

**MINISTRY OF INDUSTRY AND TRADE  
HANOI UNIVERSITY OF INDUSTRY**



**DUONG NGOC HAN**

**EXPLORING CHATBOT AI IN IMPROVING VOCATIONAL  
STUDENTS' ENGLISH PRONUNCIATION**

**MASTER THESIS IN ENGLISH LINGUISTICS**

Hanoi, 2024

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**MASTER THESIS IN ENGLISH LINGUISTICS**

**SUPERVISOR: Dr. Hoang Ngoc Tue**

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**DECLARATION BY THE AUTHOR**

I hereby declare that I legitimately write this thesis. To the best of my comprehension, this thesis does not include any previously published information by anybody else, unless proper attribution has been made. Nothing in this thesis, whether in English or another language, has been accepted as a component of the requirements for any other higher education non-degree program. This is a true copy of the thesis, including final revisions.

Date: \_\_\_\_\_

**Signature of the student**

**Duong Ngoc Han**

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## **ABSTRACT**

With the rapid expansion of our globalized world, artificial intelligence has made remarkable strides, and its impact on education is becoming increasingly undeniable. Considering this, the current study attempts to find out how well vocational students enrolled in a Hanoi college can pronounce words correctly in English using Chatbot AI named MissionFluent (<https://missionfluent.com/>). The study included 60 individuals at level A1, using a quasi-experimental research approach. Surveys and interviews were conducted to gather information about their opinions and experiences with the chatbot AI intervention. When comparing the experimental group's English pronunciation to that of the control group, the study's findings show a considerable improvement. Research findings indicate that the integration of AI technology plays a significant role in enhancing students' motivation to engage in learning English pronunciation. Moreover, it has been observed that AI not only boosts students' motivation but also contributes to the enhancement of their pronunciation skills. The utilization of AI tools in language learning has shown promising results in fostering students' enthusiasm for mastering English pronunciation, leading to notable improvements in their overall pronunciation proficiency. This highlights the positive impact of AI on students' motivation levels and their ability to effectively develop their pronunciation skills in the English language. With a particular focus on improving English pronunciation, this study contributes to the limited number of research on the application of chatbot AI in vocational education. This research discusses the possible advantages chatbot AI may provide for enhancing vocational students' English speech abilities. Therefore, it is noteworthy that issues with MissionFluent usage and its financial consequences were noted. In conclusion, the study highlights the critical need for incorporating innovative technologies

into vocational language learning programs and the potential benefits of chatbot AI technology to enhance vocational students' English pronunciation skills. It highlights the need for educational institutions to embrace such technological advancements to create more effective and engaging learning environments for vocational students, ultimately equipping them with the necessary language skills to thrive in their chosen professions.



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**LIST OF ABBREVIATIONS**

AI	Artificial intelligent
L2	Second language acquisition
CEFR	Common European Framework of Reference for Languages
L2MSS	L2 motivational self-system

## INTRODUCTION

### 1. Rationale

Technology has revolutionized the field of English language teaching, particularly in the realm of speaking and pronunciation. In today's digital era, educators and language learning platforms are leveraging advanced tools to augment language acquisition. The integration of virtual classrooms, video conferencing, and interactive language apps have become commonplace, enabling learners to engage in real-time practice and enhance their pronunciation skills (Smith, 2018).

These technological advancements offer students access to authentic resources and the opportunity to engage in online conversations with native speakers, fostering an immersive language learning experience (Jones et al., 2019). Moreover, learners can receive immediate feedback on their pronunciation, thanks to speech recognition software and AI-powered language tutors (Johnson & Smith, 2020). These tools analyze learners' accents and provide personalized guidance, empowering them to refine their spoken English skills.

By incorporating technology into English language teaching, educators create a dynamic and flexible learning environment that promotes learner autonomy and confidence in navigating the complexities of spoken English (Brown, 2017). Traditional methods of teaching pronunciation often fall short of providing personalized feedback and consistent practice. However, the emergence of chatbot AI presents an innovative approach to address these limitations. AI chatbots create personalized interactive exercises that mimic real-life conversations, offering learners exclusive chances to enhance their pronunciation skills through targeted practice (Yuan, 2023).

While the potential of chatbot AI in various educational contexts has been recognized, its application within vocational education settings remains relatively unexplored. Therefore, it is crucial to explore how chatbot AI can enhance English pronunciation among vocational students. This research endeavor holds significance for educators, curriculum developers, and policymakers who seek effective strategies to optimize language learning outcomes (Smith & Johnson, 2021). By investigating this area, we can identify potential solutions that specifically address the challenges faced by vocational learners.

Understanding the impact of chatbot AI on English pronunciation in vocational education settings can lead to the development of tailored interventions and instructional approaches. For example, regular pronunciation assessments using chatbot AI can be implemented to identify areas of improvement for learners (Yang et al., 2022). These assessments can evaluate individual sounds, stress patterns, intonation, and rhythm. Based on the assessment results, targeted interventions can be developed. During pronunciation practice, chatbot AI can provide immediate error correction and feedback, highlighting specific pronunciation errors and offering explanations or alternative pronunciations to help learners correct their mistakes (Ruan et al., 2021). Additionally, chatbot AI can create personalized learning paths for individual learners based on their specific pronunciation needs and goals, analyzing their performance and progress to adapt instructional content and provide targeted practice materials (Rusmiyanto et al., 2023). It is important to note that these interventions and instructional approaches should be used alongside qualified instructors who can provide guidance, support, and additional feedback to learners. The chatbot AI should serve as a supplementary tool to enhance pronunciation instruction in vocational education settings.

These interventions can cater to the unique needs and goals of vocational students, ultimately improving their language proficiency and employability prospects (Khare et al., 2018). Additionally, insights gained in this research can inform the design and implementation of future language learning technologies, ensuring their effectiveness and relevance in vocational education.

In Vietnam in recent years, AI has been rapidly growing with strong government support and collaboration between academia and industry. The country has taken steps to encourage AI research, innovation, and adoption. Consequently, there has been an increase in AI research institutions and businesses, focusing on various domains such as healthcare, agriculture, finance, and manufacturing. They utilize AI technologies like machine learning, natural language processing, and computer vision to create tailored solutions.

Collaboration between academia and industry plays a vital role, as universities and research institutes actively engage in AI research, talent development, and training programs. Generally, Vietnam is on a positive trajectory towards becoming a regional AI hub. Sustained efforts and investments, along with government support, the emergence of startups, and collaboration between academia and industry, contribute to economic growth and technological advancement.

Additionally, artificial intelligence (AI) is being used in education for purposes other than administrative work. For example, it is being utilized to automate grading and assessment procedures, which saves teachers time and produces reliable evaluations. AI algorithms can evaluate student responses and provide immediate feedback, allowing students to track their progress and make required corrections.

Artificial Intelligence is used in language learning programs to improve pronunciation practice and give users immediate feedback. Through an immersive and interactive method, learners can enhance their language acquisition and fluency by merging AI algorithms with speech recognition technology.

Overall, the role of chatbot AI in education in Vietnam is steadily expanding, with a particular focus on personalized learning, administrative automation, intelligent tutoring systems, and language learning applications. Despite the existing challenges, the potential advantages of AI in augmenting teaching and learning experiences are substantial. To further propel the growth of AI in education in Vietnam, continuous investment and support in AI technology and infrastructure are essential.

In this study, an AI chatbot named MissionFluent (<https://missionfluent.com/>) will be employed to investigate the effects of AI on English language learning, specifically concerning pronunciation. MissionFluent offers an interactive platform where learners can practice speaking English, receive pronunciation feedback, and improve their language skills. Through this research, the study aims to uncover the precise impact of AI technology, represented by MissionFluent, on English language acquisition and pronunciation proficiency.

To summarize, technology has significantly transformed the teaching of English, particularly in the domain of speaking and pronunciation. The integration of virtual classrooms, video conferencing, interactive language apps, speech recognition software, and AI-powered language tutors has revolutionized language acquisition. By embracing these advancements, educators create a dynamic and immersive learning environment that empowers learners to refine their spoken English skills. Exploring the potential

of chatbot AI in vocational education settings is crucial for enhancing language learning outcomes and addressing the specific challenges faced by vocational students. Through this exploration, we can pave the way for innovative solutions that optimize English pronunciation instruction and empower vocational learners to succeed in their language learning journey.

## **2. Aim(s) and objectives of the study**

The research aims to assess the impact of utilizing chatbot AI as a pronunciation training tool, focusing on its strengths and weaknesses. By examining the outcomes and experiences of vocational students who engage with the chatbot AI, this study seeks to provide valuable insights into how this technology can contribute to enhancing English pronunciation skills among this specific group of students. Through semantics analysis and evaluation, the study aims to shed light on the potential benefits and limitations associated with incorporating chatbot AI into language learning environments within vocational education settings in Vietnam. These findings are expected to reveal insightful recommendations for teachers and institutions in terms of applying Chatbot AI to enhance pronunciation skills for vocational students in general.

## **3. Research questions**

The aims of this study will be achieved by addressing the following questions:

- a. To what extent does the application of Chatbot AI (MissionFluent) affect the L2 motivations of vocational students in enhancing pronunciation skills?
- b. What are the perceived benefits and challenges of incorporating chatbot AI (MissionFluent) in vocational students' English pronunciation practice?

## **4. Scope of the study**

This research will focus specifically on vocational students at a technical college in Hanoi, Vietnam. Besides, the study will involve implementing and evaluating the effectiveness of chatbot AI technology, namely "MissionFluent" (<https://missionfluent.com/>) as a tool for improving English pronunciation skills. The research will consider both quantitative and qualitative data to gain comprehensive insights into the impact and benefits associated with using chatbot AI in this context.

## **5. Significance of the study**

The significance of this study lies in its potential impact on improving English pronunciation skills and its broader implications for integrating AI technologies into language learning environments.

Besides, focusing specifically on a vocational college context in Hanoi, this research acknowledges the unique challenges faced by Vietnamese vocational students. These challenges may include limited exposure to English-speaking environments, lack of resources, and insufficient training in pronunciation instruction. By addressing the specific needs of these students, this study aims to provide evidence-based recommendations that can enhance English pronunciation instruction within similar educational contexts. The findings will not only benefit the participating college but also apply to other vocational colleges in Hanoi as well as potentially beyond.

Moreover, this research aims to explore the potential benefits and limitations of integrating chatbot AI technology into the language learning process of vocational students in Hanoi. By leveraging chatbot AI, students can practice and receive instant feedback on their pronunciation, which can contribute to more efficient language acquisition. Additionally, chatbots can provide personalized learning experiences, allowing students to focus on their specific pronunciation weaknesses and progress at their own pace.



Furthermore, utilizing AI technology can reduce the workload on educators by automating certain aspects of pronunciation instruction, thereby freeing up more time for individualized attention for students.

In conclusion, this research aims to address the gap in the existing literature by investigating the effectiveness of chatbot AI technology in enhancing English pronunciation skills among vocational students at a college in Hanoi. By focusing on this specific student population, the study seeks to contribute valuable insights into tailored language learning approaches that cater to their specific needs. The study holds significance in terms of improving language education practices, integrating AI technologies into learning environments, and enhancing the employability of vocational students. By exploring the potential benefits and limitations of chatbot AI technology, this research aims to provide practical recommendations for educators and institutions seeking to enhance their teaching methodologies. Ultimately, this study seeks to contribute to the ongoing discourse on the role of AI in language education and empower vocational students with the linguistic abilities necessary for successful future careers.

## **6. Structure of the thesis**

The thesis consists of five sections:

Firstly, the "Introduction" highlights the reasoning behind the research, research question, scope, and significance of the thesis. Secondly, the first chapter titled "Literature Review" serves as a literature review section, providing an overview of pronunciation in English and the role of artificial intelligence (AI).

Next, Chapter 2, titled "Methodology," elaborates on the detailed methodology employed in the thesis. It encompasses the research context,

research method, participant selection, data collection techniques, research procedure, and data analysis.

Chapter 3, "Findings and Discussion," presents and thoroughly discusses the noteworthy outcomes of the research findings.

Finally, the "Conclusion" section offers a summary of the entire thesis, along with implications and suggestions for further studies.

## **CHAPTER 1: LITERATURE REVIEWS**

### **1.1. Pronunciation in English teaching and learning**

According to Celce-Murcia, Brinton, and Goodwin (2010), pronunciation plays a crucial role in English language learning, directly affecting learners' overall communication skills and intelligibility. Roach (2009) also emphasizes the importance of pronunciation in English learning. Brown (2014) further supports this notion, highlighting the significant impact that pronunciation has on learners' ability to communicate in English effectively. This section aims to provide an overview of pronunciation in English learning, including its definition, aspects, and the importance it holds for learners.

#### **1.1.1. Definition of Pronunciation**

Pronunciation refers to how a word or language is spoken, encompassing the sounds, stress patterns, and intonation used by speakers (Celce-Murcia, Brinton, & Goodwin, 2010). It plays a crucial role in effective communication as it allows individuals to convey their thoughts and ideas. Besides, accurate pronunciation enhances comprehension and facilitates successful interactions between speakers of different languages or dialects. The study of pronunciation involves various aspects such as phonetics, phonology, and prosody (Roach, 2009). Phonetics focuses on the physical production and perception of speech sounds, while phonology examines how these sounds function within a particular language system. Prosody encompasses elements like rhythm, stress patterns, and intonation that contribute to the melodic quality of speech.

Understanding proper pronunciation requires knowledge of individual sounds (phonemes) within a language. Different languages have distinct sets of phonemes that may not exist in other languages. For example, English has approximately 44 phonemes including vowels and consonants (Ladefoged & Johnson, 2011). Improving pronunciation skills often involves learning correct

articulation techniques for specific sounds through practice exercises such as tongue placement or breath control exercises. Additionally, exposure to native speakers through listening activities can help learners develop an ear for accurate pronunciation.

Accurate pronunciation is essential for effective communication across cultures and professions such as teaching foreign languages or working in customer service roles where clear verbal communication is crucial. It helps avoid misunderstandings caused by misinterpretation of words due to incorrect accentuation or sound production (Brown, 2014).

For this research, the definition of pronunciation that will be followed is the one proposed by Roach (2009), which states that pronunciation is the correct articulation and production of speech sounds in a particular language.

### **1.1.2. Aspects of Pronunciation**

When examining the various aspects of pronunciation in English, different scholars have proposed different ways of categorizing them. Burn (2003) and Gimson (1962) have put forth their frameworks for dividing these aspects. However, for the purpose and focus of this research, the perspective of Celce (2010) and Derwing & Munro (2015) will be adopted.

First of all, the aspects of pronunciation encompass various elements that contribute to effective communication in English. These include phonetics (the study of speech sounds), phonology (the study of sound patterns), stress patterns, intonation, rhythm, and connected speech (Celce-Murcia et al., 2010). Each aspect plays a significant role in conveying meaning and facilitating comprehension.

According to Roach (2009), phonetics provides a systematic approach to analyzing and categorizing speech sounds, allowing researchers to investigate sounds' physical properties and acoustic characteristics in different languages.

Celce-Murcia, Brinton, and Goodwin (2010) further emphasize the importance of phonetics in language teaching, as it helps learners develop accurate pronunciation and improve their overall communication skills. Phonetics provides insights into the production and perception of sounds, aiding in the identification of phonological patterns and variations across languages. By studying phonetics, linguists and language learners can obtain a deeper understanding of the intricate mechanisms involved in speech production and intelligibility.

As a subfield of linguistics, phonology focuses on the systematic study of sound patterns and structures in language. It examines the organization and distribution of sounds, known as phonemes, within a particular language or languages. According to Celce-Murcia and Olshtain (2000), phonology plays a vital role in language teaching, as it helps learners understand the rules and patterns that govern the sound system of a language. By analyzing phonological patterns, linguists can identify phonological rules and processes that shape the pronunciation of words and sentences. This knowledge is necessary for language learners to achieve intelligibility and communicate effectively in a target language. Phonology provides insights into the underlying structures and relationships between sounds, enabling learners to develop accurate pronunciation and grasp the phonological aspects of a language (Celce-Murcia & Olshtain, 2000).

Stress patterns are a key aspect of phonology which refers to the emphasis placed on specific syllables or words within a language (Archibald, 2014). It plays a significant role in determining the rhythm and intonation of speech. According to Celce-Murcia, Brinton, and Goodwin (2010), stress patterns are essential for learners to develop natural and intelligible pronunciation. By understanding and applying stress patterns correctly, learners can enhance their

overall communication skills. Brown (2014) further emphasizes the importance of stress patterns in language learning, as they contribute to the clarity and understanding of spoken language. Stress patterns help convey meaning, distinguish between words, and create emphasis in speech. Mastering stress patterns allows learners to produce more natural and fluent speech, facilitating effective communication in the target language (Celce-Murcia et al., 2010; Brown, 2014).

Intonation, which refers to the melodic patterns and pitch variations that accompany speech, is also an important component of phonology. It is essential for conveying meaning, expressing emotions, and supplying information about sentence kinds such as inquiries and declarations. According to Celce-Murcia, Brinton, and Goodwin (2010), intonation is an important part of language learning since it improves general communication skills and allows learners to effectively convey their thoughts.

The pattern and timing of stressed and unstressed syllables in speech is referred to as rhythm, a key feature of phonology. It is vital in language and communication, contributing to the overall flow and musicality of spoken language. Understanding and mastering rhythm is a key part of language learning, according to Celce-Murcia, Brinton, and Goodwin (2010), since it improves the naturalness and fluidity of speech. Rhythm helps students acquire a sense of timing and stress patterns, which aids in successful communication and comprehension. In addition, Brown (2014) underlines the importance of rhythm in transmitting meaning and structuring information in speech. Learners can improve their spoken language skills and participate in clearer and more expressive communication by developing a strong sense of rhythm (Celce-Murcia et al., 2010; Brown, 2014).

The natural and fluid way in which words and sounds are joined and blended during spoken language is referred to as connected speech, also known as fluent speech or continuous speech. It includes phonological processes like assimilation, elision, and connecting. According to Celce-Murcia, Brinton, and Goodwin (2010), understanding connected speech is critical for language learners because it improves their capacity to perceive and generate natural, native-like speech. Brown (2014) goes on to say that connected speech has an impact on the rhythm, stress, and intonation patterns of spoken language. Learners can increase their listening comprehension, speaking fluency, and overall communication abilities by mastering connected speech. It enables individuals to negotiate the complexities of real-life discussions and comprehend the nuances and nuances of native speakers (Celce-Murcia et al., 2010; Brown, 2010).

Besides, fluency and accuracy in pronunciation play a vital role in facilitating effective communication. Fluency encompasses the ability to speak smoothly, maintain a consistent rhythm, and control the pace of speech (Derwing & Munro, 2015). It involves the seamless flow of words and phrases, allowing for easier comprehension by the listener. When individuals possess fluency in pronunciation, they can express their thoughts and ideas more confidently and coherently.

One of the primary benefits of fluency in pronunciation is the ability to communicate effectively. Fluent speakers can maintain a smooth and natural flow of speech, which enhances their ability to express themselves and engage in meaningful conversations (Derwing & Munro, 2015). Moreover, pronunciation fluency facilitates effective communication by reducing the need for repetition or clarification, leading to smoother interactions and improved comprehension for both the speaker and the listener.

On the other hand, accuracy in pronunciation focuses on the correct articulation of sounds, stress patterns, and intonation (Gimson, 1989). Accurate pronunciation ensures that the intended meaning is conveyed accurately, reducing the chances of misunderstandings or misinterpretations. It involves mastering the specific sounds of a language, including vowels, consonants, and diphthongs, as well as understanding the stress and intonation patterns that give meaning to words and sentences.

Pronunciation accuracy is equally important, as it ensures that words and sounds are produced correctly. Accurate pronunciation allows learners to be understood by others, evading misunderstandings and misinterpretations. Research has shown that accurate pronunciation contributes to increased intelligibility, which refers to the extent to which a listener can understand a speaker's message (Derwing & Munro, 2015). When learners pronounce words accurately, they are more likely to be understood by native speakers and other non-native speakers, leading to successful communication and effective language use.

For vocational students aiming to work in English-speaking environments, fluency and accuracy in pronunciation are particularly important. In such contexts, effective communication is essential for successful interactions with colleagues, clients, and customers. Fluency enables vocational students to absorb conversations smoothly, maintaining a natural flow that promotes understanding and engagement. Accuracy ensures that their messages are conveyed clearly and accurately, minimizing potential communication barriers.

To achieve fluency and accuracy in pronunciation, vocational students can benefit from various strategies and techniques. Regular practice and exposure to authentic spoken English through listening exercises, conversations, and audio materials can help develop fluency (Derwing & Munro, 2015).



Additionally, focusing on specific pronunciation features, such as individual sounds or intonation patterns, can enhance accuracy (Gimson, 1989).

Overall, fluency and accuracy in pronunciation are crucial components of effective communication. Fluency allows for smooth and coherent speech, while accuracy ensures that the intended meaning is conveyed accurately. For vocational students aiming to labor in English-speaking environments, developing these skills is essential for successful interactions in the workplace. Regular practice and exposure, along with targeted pronunciation training, can support students in improving their fluency and accuracy in pronunciation.

### **1.1.3. The importance of pronunciation**

Pronunciation proficiency is critical for successful communication in English. It allows learners to be understood and to understand others accurately, enhancing their overall language fluency and confidence (Derwing & Munro, 2015). Research also suggests that pronunciation impacts listeners' perceptions of a speaker's competence and credibility (Munro & Derwing, 1995). Moreover, clear pronunciation facilitates effective interaction, reduces miscommunication, and enhances learners' employability prospects (Jenkins, 2000).

According to Brown (2014), clear and accurate pronunciation is essential in developing learners' communication skills in English. Firstly, it enables learners to express themselves confidently and effectively convey their ideas for others (Brown, 2014). Additionally, when learners can pronounce words correctly, use appropriate stress and intonation, and articulate sounds accurately, their communication becomes more comprehensible and enchanting. Consequently, they can take part in meaningful conversations, fostering better interactions and increasing their confidence in English-speaking environments.

Besides, a firm grasp of pronunciation greatly contributes to improved listening comprehension in English (Celce-Murcia et al., 2010). By understanding and differentiating between sounds, stress patterns, and intonation in spoken English, learners can better comprehend the language. Furthermore, by accurately identifying individual phonemes and the nuances of stress and intonation, learners can recognize spoken English more effectively. As a result, this heightened listening ability facilitates better interaction and communication with native speakers.

Furthermore, pronunciation is closely linked to achieving language fluency in English. When learners have a good command of pronunciation, including stress, rhythm, and intonation patterns, they can be the very picture of native speakers (Roach, 2009). This contributes to smoother and more engaging conversations. Furthermore, native-like pronunciation improves learners' ability to flow naturally from one word to another, maintaining the rhythm of speech and conveying their intended meaning effectively. Eventually, it enables learners to express themselves fluently, enhancing their overall language proficiency.

Especially, proficiency in English pronunciation is crucial in several vocations that require effective English communication, such as customer service, hospitality, and international business (Brown, 2014). In these industries, professionals who can communicate clearly and accurately in English have a distinct advantage. Moreover, possessing excellent pronunciation skills not only ensures intelligible communication but also displays professionalism and cultural competence. Consequently, it directly influences employability and professional success, as individuals with strong pronunciation skills are more likely to be selected for job opportunities in English-speaking environments.

In addition, pronunciation instruction has significant benefits for learners' confidence and motivation in English learning (Roach, 2009). When learners receive targeted instruction and practice in pronunciation, they get confidence in their ability to pronounce words and speak English. This confidence boost leads to increased motivation to engage in communication and continue learning the language. Therefore, as learners witness their improvement in pronunciation, their overall motivation and willingness to communicate in English are reinforced.

In conclusion, pronunciation holds immense importance in English learning, contributing to learners' communication skills, listening comprehension, fluency and naturalness, vocational success, confidence, and motivation. It involves mastering various aspects, such as segmental sounds, word stress, sentence stress, rhythm, and intonation. Therefore, clear and accurate pronunciation enables learners to express themselves confidently, enhances their comprehension of spoken English, and facilitates smoother, more engaging conversations. Moreover, in specific vocations where effective English communication is essential, pronunciation skills directly impact employability and professional success. Additionally, pronunciation instruction promotes learners' confidence and motivation, leading to increased engagement in communication and continued growth in English proficiency. By recognizing the significance of pronunciation in English learning, educators can design targeted instruction, utilize innovative technologies, and create supportive learning environments that empower learners to develop their pronunciation skills effectively.

#### **1.1.4. Traditional Approaches for Teaching Pronunciation**

It has three major approaches for teaching pronunciation: the intuitive-imitative approach, the analytic-linguistic approach, and the integrative

approach (Celce-Murcia, 1996; Chen, 2007). Each approach gives a different viewpoint on how to properly teach and learn pronunciation.

First of all, the intuitive-imitative approach, as proposed by Celce-Murcia, Brinton, and Goodwin (1996), emphasizes the importance of imitation and the natural acquisition of pronunciation skills. This approach relies on that learners can obtain accurate pronunciation by listening to and imitating native speakers. It encourages learners to count on their intuition and mimic the sounds, stress patterns, and intonation of the target language. The intuitive-imitative approach often uses audio recordings, dialogues, and repetition exercises to provide learners with ample exposure to natural speech patterns. By imitating native speakers, learners develop a sense of rhythm, intonation, and pronunciation that closely resembles the target language.

On the other hand, the analytic-linguistic approach takes a more analytical and rule-based approach for teaching pronunciation. This approach focuses on teaching learners the underlying rules and patterns of pronunciation. It emphasizes the importance of understanding the phonetic and phonological aspects of the target language. Learners are taught to analyze and break down words, sounds, and stress patterns to develop a systematic understanding of pronunciation. The analytic-linguistic approach often incorporates phonetic symbols, charts, and diagrams to help learners understand the phonetic features of the target language. By understanding the rules and patterns, learners can apply them to new words and contexts, enabling them to develop accurate pronunciation skills.

The integrative approach combines elements of both the intuitive-imitative and analytic-linguistic approaches (Roohani, 2013). It recognizes the importance of both imitation and analysis in teaching pronunciation. This approach encourages learners to imitate native speakers while also providing

them with a deeper understanding of the phonetic and phonological aspects of the target language. The integrative approach often involves activities that integrate listening, speaking, reading, and writing skills to develop a holistic understanding of pronunciation. Learners engage in activities such as shadowing, where they listen to and imitate native speakers while simultaneously analyzing the sounds, stress patterns, and intonation. This approach aims to develop both accuracy and fluency in pronunciation.

Each approach has its advantages and limitations, and the choice of approach may depend on various factors such as learners' needs, learning styles, and proficiency levels. The intuitive-imitative approach is often considered effective for beginners or learners who need to develop basic pronunciation skills quickly (Purwanto, 2019). It provides learners with ample exposure to natural speech patterns and helps them develop a sense of rhythm and intonation. However, it may not be suitable for learners who require a more systematic understanding of pronunciation or who need to focus on specific phonetic features.

The analytic-linguistic approach is beneficial for learners who prefer a structured and rule-based approach to learning pronunciation. It helps learners understand the underlying rules and patterns of pronunciation, enabling them to apply them to new words and contexts. This approach is particularly useful for learners who need to focus on specific phonetic features or who require a deeper understanding of the phonetic and phonological aspects of the target language. However, it may be time-consuming and may not be as effective for developing fluency or naturalness in pronunciation.

The integrative approach offers a balanced approach that combines the strengths of both the intuitive-imitative and analytic-linguistic approaches. It recognizes the importance of both imitation and analysis for teaching

pronunciation. By integrating listening, speaking, reading, and writing skills, learners develop a holistic understanding of pronunciation. This approach is useful for learners who aim to develop both accuracy and fluency in pronunciation. However, it may require more time and effort to implement as it involves a wide range of activities and materials.

In conclusion, each approach offers unique perspectives on how to teach and learn pronunciation effectively. The choice of approach may depend on various factors such as learners' needs, learning styles, and proficiency levels. Educators and language instructors should consider these factors and select the most suitable approach to help learners develop accurate and fluent pronunciation skills.

#### **1.1.5. Innovative Approaches for Teaching Pronunciation**

To address the limitations of traditional approaches, innovative methods can be employed to provide individualized for teaching pronunciation to vocational students. One such approach is the use of technology-based tools and applications that allow learners to receive instant feedback on their pronunciation. For instance, smartphone apps like ELSA Speak and Pronunciation Power provide interactive exercises and real-time feedback to help learners improve their pronunciation skills (Hung, 2015). These tools analyze learners' speech patterns, identify areas for improvement, and offer targeted practice activities accordingly. By incorporating technology into pronunciation instruction, vocational students can receive personalized feedback and practice at their own pace, enhancing their pronunciation skills effectively.

Another innovative approach for teaching pronunciation is the use of authentic materials and real-life communication scenarios that reflect the vocational students' future work environments. By practicing pronunciation

within the context of their intended profession, learners can make the connection between pronunciation and its practical application. For example, role-playing activities can be designed to simulate workplace interactions, allowing students to practice pronunciation in realistic scenarios. By incorporating authentic audio and video materials from professional settings, learners are exposed to various accents, speech patterns, and communication styles, which helps improve their overall pronunciation skills (Levis et al., 2016). This approach not only enhances pronunciation but also provides learners with a more relevant and engaging learning experience.

Furthermore, peer collaboration and feedback can play a significant role in teaching pronunciation. Pairing vocational students with native speakers or proficient language learners provides opportunities for authentic pronunciation practice. Through peer collaboration, students can receive constructive feedback, exchange pronunciation tips, and learn from each other's strengths and weaknesses. This approach promotes active engagement and creates a supportive and interactive learning environment. By fostering a sense of community among learners, this approach enhances motivation and confidence in improving pronunciation skills (Thomson & Derwing, 2015).

In summary, innovative approaches for teaching pronunciation to vocational students have emerged to address the limitations of traditional methods. By incorporating technology-based tools and applications, learners can receive personalized feedback and practice at their own pace. The use of authentic materials and real-life communication scenarios makes the learning experience more relevant and engaging. Additionally, peer collaboration and feedback create a supportive and interactive learning environment. These innovative approaches not only enhance pronunciation skills but also promote motivation and confidence among vocational students in improving their

pronunciation abilities. By embracing these innovative approaches, educators can provide vocational students with effective and engaging for teaching pronunciation.

## **1.2. Overview of chatbot AI**

Chatbots are virtual assistants powered by artificial intelligence that aim to simulate conversations with language learners (Mekni, 2021). These chatbots utilize advanced natural language processing algorithms to understand and respond to user input in a way that resembles human-like interaction. By leveraging this technology, chatbots provide language learners with real-time feedback, ample practice opportunities, and personalized learning resources, thereby enhancing their language acquisition journey (Chang et al., 2023).

The integration of chatbot AI technology, such as Duolingo, ELSA SPEAK, TalkPal AI and MissionFluent, into language learning, has garnered significant interest in recent years (Pérez et al., 2020). These ICT tools have shown great potential in providing personalized and interactive language learning experiences. Research studies have investigated the effectiveness of chatbot AI technology in various contexts. For example, studies have demonstrated that the use of chatbot AI technology can significantly improve vocabulary acquisition and retention in college students (Jaeho Jeon, 2023). Additionally, chatbot-based language learning programs have been found to enhance speaking proficiency and motivation in language study (Saman et al., 2022).

MissionFluent (<https://missionfluent.com/>) is particularly a recent addition to the chatbot landscape that focuses on improving English pronunciation skills. This chatbot tool offers learners targeted exercises and immediate feedback tailored to enhancing their pronunciation proficiency. Through regular interaction with MissionFluent, learners gain valuable practice



in articulating sounds accurately and develop a better understanding of phonetic patterns and intonation in the English language. This hands-on approach to pronunciation training facilitated by MissionFluent enables learners to refine their spoken English skills and achieve greater fluency.

While there is existing research on the efficacy of ICT tools in language education, including their potential to enrich language skills through online platforms and virtual reality (Levy, 2016), and the positive impact of digital storytelling tools in ESL classrooms (Wang, 2019), there is a lack of research specifically examining the application of these tools for vocational students' English pronunciation improvement in a Hanoi college context. Further investigation in this area would provide valuable insights into the effectiveness of chatbot AI technology for specific language learning needs.

### **1.2.1. Definition of AI**

AI has gained significant attention in the field of language learning, including English learning. This section aims to provide an overview of AI in English learning, including its definition, the role of chatbot AI, and the conceptual framework of L2 motivation.

Luger (1993) characterizes AI as a field within computer science that emphasizes the automation of intelligent behaviors. By leveraging computer math facts to generate data, Charniak and McDermott (1985) draw comparisons between the mental abilities of machines and humans. Besides, Nilsson (1998) further states that AI's primary focus lies in creating artifacts that exhibit intelligent behavior. These perspectives collectively define artificial intelligence (AI) as the capacity of a machine or computer software to mimic or replicate human intelligence and behavior.

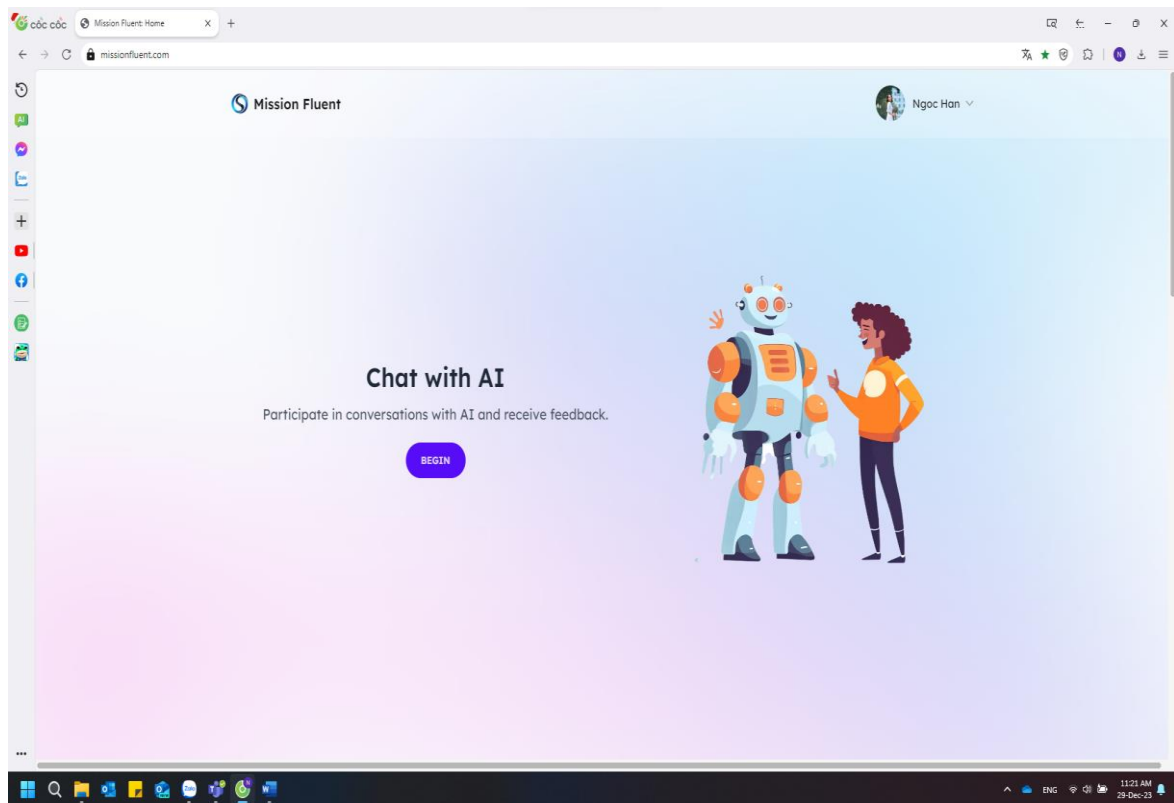
The most relevant AI definition for the study is a computer system or program meant to replicate human interaction and deliver intelligent responses.

This aligns with the use of chatbot technology, which uses artificial intelligence techniques to comprehend and reply to human input conversationally. The chatbot's AI skills enable it to assess and analyze vocational students' spoken or written English pronunciation, identify areas for development, and provide individualized comments or coaching. According to Russell and Norvig (2016), "AI is concerned with the creation of computer systems that can perform tasks that would require human intelligence if performed by humans." The chatbot's capacity to communicate with students, assess their speech skills, and provide relevant support is important in this environment.

### **1.2.2. Chatbot AI in learning**

A chatbot, such as ChatGPT, ELSA SPEAK or Memrise, is an AI-based virtual assistant specifically developed to simulate a conversation with a language learner. Utilizing advanced natural language processing algorithms, these chatbots possess the ability to comprehend and respond to user input in a manner resembling human-like interaction. By leveraging this technology, chatbot AI offers language learners various benefits including real-time feedback, ample practice opportunities, and personalized learning resources, thereby enriching their language acquisition journey (Wang et al., 2023).

MissionFluent, in particular, stands out as a recent addition to the chatbot landscape dedicated to enhancing English pronunciation skills. This innovative chatbot tool focuses on furnishing learners with targeted exercises and immediate feedback tailored to improving their pronunciation proficiency.



*Figure 1.1 AI Chatbot MissionFluent interface*

Through regular interaction with chatbot AI, learners are considered to gain valuable practice in articulating sounds accurately and develop a better understanding of phonetic patterns and intonation in the English language (Tran et al., 2020). This hands-on approach to pronunciation training facilitated by MissionFluent offers learners a practical means to refine their spoken English skills and achieve greater fluency.

### **1.2.3. Applying Chatbot AI**

According to Shadiev and Yang (2020), enhancing students' language skills through the use of technology has become more common in recent years. The use of ICT tools, such as chatbot AI technology, has shown great potential in providing personalized and interactive language learning experiences. The potential of ICT technologies, particularly chatbot AI technology, in providing individualized and interactive language learning experiences has been

exhaustively researched. Several research studies have been conducted to investigate the effectiveness of these technologies in diverse circumstances. For example, Takahashi (2020) investigated the impact of chatbot AI technology on English vocabulary learning in college students. The results demonstrated that using chatbot AI boosted students' vocabulary acquisition and retention dramatically. Similarly, Saman (2022) explored the impact of a chatbot-based language learning program on Chinese learners. According to the findings, the chatbot AI technology boosted students' speaking proficiency and motivation in language study.

Despite numerous studies examining the overall efficacy of these tools, such as Levy's (2016) review on ICT tools in language education highlighting their potential to promote language skills through online platforms and virtual reality, and Wang's (2019) investigation into the impact of digital storytelling tools in ESL classrooms revealing improvements in language skills, creativity, and engagement in learning, there remains a lack of research specifically examining their application for vocational students' English pronunciation improvement in a Hanoi college context.

### **1.3. Conceptual framework: L2 motivation self-system (L2MSS)**

Motivation plays a vital role in language learning, affecting how engaged and dedicated learners are. In the field of second language acquisition (L2), scholars have created a conceptual framework called L2 dynamics to establish a theoretical basis for comprehending the intricate nature of learner motivation and its influence on language learning results.



*Figure 1.2 Dörnyei's process model of L2 motivation self-system*

The L2 Motivation Self-System (L2MSS) is important in language acquisition since it includes multiple motivational components. Based on the model in Figure 2, L2MSS consisted of three components: Ideal L2 Self, Ought to Self and L2 Learning Experiences (Dörnyei, 2009).

The Ideal L2 Self is an important aspect that pertains to the ideal image of oneself as a good L2 speaker. When people strive to be the person they imagine speaking the target language fluently, they become a tremendous motivator. It encourages students to eliminate the gap between their actual and ideal selves, creating integrative and internalized instrumental goals.

Another critical component is the Ought-to L2 Self, which focuses on the characteristics learners believe they should have to satisfy expectations and prevent undesirable outcomes. External demands and obligations are reflected in this dimension, which corresponds to Higgins' concept of the ought self. Extrinsic incentives that are less internalized but influence learners' drive to learn the L2 are included.

The third component of the L2MSS is the L2 Learning Experience, which includes the immediate learning environment and its impact on motivation. This component is influenced by factors such as the teacher, curriculum, peer group, and past successes. This is a bottom-up process that is distinct from the self-guides of the Ideal L2 Self and Ought-to L2 Self. More research is needed to investigate the self-related features of this component and its impact on learner motivation.

Understanding the L2MSS and its components is crucial for an academic study on chatbot AI improving student pronunciation. The ideal L2 self-motivates students to bridge the proficiency gap. Recognizing the ought-to L2 self and aligning the chatbot with expectations enhances motivation. A supportive learning environment is important for positive experiences. Integrating these elements can design an effective chatbot AI system that boosts student motivation and pronunciation skills.

Overall, this investigation into the application of ICT tools, particularly the chatbot AI MissionFluent, in improving vocational students' English pronunciation in a Hanoi college setting holds significant promise. By addressing the unique needs of vocational students and exploring the potential advantages of chatbot AI technology, this research aims to provide valuable insights and recommendations for educators, curriculum designers, and language learning practitioners seeking to enhance the English pronunciation abilities of vocational students.

## **CHAPTER 2: METHODOLOGY**

### **2.1. Research setting**

This research will focus specifically on vocational students at a technical college in Hanoi, Vietnam named FPT Polytechnic. This vocational college is known for its strong emphasis on cutting-edge technology and practical skills, the college has become a sought-after institution for those seeking quality vocational education in the country.

The education institution offers a wide range of programs, focusing on fields such as information technology, software development, data science, cybersecurity, and digital marketing. The curriculum is designed to equip students with the necessary technical skills and knowledge to excel in their chosen profession. Students are exposed to hands-on training, workshops, and industry-relevant projects, ensuring that they are well-prepared for the demands of the labor market.

In addition to the academic programs, FPT Polytechnic also places great importance on holistic development. This school provides ample opportunities for students to engage in extracurricular activities, including clubs, sports, cultural events, and community service projects. These activities foster teamwork, leadership skills, and a well-rounded personality, enhancing the overall educational experience at FPT Polytechnic.

Furthermore, the vocational college boasts a highly qualified faculty consisting of experienced professionals and industry experts. They not only possess the necessary academic qualifications but also bring valuable industry insights to the classroom. This ensures that students receive quality education and guidance, keeping them up-to-date with the latest trends and developments in their respective fields.

Moreover, at FPT Polytechnic, students are obligated to enroll in an English course that combines in-person classes with online components. This course is a prerequisite for graduation and consists of four levels (1.1, 1.2, 2.1, 2.2) corresponding to CEFR levels A1 to B1. Each level comprises 17 comprehensive lessons, delivered through video lectures and online resources. The course utilizes the Topnotch 1 and Topnotch 2 textbooks, carefully selected to provide a well-rounded English education. It covers grammar, vocabulary, listening, speaking, and reading comprehension. The blended learning approach allows students to learn at their own pace, while face-to-face classes encourage interaction, discussions, and speaking practice. Online components supplement the learning process with additional explanations and examples. By combining both approaches, the English course at FPT Polytechnic aims to offer a comprehensive language learning experience, helping students develop their English skills and gain confidence in real-life situations.

Overall, FPT Polytechnic stands as a leading vocational college in Hanoi, Vietnam, delivering quality education, industry-relevant skills, and a holistic learning experience. With its strong focus on technology, practical training, and industry connections, the vocational college prepares its students for successful careers in today's competitive job market.

## **2.2. Research method: quasi-experimental with pre-test and post-test**

A quasi-experimental research design is employed to investigate the impact of chatbot AI on improving vocational students' English pronunciation. Participants will be assigned to either an experimental group or a control group based on their class enrollment. Due to practical constraints, random assignment may not be feasible. The participants will be divided into two groups based on their enrolled classes: the experimental group and the control group. Due to practical limitations, random allocation may not be possible. To



determine their initial proficiency in English pronunciation, both groups will take a pre-test. This test will be an oral assessment where students will read a given passage (level A1) and use an AI chatbot for scoring. The results will be documented by taking screenshots and stored using a storage tool. The control group continue to receive standard English pronunciation instruction without any additional assistance, while the experimental group will receive the chatbot AI intervention. A post-test will be conducted to evaluate the progress of both groups in correctly pronouncing English words after a specific period of instruction. This research design, including pre-test and post-test, will enable us to compare the results between the experimental and control groups.

Both groups undergo a pre-test to establish their baseline English pronunciation skills. The pre-test and post-test for this study were sourced from the Cambridge English Pre-A1 Starter 3 student's book 2019, which is a trusted and reputable resource. The decision to use this book was based on its official status, reliability, and credibility. The two classes involved in the study are at Level 1.1 of English proficiency, which corresponds to Level A1 according to the CEFR framework mandated by the educational institution. This choice ensures that the tests are appropriate for the student's language abilities and align with the curriculum expectations. By utilizing materials from a recognized source tailored to the student's proficiency level, the researchers sought to accurately assess the learners' language skills and measure their progress effectively.

Only the experimental group will receive the chatbot AI intervention, while the control group will continue with their regular English pronunciation instruction without any intervention.

After a specific intervention period, both groups will be assessed using a post-test to measure changes in their English pronunciation skills. This pre-test

and post-test design will allow for the comparison of outcomes between the experimental and control groups.

### **2.3. Participants**

The study will involve a total of 60 first-year students from two mixed-ability English classes in a college in Hanoi, all of whom are studying Level 1.1 (as mentioned in the “Research setting”). Both classes consist of students with varying levels of English proficiency who have started studying together at the most basic level.

Participants for the study will be selected based on their voluntary participation and willingness to take part in the AI chatbot intervention. They will be required to sign consent forms to ensure that all ethical considerations are adhered to, and only those who provide informed consent will be included in the study.

In addition to collecting data from the participants, the researchers will also gather relevant documents such as teaching materials, English pronunciation textbooks, and other related resources. This information will be analyzed to provide context and support for the research findings.

Overall, the study aims to create a better understanding of how AI chatbots can be effectively used to support English language learning at the beginner level. By gathering data from the participants and analyzing relevant materials, the researchers hope to gain valuable insights that can inform future teaching practices and interventions.

### **2.4. DATA COLLECTION TOOLS**

The primary data collection tools for this research include Google Forms surveys and interviews.

Google Forms Surveys: Participants fill out surveys designed to gather quantitative data related to their perceptions, attitudes, and satisfaction

regarding the chatbot AI intervention. The surveys include Likert-scale questions, multiple-choice questions, and open-ended questions to capture a range of responses. Additionally, semi-interviews are conducted with a smaller subset of participants to obtain qualitative data. These interviews provide an opportunity for an in-depth exploration of the student's experiences, attitudes, and challenges in using chatbot AI for pronunciation improvement. By using both surveys and interviews, the study aims to gather comprehensive and diverse data that contribute to a thorough understanding of the impact and potential of chatbot AI in enhancing vocational students' English pronunciation abilities.

## **2.5. Research process**

The research process involves the following steps:

Step 1: Preparing research materials: Developing the pre-test and post-test assessments, surveys, and consent forms.

Step 2: Participant selection: Identifying two English classes at the same level in the Hanoi college and obtaining voluntary participation from interested students.

Step 3: Pre-test assessment: Administering the pre-test to set the baseline English pronunciation skills for both the experimental and control groups.

Step 4: Chatbot AI intervention: Conducting the chatbot AI intervention with the experimental group, while the control group continues with regular English pronunciation instruction.

Step 5: Post-test assessment: Administering the post-test to measure changes in English pronunciation skills for both the experimental and control groups.

Step 6: Data collection: Collecting survey responses through Google Forms, capturing relevant photographs, and securely storing all data. Besides, the data from interviews is collected by recording and note-taking.

## **2.6. Data analysis**

Data collected from surveys is analyzed quantitatively using statistical analysis techniques such as descriptive statistics, inferential statistics, and correlation analysis. To protect the privacy of the students who took part in the study, they are coded from A1 to A30, which corresponds to the pre-and post-test score percentages. Besides, the diagrams are examined qualitatively to identify visual patterns, trends, and contextual information that may complement the findings.

## **CHAPTER 3: FINDINGS AND DISCUSSION**

### **3.1. Findings**

The data collected from sources such as surveys and semi-interviews is analyzed in detail, as stated in this thesis. The findings can be categorized into three main parts: the motivation of vocational school students to improve their English pronunciation, the benefits students experience from using AI chatbots, and the obstacles they encounter while using AI chatbots to enhance their pronunciation skills.

#### **3.1.1. Findings from the questionnaire survey**

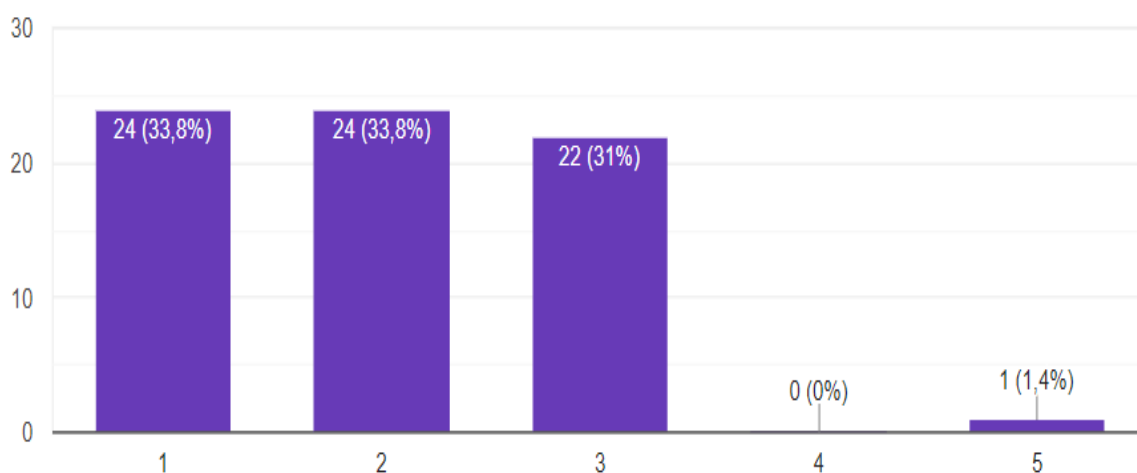
By implementing these research methodologies, the primary objective is to investigate the efficacy of chatbot AI in enhancing the English pronunciation skills of vocational students within a college in Hanoi. The findings of this study will assist educators, administrators, and researchers who are eager to optimize English pronunciation instruction in vocational education settings in addition to incorporating the body of knowledge already available about language learning technologies.

The data collected from sources such as surveys and semi-interviews will be analyzed in detail, as stated in this thesis. The findings can be categorized into three main parts: the motivation of vocational school students to improve their English pronunciation, the benefits students experience from using AI chatbots, and the obstacles they encounter while using AI chatbots to enhance their pronunciation skills.

In this particular academic research endeavor, all participants were enrolled in level 1.1, which aligns with the A1 proficiency level as per the Common European Framework of Reference for Languages (CEFR) scale. However, it became evident that the class comprised students with varying levels of English proficiency, indicating a significant diversity in their abilities.

### 3.1.1.1. Motivation of vocational students

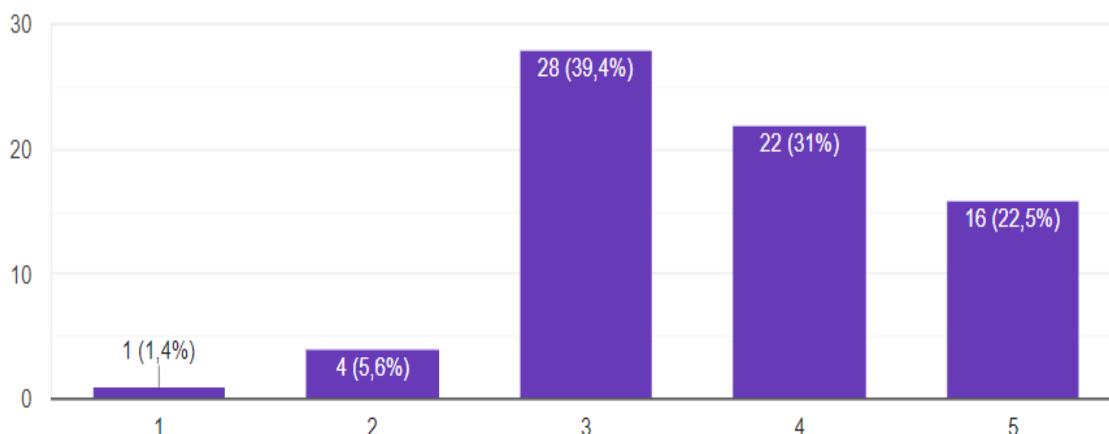
Based on the pre-survey data, it was observed that 33.8% of the students were categorized as beginners on a proficiency scale ranging from 1 (beginner) to 5 (advanced). This outcome underscores the fact that there existed a considerable range of English proficiency levels among the students (Figure 3.1).



*Figure 3.1 Students self-assess their English ability*

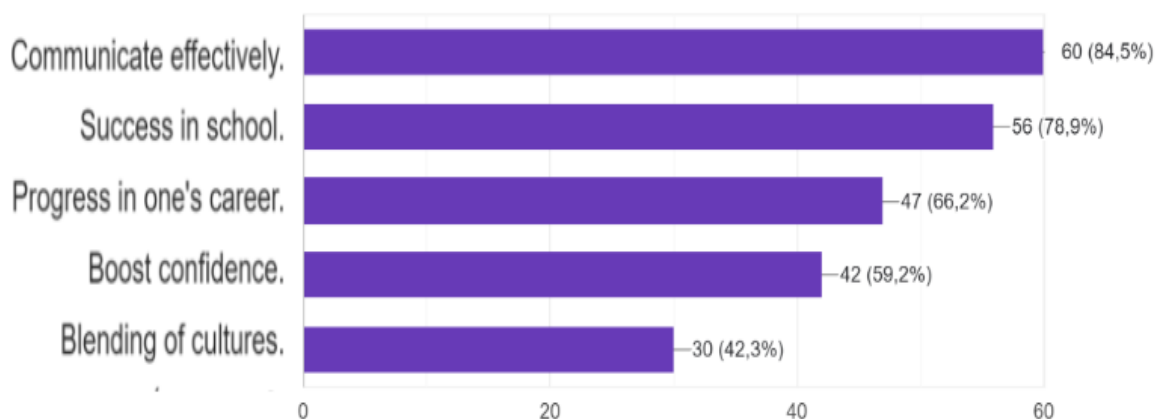
Consequently, it is imperative to include variety when evaluating the effectiveness of the intervention. Due to the differing levels of proficiency, students' confidence levels in pronouncing English words are likely to vary.

Additionally, in terms of motivation, a majority of the students (39.4%) expressed a moderate level of motivation (rated as 3 on a Likert scale: 1: not motivated, 2: Somewhat motivated, 3: Moderately motivated, 4: Very motivated, 5: Highly motivated) when it came to learning English. Although most students demonstrated motivation, it was not at a high intensity (Figure 3.2).



*Figure 3.2 English pronunciation motivation of students before using Chatbot AI*

However, it is noteworthy that 84% of the students identified effective communication as the primary reason and motivation behind their English language learning endeavors (as indicated in Figure 3.3).

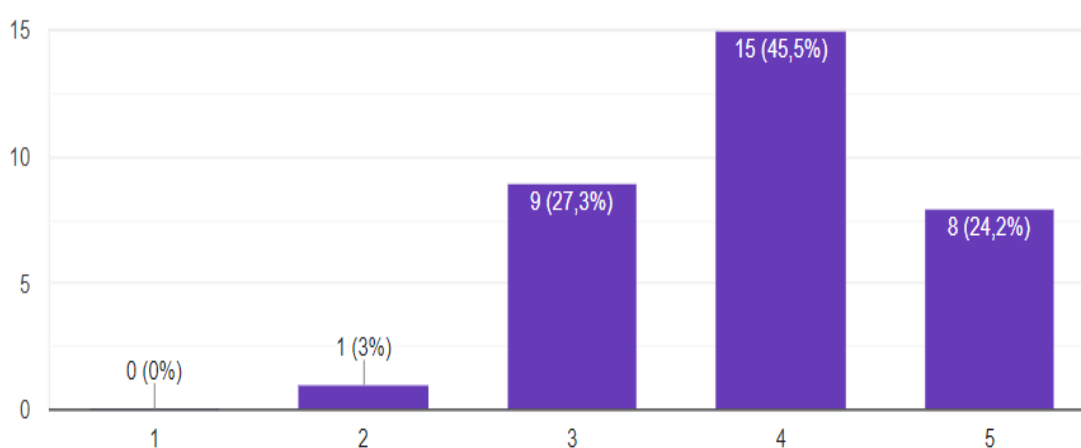


*Figure 3.3 Reasons for motivation to improve English pronunciation*

These outcomes shed light on the importance of addressing the varying levels of English proficiency and motivation within the student population when implementing the chatbot AI intervention. Recognizing the diverse range of proficiency levels will help tailor the intervention to cater to the specific

needs of each student. Furthermore, understanding the students' motivation, particularly their desire for successful communication, will allow educators and administrators to create a targeted and engaging learning environment that aligns with the student's objectives and aspirations.

The motivation of students after using Chatbot AI has some slight changes as the Figure 6 (1: not motivated, 2: Somewhat motivated, 3: Moderately motivated, 4: Very motivated, 5: Highly motivated). Utilizing an AI chatbot like MissionFluent for learning English has the potential to enhance students' motivation to study the language. By incorporating this technology into their language learning routine, students may find themselves more inspired and driven to improve their English skills (Figure 3.4).



*Figure 3.4 English pronunciation motivation of students after using Chatbot AI*

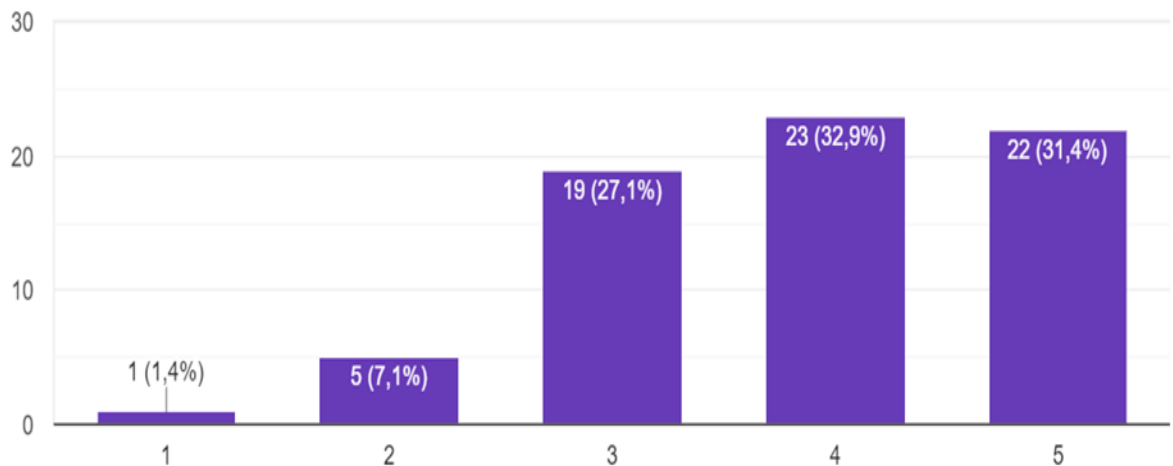
### **3.1.1.2. Benefits of using Chatbot AI**

It is noteworthy to highlight that a considerable percentage of students (32.9%) exhibited high expectations (rated as level 4 on the Likert scale) regarding the efficacy of AI chatbots in enhancing their English pronunciation, as evidenced in Figure 3.5. This positive attitude reflects their belief in the



potential benefits that AI chatbots can offer in terms of pronunciation improvement.

This demonstrates a positive attitude towards the potential benefits of AI chatbots for pronunciation improvement before they use it.

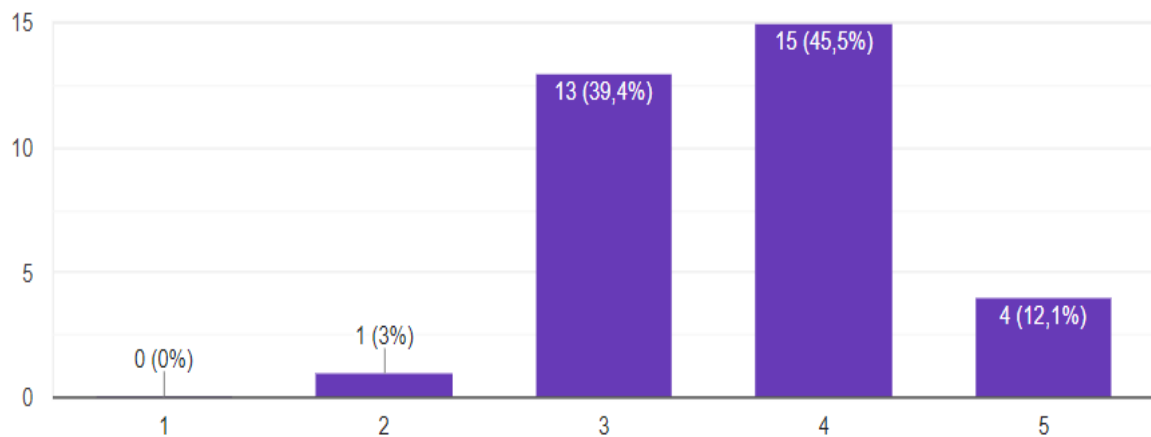


*Figure 3.5 Students' expectations regarding chatbot AI that enhances English pronunciation*

Specifically, a significant percentage of students in the experimental group, amounting to 45.5%, reported feeling more motivated after engaging with the AI Chatbot as mentioned in Figure 3.3. This suggests that the interactive nature of the Chatbot, along with its ability to provide instant feedback and personalized practice, had a positive influence on student motivation. The AI Chatbot likely acted as a supportive and encouraging virtual tutor, which in turn increased students' motivation to improve their English skills.

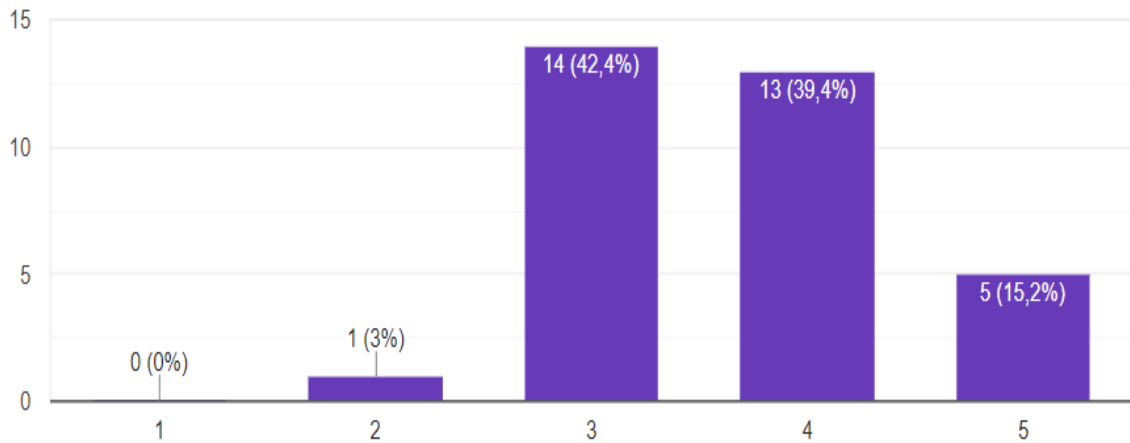
Furthermore, an equal percentage of students, also 45.5%, rated their confidence in their English ability as a 4 on the Likert scale (1: Not confident, 2: Slightly confident, 3: Moderately confident, 4: Quite confident, 5: Very confident) after utilizing the Chatbot AI (Figure 3.6). This indicates that the students experienced an improvement in their confidence levels when it comes

to pronouncing and communicating in English. The AI Chatbot likely played a role in building students' confidence by providing them with a safe and non-judgmental environment to practice their English pronunciation and communication skills.



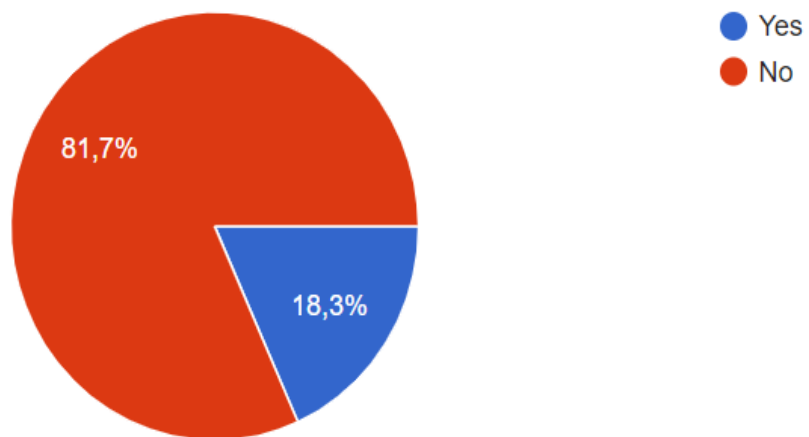
*Figure 3.6 Students' confidence in English pronunciation after using Chatbot AI*

Moreover, it is worth noting that a considerable portion of the students, amounting to 42,4% (according to the Likert scale: 1: No change at all, 2: Some change, 3: Moderate change, 4: Significant change, 5: Complete change), expressed that they perceived a change or enhancement in their English pronunciation following their usage of MissionFluent (Figure 3.7). This suggests that the Chatbot AI was effective in assisting students in improving their pronunciation skills. The AI Chatbot likely provided students with accurate pronunciation models and immediate feedback, enabling them to identify and correct pronunciation errors more effectively.



*Figure 3.7 Students improvement in English pronunciation after using Chatbot AI*

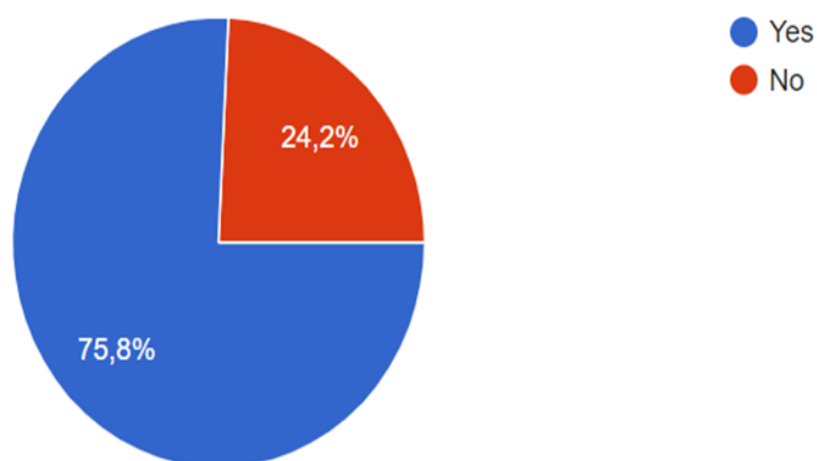
According to the Pre-survey, it is important to mention that a significant majority of students (81.7%) were unaware of the specific AI chatbot, MissionFluent, that was utilized in this study, as indicated in Figure 3.8. This lack of familiarity with the chatbot presents an interesting aspect to consider in evaluating the impact of applying chatbot AI on students' pronunciation within a specific timeframe.



*Figure 3.8 The MissionFluent Chatbot's AI familiarity among students*

However, after using the Chatbot AI, as a result of these positive experiences from Figures 3.5, 3.6 and 3.7, a substantial majority of students,

75.8% to be precise (as shown in Figure 3.9), recommended the utilization of Chatbot AI for English pronunciation practice among their peers. This indicates that students found the AI Chatbot to be a valuable and effective tool for improving their pronunciation skills, and they believed that their peers would also benefit from using it.



*Figure 3.9 Recommendations from students for other vocational students to use AI chatbots to study English pronunciation*

The fact that the majority of students were not previously familiar with MissionFluent suggests that the intervention will provide an unbiased assessment of the chatbot's effectiveness in improving pronunciation skills. Without prior exposure or knowledge of the chatbot, students' preconceived notions or biases are less likely to influence their perception of its impact on their pronunciation abilities. This allows for a more accurate evaluation of the chatbot AI intervention's effectiveness in the given time frame.

By examining the students' expectations and awareness levels, we can gain insights into their initial attitudes and beliefs regarding the potential benefits of AI chatbots for pronunciation improvement. This information will be valuable in understanding the students' mindset and readiness to embrace the chatbot AI intervention.

The positive expectations expressed by a significant portion of students regarding the usefulness of AI chatbots in pronunciation improvement indicate their openness to incorporating technology into their language learning process. This positive attitude can contribute to the student's engagement and motivation, which are crucial to achieving effective language learning outcomes.

Furthermore, the lack of awareness among the students regarding the specific AI chatbot used in the study presents an opportunity to assess the impact of introducing a novel technology on their pronunciation skills. It eliminates the potential bias that could arise from students' prior knowledge or experience with the chatbot. This allows for a more objective evaluation of the chatbot AI intervention's effectiveness in improving students' pronunciation within the designated timeframe.

The potential benefits of AI chatbots in language learning extend beyond just pronunciation improvement. They can also provide students with personalized feedback, adaptive learning experiences, and opportunities for autonomous practice. Understanding the effectiveness of chatbot AI in improving pronunciation will pave the way for exploring its broader applications in other areas of language learning and skill development.

On the contrary, the research study employed MissionFluent as a valuable tool for students to practice their English skills for three weeks. The data collected from the post-survey revealed some interesting findings regarding the impact of using an AI Chatbot on student motivation and confidence levels.

### ***3.1.1.3. The obstacles while using the Chatbot AI***

Among the features offered by the Chatbot AI MissionFluent, 78.8% of students found the "Scoring your speaking" feature to be particularly useful. This feature allows students to receive scores for their spoken English.

However, it is important to note that as a newly developed application, MissionFluent may encounter certain issues. Some students provided feedback suggesting that the software developers should enhance the scoring and word recognition system, as there were instances where the system failed to display scores after completing a speech.

In addition to the test results, a few students in the experimental class agreed to participate in a private interview. Those students whose scores improved in the post-test mentioned that they spent more time interacting and practicing with the Chatbot, which helped them. On the other hand, students whose scores decreased mentioned the opposite. Students who achieved high scores in the post-test mentioned that they found the AI Chatbot's interface visually appealing and the speaking support features, such as topic-based conversations with the Chatbot, very interesting. This motivated them to improve their English pronunciation every day. However, students whose scores decreased were generally less motivated to study and had little interest in AI Chatbots. Nevertheless, the survey revealed some issues with the Chatbot. Three out of four students encountered a problem where the Chatbot did not provide immediate scores after completing their speech but took a long time to display the scores or didn't display them at all. Additionally, the content of the students' conversations was not recorded on the screen after completion. As a result, all the students expressed their desire for the program developers to fix these errors to make the Chatbot more perfect.

Lastly, the experimental group students' scores showed varying fluctuations after utilizing the Chatbot AI and monitoring their input and output. Notably, their scores exhibited a significant increase following the implementation of MissionFluent for daily practice. Interestingly, a noticeable trend emerged as the students consistently used MissionFluent for their daily

practice. Their scores demonstrated a significant increase, indicating that the Chatbot AI had a positive influence on their overall performance. This suggests that the interactive and personalized nature of the Chatbot AI allowed students to effectively improve their English skills and achieve higher scores.

The fluctuating nature of the scores can be attributed to the learning process itself. As students engaged with the Chatbot AI and practiced their English skills, they encountered new challenges and areas for improvement. This led to temporary dips in their scores as they grappled with mastering certain concepts or skills. However, their scores gradually improved over time as they persisted in their practice and received guidance from the Chatbot AI.

The increase in scores can be seen as a direct result of the students' consistent engagement with the Chatbot AI. By providing instant feedback and targeted practice, the Chatbot AI helped students identify their weaknesses and work on them effectively. This personalized approach to learning allowed students to focus on specific areas that needed improvement, leading to a noticeable increase in their scores.

It is important to note that the fluctuations in scores are a natural part of the learning process. Language learning is a journey that involves ups and downs, as students navigate through various challenges and overcome them. The Chatbot AI served as a valuable tool in this journey, providing students with the necessary support and guidance to overcome obstacles and ultimately achieve higher scores.

In conclusion, the utilization of the Chatbot AI had a significant impact on the scores of the students in the experimental group. Although their scores exhibited fluctuations, there was an overall increase in their performance after consistently engaging with the Chatbot AI for daily practice. This highlights the effectiveness of the Chatbot AI in helping students improve their English

skills and achieve higher scores. The fluctuations in scores can be seen as a natural part of the learning process, as students face and overcome challenges with the support of the Chatbot AI.

### 3.1.2. Findings from test data

From Figure 3.10, it is clear that the student scores from the experimental group and control group have some differences before and after using chatbot AI:

Họ và tên2	104_Pre_Fluency	104_Pre_f	Pre_Total	104_Post_Fluency	104_Post_F	Post_Total	Percent	Percent_P	Percent
A1	9.0	4.0	13.0	5.0	5.0	10.0	-80%	20%	-30%
A2	8.5	9.0	17.5	8.0	7.5	15.5	-6%	-20%	-13%
A3	7.5	1.5	9.0	3.5	5.0	8.5	-114%	70%	-6%
A4	5.5	6.5	12.0	6.0	5.5	11.5	8%	-18%	-4%
A5	6.0	6.5	12.5	7.0	5.0	12.0	14%	-30%	-4%
A6	4.5	8.0	12.5	4.5	8.0	12.5	0%	0%	0%
A7	5.0	3.5	8.5	5.0	3.5	8.5	0%	0%	0%
A8	9.0	5.5	14.5	9.0	5.5	14.5	0%	0%	0%
A9	7.0	6.5	13.5	7.0	6.5	13.5	0%	0%	0%
A10	6.5	7.0	13.5	7.5	6.0	13.5	13%	-17%	0%
A11	5.0	2.0	7.0	5.0	2.0	7.0	0%	0%	0%
A12	8.0	7.0	15.0	8.0	7.5	15.5	0%	7%	3%
A13	7.5	7.0	14.5	8.0	7.0	15.0	6%	0%	3%
A14	9.0	5.0	14.0	8.0	6.5	14.5	-13%	23%	3%
A15	6.0	4.0	10.0	6.0	4.5	10.5	0%	11%	5%
A16	8.0	6.0	14.0	8.5	6.5	15.0	6%	8%	7%
A17	7.5	6.0	13.5	7.5	7.5	15.0	0%	20%	10%
A18	9.0	4.0	13.0	8.0	6.5	14.5	-13%	38%	10%
A19	6.0	5.0	11.0	6.5	6.0	12.5	8%	17%	12%
A20	5.5	5.0	10.5	6.0	6.0	12.0	8%	17%	13%
A21	5.5	3.0	8.5	8.0	2.0	10.0	31%	-50%	15%
A22	5.0	3.0	8.0	5.5	4.0	9.5	9%	25%	16%
A23	5.5	4.5	10.0	6.5	7.0	13.5	15%	36%	26%
A24	4.0	4.0	8.0	6.0	5.0	11.0	33%	20%	27%
A25	9.0	1.0	10.0	8.5	6.0	14.5	-6%	83%	31%
A26	4.5	4.0	8.5	7.5	5.0	12.5	40%	20%	32%
A27	6.0	3.0	9.0	7.5	6.0	13.5	20%	50%	33%
A28	5.0	3.5	8.5	6.5	6.5	13.0	23%	46%	35%
A29	6.5	3.5	10.0	8.0	8.0	16.0	19%	56%	38%
A30	6.5	1.5	8.0	7.0	7.5	14.5	7%	80%	45%

*Figure 3.10 Students' scores of the control group from the Pre-test and Post-test*

The data from Figure indicates that even though the control group did not regularly use the AI chatbot for pronunciation practice, there was still a noticeable improvement in their English pronunciation abilities. This unexpected enhancement can be linked to the student's high academic achievements and their dedication to following the teacher's instructions on



pronunciation exercises leading up to the school's final exam. It appears that the students' existing proficiency in academics may have played a significant role in their ability to make progress in pronunciation, showcasing the interconnectedness of various skills in language learning. Despite not relying heavily on the AI chatbot, the student's commitment to their studies and the structured guidance provided by their teacher seems to have positively influenced their pronunciation skills. This outcome highlights the importance of a holistic approach to language learning, where academic performance and targeted practice under the guidance of educators can synergistically contribute to overall linguistic development.

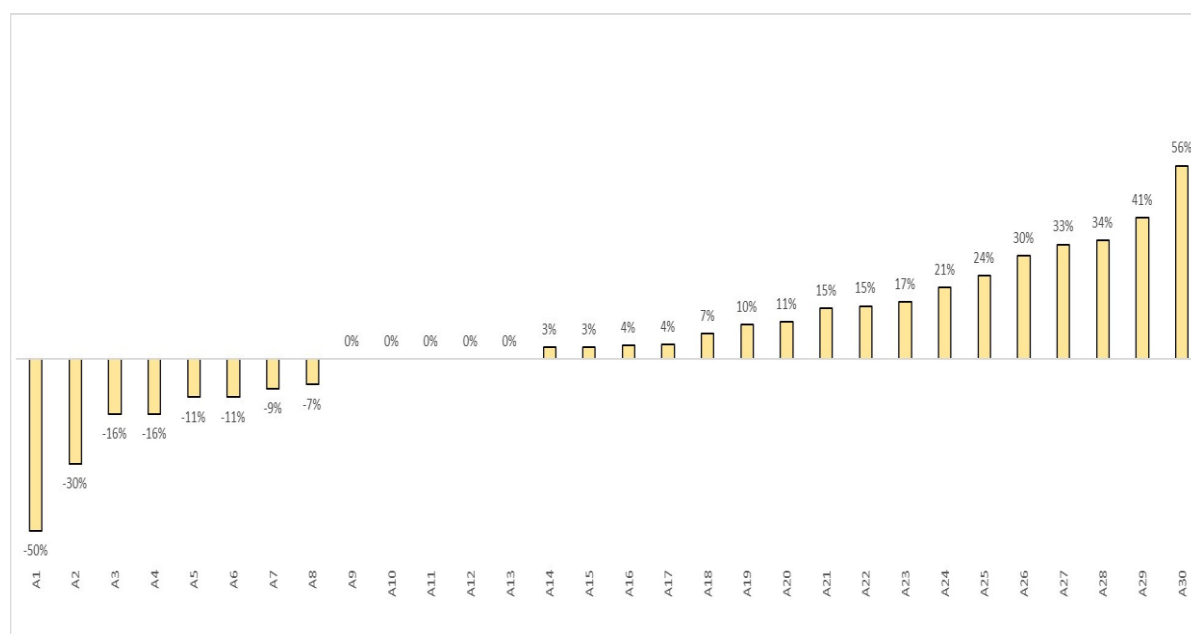
Họ và tên <sup>2</sup>	101_Pre_Fluency	101_Pre_Pronounce	Pre_Total	101_Post_Fluency	101_Post_Pronounce	Post_Total	Percent_Fluency	Percent_Pronounce	Percent_Total	±
A1	9.0	6.0	15.0	6.5	3.5	10.0	-38%	-71%	-50%	
A2	7.0	8.0	15.0	5.5	6.0	11.5	-27%	-33%	-30%	
A3	7.5	7.0	14.5	7.5	5.0	12.5	0%	-40%	-16%	
A4	6.5	8.0	14.5	6.5	6.0	12.5	0%	-33%	-16%	
A5	9.0	6.0	15.0	5.5	8.0	13.5	-64%	25%	-11%	
A6	5.0	5.0	10.0	3.5	5.5	9.0	-43%	9%	-11%	
A7	5.0	7.5	12.5	6.5	5.0	11.5	23%	-50%	-9%	
A8	8.0	6.5	14.5	6.5	7.0	13.5	-23%	7%	-7%	
A9	4.5	6.5	11.0	4.5	6.5	11.0	0%	0%	0%	
A10	3.5	7.0	10.5	5.5	5.0	10.5	36%	-40%	0%	
A11	5.5	4.0	9.5	4.5	5.0	9.5	-22%	20%	0%	
A12	6.5	5.0	11.5	6.5	5.0	11.5	0%	0%	0%	
A13	6.5	7.0	13.5	6.5	7.0	13.5	0%	0%	0%	
A14	7.0	7.0	14.0	8.0	6.5	14.5	13%	-8%	3%	
A15	7.0	7.0	14.0	7.5	7.0	14.5	7%	0%	3%	
A16	4.5	7.5	12.0	5.5	7.0	12.5	18%	-7%	4%	
A17	4.5	7.0	11.5	4.5	7.5	12.0	0%	7%	4%	
A18	6.5	6.0	12.5	6.0	7.5	13.5	-8%	20%	7%	
A19	6.5	7.0	13.5	7.0	8.0	15.0	7%	13%	10%	
A20	5.5	7.0	12.5	6.5	7.5	14.0	15%	7%	11%	
A21	5.5	6.0	11.5	6.5	7.0	13.5	15%	14%	15%	
A22	5.0	6.0	11.0	6.0	7.0	13.0	17%	14%	15%	
A23	4.5	5.5	10.0	6.0	6.0	12.0	25%	8%	17%	
A24	4.5	5.0	9.5	4.5	7.5	12.0	0%	33%	21%	
A25	5.0	6.0	11.0	7.0	7.5	14.5	29%	20%	24%	
A26	6.0	1.0	7.0	4.0	6.0	10.0	-50%	83%	30%	
A27	4.0	5.0	9.0	6.0	7.5	13.5	33%	33%	33%	
A28	7.0	2.5	9.5	7.5	7.0	14.5	7%	64%	34%	
A29	4.0	6.0	10.0	9.0	8.0	17.0	56%	25%	41%	
A30	6.5	0.5	7.0	8.5	7.5	16.0	24%	93%	56%	

*Figure 3.11 Students' scores of the control group from the Pre-test and Post-test*

Besides, the results from the experimental group revealed a significant improvement in students' pronunciation abilities following their engagement

with the AI chatbot for practice sessions. This positive shift in performance stands in stark contrast to their previous levels of proficiency before utilizing the AI tool. The data strongly suggests that integrating AI chatbots into English language learning, specifically for pronunciation practice, yields tangible benefits and enhances students' linguistic skills. The findings underscore the effectiveness of leveraging technology to supplement traditional teaching methods and provide students with additional opportunities for targeted practice and improvement. By incorporating AI chatbots into language learning curricula, educators can offer students a dynamic and interactive platform to enhance their pronunciation skills, ultimately contributing to a more comprehensive and effective learning experience. The success observed in the experimental group highlights the potential of AI chatbots as valuable tools in facilitating language acquisition and proficiency development.

According to Figure 3.12, it was evident that interviews were conducted with both students who saw their scores decrease and those who saw improvements.



*Figure 3.12 Student percentages of pre-and post-test scores*

Upon analyzing the data depicted in Figure 3.12, it became apparent that students who demonstrated both improvements and declines in their scores were interviewed to delve deeper into the influence of Chatbot AI on their performance. Through these interviews, valuable insights were gleaned regarding the various factors that played a role in either enhancing or hindering students' scores. The responses provided by the students shed light on the nuanced impact of utilizing the Chatbot AI for learning purposes. By exploring the perspectives of both successful and struggling students, a more comprehensive understanding of the effectiveness of Chatbot AI in academic settings was achieved. These interviews not only highlighted the diverse ways in which students interacted with the technology but also underscored the importance of personalized learning experiences in optimizing educational outcomes. The insights gathered from these interviews offer valuable guidance for educators seeking to leverage AI tools effectively in their teaching practices.

### **3.1.3. Findings from interviews**

One of the key factors that emerged as a catalyst for score improvements was the students' excitement and regular practice with the Chatbot AI. One student, A30, expressed their enthusiasm, stating, *"I feel excited when using the Chatbot as it helps me practice pronunciation regularly every day, and because of that, my score improves."* Another student, A19, highlighted the importance of the Chatbot AI in identifying and rectifying mistakes, stating, *"The Chatbot AI points out each mistake, and from there, I can know what I need to practice and avoid those errors."* These responses indicate that the interactive nature of the Chatbot AI, coupled with its ability to provide personalized feedback, played a significant role in helping students improve their scores.

On the other hand, students who experienced declines in their scores offered explanations for their lower grades. One student, A8, admitted to

enjoying using the Chatbot but not utilizing it frequently enough to work on their pronunciation consistently: "*I enjoy using Chatbot, but I don't use it frequently to work on my pronunciation.*" Additionally, "*I am quite confident when pronouncing, but when using Chatbot, it's probably because my laptop has poor sound reception.*" (student A13) is another argument for the lack of change in ratings. These responses suggest that the frequency of practice and technical challenges can hinder the effectiveness of the Chatbot AI in achieving score improvements.

Despite the variations in scores, the findings indicated that a majority of students shared similar motivations for learning English, such as studying to pass subjects or acquiring English proficiency for professional purposes. Additionally, students reported an increase in their confidence levels and a noticeable improvement in their pronunciation skills. Students expressed their enhanced confidence by stating, "*Because of the regular use of the Chatbot, my confidence when speaking English has improved*" and "*I felt more confident after practicing my pronunciation with the Chatbot.*" (Student A8, A13, A19, A30). These responses highlight the positive impact of the Chatbot AI on students' confidence and pronunciation skills.

However, it is crucial to acknowledge that the disparity in scores can be attributed to several factors. Students who witnessed score improvements were found to have dedicated more time to practice and maintained a regular practice routine than those whose scores declined. This suggests that consistent and dedicated practice is essential for achieving score improvements with the Chatbot AI.

Technical issues also played a significant role in score discrepancies. Students reported problems with faulty equipment, such as laptops or phones, and unstable internet connections, which hindered their ability to achieve high

scores. During the interviews, students expressed their concerns about the AI Chatbot, citing issues such as voice recognition failures, slow grading, and at times, no grading at all. These technical issues were identified as a hindrance to efficient learning and affected the overall experience of using the Chatbot AI. During the interview process, students expressed their concerns about the AI chatbot: *"There are times when it doesn't recognize my voice, or it takes too long to grade, or it doesn't grade at all, which wastes time and affects the turn."* (Student A13, A19), *"MissionFluent developers need to put more effort into improving these issues"* pupils A19 suggested. They suggested that the developers of MissionFluent should put more effort into resolving these issues to enhance the effectiveness of Chatbot AI.

In conclusion, the interviews with students provided valuable insights into the factors influencing score improvements and declines when using the Chatbot AI. Students who dedicated regular practice time and expressed enthusiasm for the Chatbot AI reported score improvements, highlighting the importance of consistent practice and personalized feedback. On the other hand, technical issues and inconsistent practice routines were identified as contributing factors to score declines. The interviews also emphasized the positive impact of the Chatbot AI on students' confidence and pronunciation skills. However, the developers must address technical issues to ensure a seamless learning experience for students.

## **3.2. Discussions**

### **3.2.1. Motivation of vocational students in enhancing English pronunciation**

There were several notable similarities and differences between our research and previous studies that were evident. In terms of similarity, the post-survey analysis data revealed an important connection between the

experimental group's students' increased motivation and confidence in their English language skills and their use of the AI Chatbot. It demonstrates that students' psychological aspects of language acquisition may benefit from the use of AI chatbot technology in language instruction (Jeon, 2024; Kuddus, 2022). The outcomes are consistent with earlier studies that have highlighted the possible advantages of utilizing AI in educational environments. AI Chatbots can help students learn languages in a friendly and interesting setting by offering them personalized and interactive language learning experiences. More research is necessary to explore the generalizability of these findings to other languages and different AI Chatbot platforms. It is crucial to note that the study focused specifically on English language skills and the use of MissionFluent AI Chatbot. As a consequence, their confidence and motivation may increase, improving the results of their language acquisition. This finding is consistent with similar results reported in previous studies conducted by Yang et al. (2022), as well as a study conducted by Aswaty and Indari (2022). These studies also demonstrated the positive impact of chatbot AI on students' speaking abilities.

### **3.2.2. Benefits of incorporating chatbot AI**

The integration of Chatbot AI in vocational education has brought forth a myriad of benefits that have positively impacted students' motivation and confidence levels. By providing personalized and interactive learning experiences, Chatbot AI has been able to engage students in a way that traditional methods may not have achieved. The immediate feedback and tailored support offered by Chatbot AI not only enhance students' understanding of the material but also instill a sense of autonomy and control over their learning process (Chumkaew, 2023). This personalized approach fosters a deeper sense of motivation among students, as they feel empowered

to take charge of their education and strive for academic success. As a result, students are more likely to engage with the material, set higher goals for themselves, and persist in the face of challenges, ultimately leading to improved academic performance and overall learning outcomes.

In addition to increasing motivation and confidence, Chatbot AI has also proven to be effective in enhancing English pronunciation skills and facilitating language learning. By providing students with opportunities to practice speaking and listening in a controlled and supportive environment, Chatbot AI helps improve their pronunciation accuracy and fluency. The instant feedback provided by Chatbot AI allows students to identify and correct pronunciation errors in real time, leading to more effective language acquisition. Moreover, the interactive nature of Chatbot AI encourages students to engage in conversations and practice their language skills in a low-pressure setting, helping them build confidence in their abilities. This enhanced focus on pronunciation and language skills not only improves students' overall language proficiency but also equips them with valuable communication skills that are essential in today's globalized world.

It is worth noting that the primary motivation for students' language learning was their desire to effectively communicate in English. This observation aligns with the concept of the Ideal L2 self within the L2 motivation framework. The Ideal L2 self refers to the vision individuals have of themselves as proficient English speakers, which serves as a driving force behind their motivation to learn the language.

To leverage the benefits of Chatbot AI and create a more engaging and interactive learning environment for vocational students, educators can explore various strategies and approaches. One potential way to enhance student engagement is to incorporate multimedia elements, such as videos, audio clips,

and interactive exercises, into the Chatbot AI platform. By providing a diverse range of learning materials, educators can cater to different learning styles and preferences, making the learning experience more dynamic and engaging for students. Additionally, integrating real-world scenarios and practical applications into the curriculum can help students see the relevance of their studies and apply their knowledge in meaningful ways. By connecting classroom learning to real-life situations, educators can motivate students to actively participate in their education and develop a deeper understanding of the material. Furthermore, fostering a collaborative and inclusive learning environment where students can interact with their peers, share ideas, and work together on projects can enhance student engagement and promote a sense of community within the classroom. By leveraging these strategies and incorporating Chatbot AI as a tool for interactive and personalized learning, educators can create a vibrant and stimulating learning environment that empowers vocational students to succeed in their academic pursuits.

### **3.2.3. Challenges of incorporating chatbot AI**

In the realm of vocational education, the integration of Chatbot AI technology presents both opportunities and challenges for students. One significant obstacle that students often encounter is related to the speaking function of Chatbot AI. While Chatbot AI excels in generating text-based responses, the conversational aspect, especially in spoken form, can sometimes fall short of providing a seamless interaction experience. Students may struggle with understanding the responses from the Chatbot AI when delivered through speech, leading to miscommunication and frustration.

To address these challenges, it is crucial to explore potential solutions or alternative approaches that can enhance the speaking function of Chatbot AI in vocational education settings. One approach could involve incorporating



natural language processing (NLP) techniques to improve the Chatbot AI's ability to understand and respond to spoken language more accurately. By fine-tuning the NLP algorithms and training the Chatbot AI on a diverse range of speech patterns and accents, we can enhance its conversational capabilities and make interactions more intuitive for students.

Furthermore, the importance of user feedback cannot be overstated in overcoming obstacles and maximizing the benefits of using Chatbot AI in vocational education. By actively seeking input from students on their experiences with Chatbot AI, educators and developers can gain valuable insights into the specific challenges they face with the speaking function. This feedback can then be used to iteratively improve the Chatbot AI's speech recognition and response generation capabilities, ultimately enhancing the overall user experience.

In short, continuous improvement is key in ensuring that Chatbot AI remains a valuable tool for students in vocational education. By leveraging user feedback, implementing innovative solutions, and prioritizing the enhancement of the speaking function, we can overcome obstacles and create a more seamless and effective learning environment. Through collaboration and a commitment to excellence, Chatbot AI has the potential to revolutionize vocational education and empower students to achieve their full potential.

## CONCLUSION

### 1. Recapitulation

In this study, the main focus was on investigating the impact of utilizing Chatbot AI on vocational students' English pronunciation skills. The findings of the study highlighted several key points that shed light on the effectiveness of incorporating Chatbot AI in language learning settings.

One of the primary findings of the study was the positive effect of Chatbot AI on the motivation of vocational students. It was observed that students' motivation levels significantly increased when engaging with the Chatbot AI platform. This improvement in motivation can be attributed to the interactive and personalized nature of the Chatbot AI, which provided students with a dynamic and engaging learning experience.

Furthermore, the study identified various benefits associated with the use of Chatbot AI in enhancing students' English pronunciation ability. Not only did students exhibit improved motivation levels, but they also demonstrated enhanced pronunciation skills after interacting with the Chatbot AI. The interactive nature of the platform allowed students to practice speaking English in a supportive and non-judgmental environment, leading to noticeable improvements in their pronunciation accuracy and fluency.

Despite the positive outcomes observed, the study also highlighted some obstacles encountered while using Chatbot AI for English language learning. One of the main challenges reported by students was related to difficulties with the speaking function of the chatbot. Some students experienced issues with the accuracy of the speech recognition technology used in the chatbot, which affected their ability to receive real-time feedback on their pronunciation.

In conclusion, the findings of this study underscore the potential of Chatbot AI as a valuable tool for improving students' English pronunciation

skills and enhancing their motivation in language learning. By providing students with an interactive and personalized learning experience, Chatbot AI can effectively support language acquisition and help students overcome barriers to effective communication. However, it is essential to address technical challenges, such as improving the accuracy of speech recognition technology, to maximize the benefits of using Chatbot AI in language learning contexts.

Overall, this study contributes to the growing body of research on the integration of AI technologies in education and highlights the promising role of Chatbot AI in supporting students' language learning goals. Further research and development in this area are warranted to explore the full potential of Chatbot AI in improving English pronunciation and fostering a positive learning environment for vocational students.

## **2. Implications**

Therefore, it is suggested that educational institutions should implement AI chatbot technology, such as incorporating it into the existing curriculum, offering students guidance and support, monitoring progress and providing timely feedback, and continuously improving the chatbot AI based on user feedback to enhance its functionality and effectiveness. Hence, it is strongly recommended that educational institutions proactively embrace the integration of AI chatbot technology into their existing curriculum. This can be achieved by seamlessly incorporating AI chatbots into various language learning activities and lessons. By doing so, institutions can provide students with a valuable tool that offers them personalized guidance and support throughout their language learning journey.

Furthermore, educational institutions should prioritize the establishment of a robust monitoring system to track students' progress and performance with

the assistance of AI chatbots. This monitoring mechanism can effectively gauge students' pronunciation development and identify areas that require further improvement. With this valuable insight, educators can tailor their teaching strategies and provide targeted interventions to ensure students' continuous growth and success.

In addition to monitoring progress, institutions must provide timely feedback to students using AI chatbot technology. The instantaneous feedback feature of AI chatbots enables students to immediately recognize and rectify pronunciation errors, thereby accelerating their learning process. By offering constructive feedback in real-time, educational institutions can foster a supportive and interactive learning environment that encourages students to actively engage with the AI chatbot and refine their pronunciation skills.

Moreover, educational institutions must prioritize continuous improvement of the AI chatbot's functionality and effectiveness. This can be achieved through a systematic approach that involves collecting and analyzing user feedback. By actively seeking input from students and educators, institutions can identify areas of improvement and implement necessary updates to enhance the AI chatbot's performance. Regularly updating the chatbot's AI algorithms and incorporating new features based on user feedback will ensure that it remains a cutting-edge tool that optimally supports students' language learning needs.

By implementing AI chatbot technology in these ways, educational institutions can unlock a plethora of benefits. Students will have access to a personalized learning experience that caters to their individual needs and preferences. The integration of AI chatbots into the curriculum will not only enhance students' pronunciation skills but also promote their overall language competency. Additionally, the use of AI chatbots can alleviate the workload of

educators by providing automated support and feedback, allowing them to focus on other aspects of instruction and student development.

### **3. Limitations**

Nevertheless, it is important to acknowledge and address the limitations of this research to ensure a comprehensive understanding of the implications. Firstly, it is essential to note that the scope of this study was limited to vocational schools, which restricts the generalizability of the findings to other educational levels such as high schools and universities. Therefore, it is crucial to conduct further and more in-depth studies to explore the potential applications of AI chatbots in these diverse educational settings. By doing so, researchers can obtain a broader perspective on the effectiveness and adaptability of AI chatbots across different educational contexts.

Another limitation of this study is that it solely focused on improving English pronunciation, neglecting other crucial language skills such as writing, reading, and listening. Future studies should aim to explore the impact of AI chatbot technology on overall language proficiency. By considering the holistic development of language skills, researchers can gain a more comprehensive understanding of the potential benefits and limitations of AI chatbots in language learning.

In addition, it is crucial to consider the constraints imposed by the time limit and small sample size of this study. These factors may have influenced the reliability and generalizability of the outcomes. To overcome this limitation, it is advisable to conduct research on a larger scale and over a longer period of time. This will allow for a more extensive data collection process and a more accurate representation of the impact of AI chatbots on vocational students' English pronunciation skills. By obtaining more reliable results, researchers

and educators can make more informed decisions regarding the integration of AI chatbots into language learning environments.

In short, while this research provides valuable insights into the effectiveness of AI chatbots in improving vocational students' English pronunciation, it is crucial to acknowledge and address the limitations of the study. Further research should be conducted to explore the potential applications of AI chatbots in different educational levels and linguistic skill areas. Additionally, conducting research on a larger scale and over a longer period will yield more reliable and generalizable results. By addressing these limitations, researchers can enhance the validity and applicability of the findings, ultimately contributing to the advancement of AI chatbot technology in language learning.

#### **4. Suggestions for further studies**

In conclusion, this paper investigates the effectiveness of AI Chatbots, specifically Mission Fluent, in improving vocational students' English pronunciation. Based on the study, it can be seen that AI Chatbot is a useful tool in conventional classroom training, offering more opportunities for practice and timely feedback, eventually improving students' performances. However, it is important to acknowledge the limitations of this study and conduct follow-up research to explore the potential of AI chatbots in different educational contexts and linguistic skill levels. Educational institutions should foster more effective and engaging language learning environments by utilizing technological advances like AI chatbots to improve students' language ability. Besides, through this research, researchers can rely on it as a premise for using Chatbot AI to improve other skills at other levels.

In conclusion, this paper delves into the effectiveness of AI Chatbots, specifically Mission Fluent, in enhancing the English pronunciation of

vocational students. The findings of this study indicate that AI Chatbots serve as valuable tools in traditional classroom settings, providing additional practice opportunities and prompt feedback, ultimately leading to improved student performances. However, it is crucial to acknowledge the limitations of this study and undertake subsequent research to explore the potential of AI chatbots in diverse educational contexts and across various levels of linguistic proficiency.

In order to create more effective and engaging language learning environments, educational institutions should embrace technological advancements such as AI chatbots to enhance students' language abilities. This research serves as a foundation for future investigations, enabling researchers to leverage Chatbot AI to improve other skills at different proficiency levels.

To further expand on this topic, future studies can focus on the following areas: First, exploring the effectiveness of AI chatbots in other educational contexts: This study primarily examined the impact of AI chatbots on vocational students' English pronunciation. Additional research can investigate the efficacy of AI chatbots in different educational settings, such as primary schools, high schools, or universities. By exploring the benefits and challenges of integrating AI chatbots into these contexts, educators can gain valuable insights into their potential applications.

Next, assessing the impact of AI chatbots on other linguistic skills: While this study focused on improving English pronunciation, future research can explore the effectiveness of AI chatbots in enhancing other language skills, such as vocabulary acquisition, grammar proficiency, or conversational fluency. By examining the impact of AI chatbots on a broader range of language competencies, researchers can provide a more comprehensive understanding of their potential benefits.

Besides, investigating the role of AI chatbots in personalized language learning: Each student has unique learning needs and preferences. Future studies can delve into how AI chatbots can be customized to cater to individual learners, providing personalized language learning experiences. By considering factors such as learning styles, interests, and proficiency levels, researchers can design AI chatbots that adapt to the specific requirements of each student. Additionally, examining the long-term impact of AI chatbots on language proficiency: This study focused on short-term improvements in English pronunciation. However, it would be valuable to investigate the long-term effects of AI chatbot integration on overall language proficiency. By assessing students' language skills over an extended period, researchers can determine whether the benefits derived from AI chatbots are sustained and contribute to a more comprehensive language development.

In summary, this study highlights the positive impact of AI chatbots, specifically Mission Fluent, on vocational students' English pronunciation. However, further research is necessary to explore the potential of AI chatbots in diverse educational contexts, analyze their impact on other linguistic skills, investigate personalized language learning approaches, and assess their long-term effects on language proficiency. By addressing these areas, educators can leverage AI chatbots to create more effective and engaging language learning environments for students at various levels of proficiency.



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## APPENDICES

### Appendix 1: Survey

#### 1. Pre – survey:

1. Age
2. Major
3. English Proficiency Level (on a scale of 1 to 5, with 1 being a beginner and 5 being advanced)
4. How motivated are you to improve your English pronunciation? (on a scale of 1 to 5, with 1 being not motivated at all and 5 being highly motivated)
5. What are the main reasons for your motivation to improve your English pronunciation? (Communicate effectively, Success in school, Progress in one's career, Boost confidence, The blending of cultures or Others)
6. How confident are you in your current English pronunciation skills? (on a scale of 1 to 5, with 1 being not confident at all and 5 being very confident)
7. On a scale of 1 to 5, how familiar are you with AI-based language learning tools?
8. Have you used a chatbot AI for English pronunciation practice before?  
Yes/No
9. If yes, how frequently do you use the chatbot AI for English pronunciation practice? (on a scale of 1 to 5, with 1 being rarely and 5 being frequently)
10. How would you rate the resources available for pronunciation practice? (on a scale from 1 to 5, Very limited, Limited, Adequate, Good, Excellent)
11. How helpful do you expect the chatbot AI to improve your English pronunciation? (on a scale of 1 to 5, with 1 being not helpful at all and 5 being extremely helpful)
12. Do you know or use Chatbot AI (MissionFluent)? Yes/No

#### 2. Post – survey:

1. Name
2. Email
3. Which parts of MissionFluent do you find most useful? (Conversations with speaking bot, Scoring your speaking or Others)
4. How motivated do you feel after using the chatbot AI (MissionFluent) to improve your English pronunciation? (on a scale of 1 to 5, with 1 being not motivated at all and 5 being highly motivated)
5. How confident do you feel in your English pronunciation skills after using the chatbot AI? (on a scale of 1 to 5, with 1 being not confident at all and 5 being very confident)
6. How helpful did you find the chatbot AI in improving your English pronunciation? (on a scale of 1 to 5, with 1 being not helpful at all and 5 being extremely helpful)
7. Have you noticed any improvements or changes in your English pronunciation after using the chatbot AI? (on a scale of 1 to 5, with 1 being no change at all and 5 being a complete change)
8. Would you recommend using a chatbot AI for English pronunciation practice to other vocational students? Yes/No
9. Do you have any suggestions to improve the AI MissionFluent Chatbot for programmers? Yes/No
10. If yes, kindly offer some recommendations.

## **Appendix 2: Questions for semi-interview**

1. Are you interested in the AI chatbot MissionFluent after using it?
2. Which feature of the AI chatbot (MissionFluent) do you find most useful after using it?



3. Has your pronunciation motivation increased much after using AI chatbot (MissionFluent)?
4. Has your confidence in your English pronunciation increased as a result of utilizing the AI chatbot?
5. Have you encountered any problems using AI chatbots? If so, please describe those issues in detail.
6. Do you have any suggestions for AI chatbot developers to improve it?

### **Appendix 3: Pre-test and Post-test**

#### **Read this paragraph using the Chatbot AI to check your pronunciation:**

“Tom's pet is a cat. It lives in the house with Tom and his family. It has a long tail and two green eyes. In the morning, the cat plays on the mat on the floor in the living room with Tom. Its favourite toy is a mouse. It drinks its milk and eats its food in the garden.”

(*Source: Cambridge English Pre-A1 Starters 3 Student's Book 2019*)

### **Appendix 4: AI Intervention**

#### **1. Content:**

The chatbot AI intervention will focus on providing personalized and interactive English pronunciation practice for vocational students. The chatbot will use speech recognition technology to assess students' pronunciation accuracy and provide immediate feedback. It will also offer pronunciation exercises, drills, and tips tailored to each student's specific needs and areas of improvement. Additionally, the chatbot will engage students in conversational practice to help them improve their speaking fluency and confidence.

#### **2. Procedures:**

1. *Experimental Group:*

- Students in the experimental group will be divided into smaller subgroups and assigned 3 times a week (in two weeks) for interacting with the chatbot AI in class and at least one time a day at home.
- Each student will have a dedicated login account to access the chatbot AI platform.
- Students will engage in interactive pronunciation exercises, practice drills, and conversational sessions with the chatbot AI for a set amount of time each session.
- The chatbot AI will provide immediate feedback on pronunciation accuracy and offer personalized guidance on improving English pronunciation skills.
- Students will be encouraged to practice regularly with the chatbot AI outside of scheduled sessions to reinforce learning.
- Progress reports and data on student performance will be collected and analyzed to assess the effectiveness of the chatbot AI intervention.

## 2. *Control Group:*

- Students in the control group will receive regular English pronunciation instruction as per the standard curriculum.
- They will not have access to the chatbot AI intervention.
- Progress reports and data on student performance will also be collected and analyzed for comparison with the experimental group.

By implementing this AI intervention, we aim to explore the impact of chatbot AI technology on improving vocational students' English pronunciation skills and assess its effectiveness as a supplementary tool for language learning.