce correctly due to the traditional teaching method, which is highly theoretical and lacks practical application. Nguyen (2019) agreed that children struggle with pronunciation due to a lack of assistance in school, making mastering this skill the most difficult component of learning English. To summarize, due to the substantial theoretical aspect of education, teaching English pronunciation remains limited.

Nowadays, mastering English pronunciation is not as straightforward as traditional classroom training. The emergence of mobile applications has significantly improved students' experiences studying English pronunciation. Duolingo has been ranked as one of the top language learning apps available today. Duolingo has changed the way people learn English pronunciation by providing interesting and novel experiences. After conducting a number of relevant studies on the types of assignments available on Duolingo, Mahmudah (2015) found that it is an effective instrument for promoting accurate English pronunciation. Based on that, the purpose of this study was to look into the impact of the Duolingo app on the pronunciation skills of high school pupils.

2. LITERATURE REVIEW
2.1. Definition of pronunciation

In a language, pronunciation consists of intonation, emphasis, and rhythm. These are the fundamental principles of learning any language. They also play an important role in pronunciation and serve as the foundation for all languages. It has been demonstrated throughout history that humans learnt to speak before they learned to write, emphasizing the importance of learning perfect pronunciation as the first and most fundamental step toward mastering any language.

According to Nunan (2003, p. 113), pronunciation is the ability to make specific and meaningful sounds that can be comprehended by listeners in a given language. On the other hand, Paulston and Burder (1976) defined pronunciation as the process of producing a meaningful sound system based on the speaker's and listener's perspectives. It does not disrupt communication between the two parties. Furthermore, it is regarded as a means by which others assess and evaluate learners based on their capacity to understand language while talking. From there, they can develop suitable treatment strategies and achieve effective communication objectives (Goodwin, 2001, p. 117; Rahimi, 2008, p. 55).

Furthermore, Dalton maintained that pronunciation can be understood in two ways. First, pronunciation is a closed-loop process that produces and receives sounds. This is a two-way process with the potential to influence each other. On the other hand, pronunciation is the production of sounds with the goal of achieving successful communication. Furthermore, Richard and Schmidt (2002) stated that pronunciation is the ability to create specific sounds in an understandable and effective manner in communication. Previously, Otlowski (1998) defined pronunciation as a method of speaking a word that is approved by all users of that language.

In short, pronunciation is a combination of segmental and suprasegmental sounds. Segmental sounds refer to all variants in English phonemes, such as diphthongs or monophthongs, consonants, and so on. Suprasegmental refers to more in-depth specialized areas outside the common syllable, such as stress, intonation, and other variations. At the same time, pronunciation in English must ensure that relevant content is received and transmitted in both directions in order for normal communication to be effective.

2.2 The importance of pronunciation

Pronunciation is tremendously crucial in the formation of language and life. Indeed, a relevant message can be understood mainly due to precise and clear pronunciation (Evers & Chen, 2020). Improving pronunciation requires daily practice; learners must constantly develop and enhance it through self-monitoring and having others correct them in order to increase their fluency and understanding (Thompson & Gaddes, 2005, p.1). Furthermore, Morley (1998) showed out that fluent and correct pronunciation boosts learners' confidence. Obviously, if they have limited pronunciation, it will have a bad impact on the students' spirits.

Kobilova (2022) acknowledged the importance of pronunciation, stating that accurate pronunciation can help learners become more confidence while interacting in a second language. At the same time, it prevents ambiguities when presenting information. In a previous study, Çakır & Baytar (2014) discovered that learners believe proper pronunciation is vital for language expression. It has a direct impact on the exchange of information in everyday life, particularly in specialized academic discourse.

2.3 Duolingo application

In the era of merging artificial intelligence and technology, tools to assist learners with pronunciation are not uncommon.Duolingo was created with the intention of enhancing learners' pronunciation skills. With topic-specific lessons that are repeated over and over, readers can quickly remember how to pronounce new words. In addition, the application includes a part for practicing each syllable and learning how to discriminate sounds with similar pronunciations in order to avoid confusion.

According to Savvani (2019), Duolingo is the most popular mobile application for language learners worldwide. Its strategy of ingeniously mixing courses with game titles and engaging classes readily generates interest and draws learners in. Edi Sunjayanto Masykuri (2022) noticed that Duolingo's system is incredibly convenient and user-friendly for learners. From there, it is clear that they are quite accessible to people of all ages.

The repeating of classes in Duolingo is purposeful. They help to improve pronunciation learning by making it easier to retain syllables. The usefulness of MALL (Mobile-Assisted Language Learning) in language learning has been evaluated. Vesselinov and Grego (2012) agreed that using Duolingo has helped learners enhance their language skills. Native accents, simple design, and tailored lessons ensure that learners have the greatest possible experience. Duolingo has dominated the market for language learning support tools.

3. METHODOLOGY

3.1. Research questions

The study provided two questions for analysis and investigation:

(1)   What are the difficulties that high school students encounter when learning English pronunciation?

(2)   How does Duolingo application affect high school students' English pronunciation?

3.2. Participants

To provide the most objective results, the study focused on a specific subject among grade 11 students at Thai Nguyen High School. This is a set of subjects appropriate for the research purpose since they are easy to gather information and survey.

The study chose 50 grade 11 students to participate in the trial. They all had the same grade level and level of English. The number was divided equally between two groups. The study used the Duolingo application and required the experimental group to log in every day to ensure that the experimental results were objective and correct.

On the contrary, the control group continued to acquire pronunciation in the same way as they would in school. The normal teaching approach was used to compare pupils in the control group to those in the experimental group. The study ensured that the two groups had equivalent English skills, allowing the experiment to go successfully.

3.3. Data collection instruments
3.3.1. Tests

Before beginning the experimental process, the pre-test was developed to examine the students' abilities. The pronunciation test is based on basic characteristics and assesses students' ability to distinguish between sounds that are spoken similarly and can be easily confused if not paid attention to. Furthermore, designing a pre-test that is appropriate for the students' skills is critical to ensuring that they can still handle the activities without exceeding their capabilities. Through this, it is possible to have objective assessments of the students' abilities and easily synthesize data for the experimental process later.

The post-test was designed similarly to the pre-test. The purpose was to evaluate the capacity to distinguish and correctly pronounce words with similar pronunciations. After a 5-week experiment, students used all of the knowledge they gained from using the Duolingo program in this final test. The study used pre- and post-experiment scores to compare and contrast and examine the effects of the Duolingo application on students' English speech skills. Furthermore, designing the pre- and post-tests at the same level ensured objectivity throughout the investigation.

3.3.2. Questionnaire

Before the pre-test, the researchers invited the experimenters to complete a Google Form survey to better understand the existing situation of students studying English pronunciation and the obstacles they faced. This was done with a specific number of experimenters to guarantee that they had the best possible experience during the trial. The survey questions are designed to help researchers answer specific study topics. All of these questions are exploratory in nature, with the goal of objectively assessing the existing status of pupils studying English pronunciation. Students discuss their obstacles in learning other languages and techniques for improving pronunciation. The closed answers are intended to survey students' interest in learning English pronunciation. Meanwhile, the open replies allow students to select their own solutions based on their own experiences and personal preferences.

3.4 Data collection procedure

The procedure of data collection is summarized into three main step as shown in the table below:

Table 1. The procedure of data collection

EXPERIMENT PLAN

Pre-Questionnaire	Questionnaire includes multiple-choice questions using Google Forms
Pre-test	Pre-test includes a mini pronunciation test.
Experiment	Take both general training and pronunciation training on the Duolingo application. (from week 2-week 6)
Post-Test	Post-Test includes a mini pronunciation test.

The experiment was just 6 weeks long due to schedule constraints. Before beginning, all 50 students were polled via questionnaire about their current position and attitudes about studying English pronunciation at school and outside of class. Then, both groups were given a pre-test to determine their level of participation in the experiment. The test was divided into two parts: minimal pairings, which involved distinguishing four pairs of words with identical pronunciation, and sentence reading, which involved reading five English phrases clearly. All students did not prepare for the test in advance so that the outcomes would be as objective as possible.

Students were divided into two groups: group A and group B. Group B was assessed using the Duolingo application, which required students to log in and study for at least 10 minutes each day. For six weeks, students used the application to practice both general conversation and pronunciation drills without pausing. Group A, on the other hand, continued to acquire English pronunciation using the standard method at school. Both groups comprised 25 students and shared the same language level.

Afterward, both groups of students conducted a final pronunciation test. The test was exactly like the pre-test they had taken previously. The findings from both groups were merged and then analyzed to determine the impact of the Duolingo app on students' pronunciation learning.

4. RESULTS AND DISCUSSIONS
4.1. The current situation of students' English pronunciation learning
Table 2. The results of students' pre-test and post test

Pre-test				Post-test			
Students' code	Marks	Students' code	Marks	Students' code	Marks	Students' code	Marks
B1	4	B14	3.5	B1	5	B14	4.5
B2	6	B15	4	B2	5.5	B15	4.5
B3	5.5	B16	8	B3	6	B16	8.5
B4	7	B17	5.5	B4	7	B17	6.5
B5	4.5	B18	6.5	B5	5.5	B18	7
B6	4	B19	4.5	B6	5	B19	5.5
B7	5.5	B20	3	B7	6	B20	4
B8	6	B21	5	B8	6.5	B21	4.5
B9	6.5	B22	5.5	B9	7	B22	6
B10	7.5	B23	6	B10	8	B23	6.5
B11	3.5	B24	7	B11	4	B24	7.5

| B12 | 5 | B25 | 4.5 | B12 | 5.5 | B25 | 4.5 |
| B13 | 6.5 | | | B13 | 6.5 | | |

When the outcomes of the experimental group's two pre-tests and post-tests are compared, the impact of Duolingo on students' English speech becomes obvious. The discrepancy in the students' starting points has shifted dramatically.

The group's pre-test scores ranged from 3 to 7.5 at the highest. Most students simply stopped at 4 or 6 points. In addition, three pupils received a score of 7 or higher, but none received a score of 8. These were the initial results before students began using the Duolingo application.

On the contrary, the post-test findings demonstrated that the Duolingo application is undeniably beneficial in improving students' English speech. The scores were entirely improved and ranged from 4 to 8.5, which was significantly different from the previous pre-test results. Notably, two pupils increased their results and exceeded the 8-point criterion. Moreover, three students scored 7 points. This is a positive indication and strong confirmation that the Duolingo program has significantly improved students' English pronunciation.

4.2. Data analysis from the Questionnaire

Using a questionnaire as a survey and assessment tool for the current state of English pronunciation learning among high school students. From there, the researcher developed new and groundbreaking discoveries in identifying the most significant difficulties to students' pronunciation development. Furthermore, the questionnaire utilized additional features on the edge, such as how students improved their own pronunciation and how they rectified errors when experiencing mispronunciation. Furthermore, students received objective assessments of themselves following extensive pronunciation learning at school and self-practice. From there, the researcher gathered the following findings and examined the quantitative data in the most intuitive manner.

Table 3. The issues that students encounter

STT	Issues	Agree	Neutral	Disagree
1	The activities in your pronunciation class are working for you.	48,4%	32,9%	18,7%
2	You want to pronounce correctly like native speakers.	82,3%	11,8%	5,9%
3	You think that pronouncing correctly is dificult for you	76,5%	13,7%	9,8%
4	You are afraid of speaking English because your pronunciation is not always correct.	80,5%	11,7%	7,8%

The data table above clearly shows that all students consider the approach of teaching English pronunciation in class is very successful and has an impact on them. However, this figure does not fully account for half of the experimental group. Furthermore, they are still cautious since they have not seen the efficiency of the traditional way in school. The rest are entirely opposed since they believe that this strategy is completely inappropriate for them.

Additionally, many students believe that their pronunciation is insufficient to speak confidently. Moremore, with more than 80% of students hoping they could pronounce accurately like native speakers, it is clear that the desire to pronounce English accurately and fluently is incredibly strong. However, the hurdles listed above have caused pupils to lose confidence when they see their pronunciation is limited. This has created communication barriers and made students self-conscious about their English proficiency in general, and English pronunciation in particular.

4.3. Data analysis from the tests

The findings of the pre-test and post-test revealed a significant difference in average scores between the control and experimental groups. With the same level and skill in English, the experimental group demonstrated a significant improvement in post-test scores after 5 weeks of learning with the Duolingo program. Overall, the effectiveness of the Duolingo application significantly influenced the experimental group's scores. It demonstrates that the application has promoted advantages that significantly outweigh the standard pronunciation teaching method in schools.
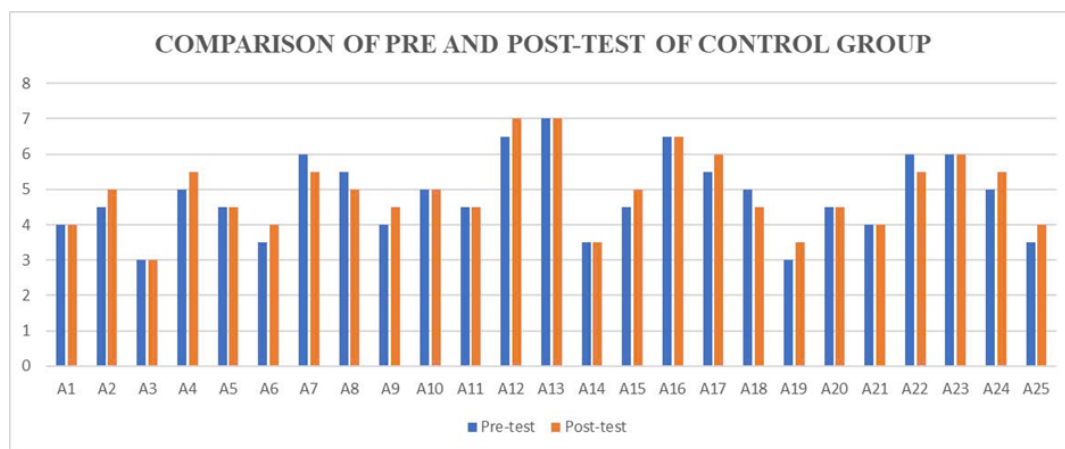

Figure 1. The results of pre and post-test of control group

Figure 1 shows that after pre-tests and post-tests, the control group did not change significantly. The data shows that a vast number of learners' scores have remained unchanged. Ten people's results remained unaltered, accounting for around 40% of the experimental group. The remaining group experienced a small increase in scores, with 9 people accounting for 36%. Furthermore, five students' scores decreased following the post-test. The traditional method clearly improves students' pronunciation skills. However, it is not necessarily successful for all learners. Traditional teaching methods lack the necessary practice, whereas pronunciation skills require more practicality and initiative on the part of the learner. This is the primary limitation of this training style.

As a result, traditional teaching methods in schools continue to have a favorable impact on students' English pronunciation. However, approximately half of all students maintain their scores. This demonstrates that the traditional pronunciation instruction method in schools only affects a small percentage of pupils and is ineffective for the majority of the remaining students. The effects of this strategy are still restricted and not appropriate for them. The time limits of a lesson, as well as the number of students who must be covered in class, make it impossible for teachers to closely supervise each person.
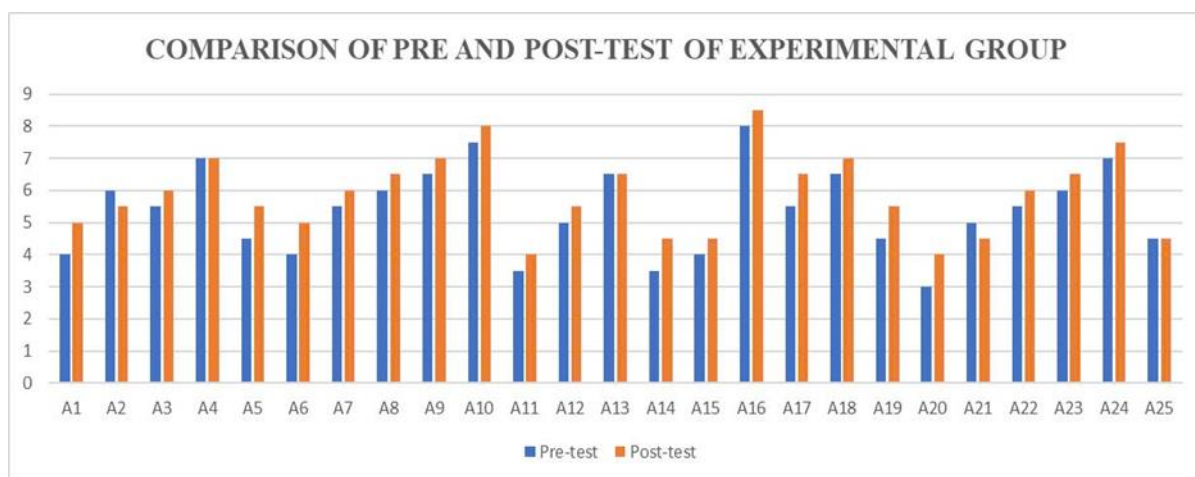

Figure 2. The results of pre and post-test of experimental group

According to Figure 2, the experimental group's results show a significant improvement after using the Duolingo application. Following the experiment, 20 learners improved their results. Notably, 7 learners, or roughly one-third of the total number of learners, improved by one point compared to the pretest. This statistic clearly demonstrates the effectiveness of the Duolingo program in boosting students' speaking skills. 80% of students improved their results. Indeed, the Duolingo application has increased its effectiveness by incorporating short lessons and a user-friendly layout. Students are all interested in using the application because of its user-friendly layout and lectures tailored to their level. Duolingo, with its blue owl mascot interface, constantly urges students to complete lessons on time. This helps learners avoid distractions and interruptions while learning pronunciation. With the originality in the interface and the method of designing lessons with daily subjects, learners may easily absorb the teachings without difficulty. Furthermore, they can study totally on their own, without the need for someone to correct their pronunciation. This increased the application's effectiveness to the highest level, which had a good impact on the results of students' post-tests.
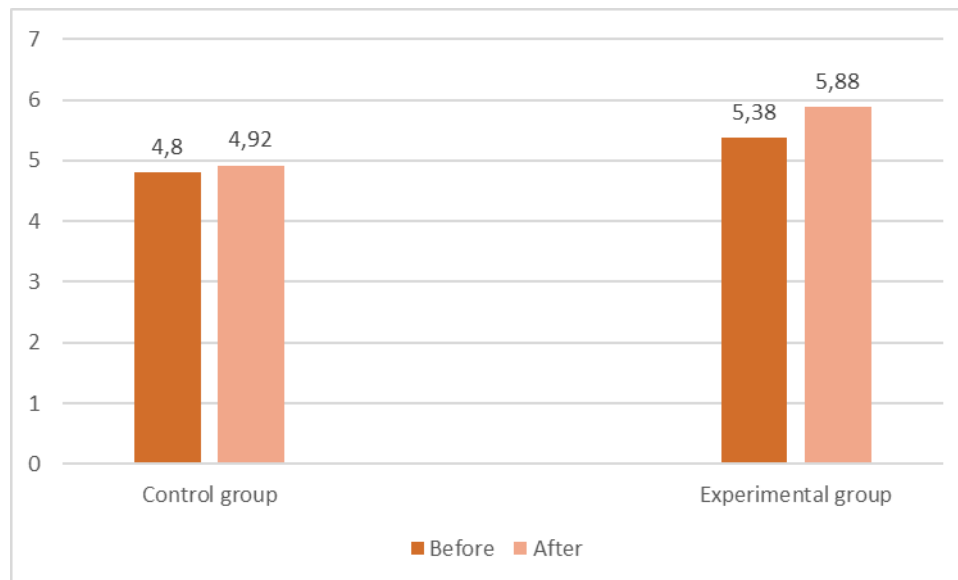
Figure 3. Students' average scores before and after the experiment

Figure 3 clearly illustrates the difference between the two groups following the pre- and post-tests. The control group's score grew only marginally, from 4.8 to 4.92, an increase of 0.12 points from the start. In comparison, the experimental group's difference is very evident. The average pre-test score of 5.38 increased by 0.5 to 5.88 following the post-test. The conclusion obtained here is that the Duolingo application has a significant favorable impact on students' English pronunciation. Traditional instructional approaches did not significantly improve their skills. The pre-installed lessons in Duolingo have shown to be quite effective, as seen by their user-friendly and simple interface. The application is quite useful and easy to use, and learners receive daily reminders on a regular basis. This allows the pronunciation learning process to continue uninterrupted. Furthermore, the program serves as a teacher by directly listening to student recordings and correcting pronunciation errors. This is a useful and energy-efficient function for teachers outside of class. Duolingo has addressed the most significant drawbacks of traditional teaching techniques by providing no time limit in a regular lesson, high practicality, and consistent practice intensity. All of which traditional teaching methods lack when focusing too heavily on theoretical foundations.

5. CONCLUSION
The findings above clearly demonstrate that the Duolingo application has improved students' English speech. With a simple and user-friendly interface, as well as a number of exceptional capabilities that only MALL (Mobile-Assisted Language Learning) in general, and the Duolingo application in particular, can provide. It eliminated students' uncertainty when learning pronunciation, addressed the most significant difficulty of a lack of natural environment, and greatly increased scores via two pre-test and post-test assessments. Technological advancements have alleviated the difficult challenges that traditional pronunciation schools face. Duolingo was founded with the goal of increasing language abilities for learners. With a number of remarkable

features, the findings clearly confirmed the application's efficiency in improving students' English speech. Many prior studies have strongly validated the effectiveness of this program.

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