Empowering Thai Community-based Tourism Operators: Enhancing English Pronunciation Abilities with AI-based Lessons

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Abstract

This article reports the outcomes of using specially designed Artificial Intelligence (AI) powered lessons to assess the uptake of English pronunciation skills by local tourism business people who are adult learners with limited English pronunciation skills. The article also investigates challenges in the task of designing the AI-based lessons application. The study involved 15 participants who were involved in the tourism business in Kranuan district, Khon Kaen, Thailand. All participants first took a pronunciation pre-test for each lesson before they spent time practicing with the application at their own pace. The learning tasks involved everyday English pronunciation and business English. At the completion of each lesson, the participants took the post-test. The pre- and post-tests results were then analyzed with a t-test to obtain the outcomes of their pronunciation learning, and to identify types and patterns of errors they made most frequently. In the discussion, relevant pronunciation issues were then gathered and analyzed from the qualitative descriptive data analysis to ensure meaningful, credible, and practical results. The findings reveal the usability of the AI-based lessons in enhancing the participants' pronunciation skills. Additionally, the use of mobile technology was found to be an effective tool for lifetime learning, although there were some difficulties with the technological aspects of delivering the course via the mobile application. The participants' English pronunciation scores increased considerably because of the improvement in their pronunciation. However, several of the activities generated intriguing questions about the participants' pronunciation skills in particular sessions. Through the lens of applied linguistics, the authors examined English for Specific Purposes (ESP). The future focus of ESP on applied linguistics research and teacher preparation will be affected in some ways by the results of this study. Moreover, the use of mobile technology can support lifetime language learning patterns.

Keywords: AI-based lessons, ESP for tourism, community-based tourism, pronunciation, English as a Foreign Language, EFL

Introduction

The Mekong region is one of the most popular tourist sites in the world, attracting more than 60 million visitors in 2019 (mekongtourism.org, 2020). In order to encourage economic growth, create jobs, and foster peaceful communities, the governments of Cambodia, Lao PDR, Myanmar, Vietnam, and Thailand are working to make tourist development more balanced, cooperative, and sustainable. The effort has been seen in the 47th Meeting of the Tourism Working Group (TWG-47) held via video conference on May 27, 2021, by the Greater Mekong Subregion (GMS) as well as in a number of projects aimed at enabling the five countries to compete more effectively in the quickly growing inbound tourism market. Nations in the Mekong region are aware that the tourism industry has significant potential to promote growth and lessen poverty. Thai tourism, in particular, has grown significantly over the past three decades on a global scale and evolved into a key sector that has contributed significantly to the Mekong region's tourism industry. Thailand, with over 32,000,000 visitors in 2019 (mekongtourism.org, 2020), has been a trailblazer in developing its tourism industry through several programs. However, it is a known fact that the most useful language for fostering understanding between tourists and hosts is English (Prabjanee and Inthachot, 2013). According to Kalasin and Charumanee (2015), hotel receptionists working in southern Thailand's tourist zones need to enhance their English language abilities. Speaking and listening abilities were deemed to be of the utmost importance because they are crucial for the delivery of services.

Regarding the limitations in English pronunciation in the Mekong region, Kakandee et al. (2018) reveal the challenges and opportunities related to language barriers in Myanmar's tourism industry. In addition, Durdyev et al. (2018) mention language barriers as an important issue in tourism development in Cambodia and propose strategies to overcome these barriers. Moreover, Homsombat et al. (2019) present the results of an empirical study on language barriers in the hospitality industry in Laos and discuss the implications for the country's tourism development. Thus, language is a vital tool in facilitating communication and enabling locals to market their goods and services effectively to tourists. Countries that invest in language education and encourage their citizens to learn foreign languages can benefit from increased tourism revenue and improved economic growth (Mantra et al., 2020).

Fortunately, the growth of AI technology has given hope to several sectors in the form of cutting-edge tools to improve the well-being of Thai citizens and other nations. However, a study by Deerajviset (2022) showed that there has been a lack of AI-based studies, particularly in English language education, in the context of ASEAN and the Mekong region. With limited research, further study on AI in the tourist sector is necessary to determine if AI can also play a more practical role in enhancing the caliber of English pronunciation skills among participants in community-based tourism in northeast Thailand. Thus, the present study concentrated on the deployment of an application designed to support the performance of local community-based tourism. This article presents a comprehensive review of the relevant literature, outlines the research methods employed to investigate the efficacy of pronunciation lessons, reports the findings, discusses the effectiveness of AI-based lessons on smartphones, examines the factors and applications involved, and finally, addresses the anticipated challenges and changes in the field of tourism in the future.

Literature Review

Relevant work covers the importance of pronunciation skills of the homestay hosts, the role of English pronunciation in community-based tourism (CBT), English for Specific Purposes (ESP), informal instruction in language, learning theory in language learning, artificial intelligence for language learning, and AI-based lessons.

The Importance of English Pronunciation in Tourism

In CBT businesses, it is important to note that a key to success is the human touch – a friendly and relaxed way of treating people. One way for homestay hosts to deliver this appropriately to tourists is through good pronunciation skills. Consequently, these skills can be an important factor in the success of community-based tourism (CBT) businesses. As Luo (2022) argues, good English language skills can enhance the quality of communication with tourists and improve their overall travel experience, leading to positive reviews and repeat business. Similarly, Abdullah and Hashim (2021) examined the perceptions of homestay hosts in Malaysia regarding the importance of English language proficiency, including pronunciation skills, in their interactions with tourists. The authors found that hosts who had good English language skills were better able to communicate with their guests, leading to improved guest satisfaction and positive reviews. Similarly, a review by Ardani et al. (2019) indicates that hosts who had good pronunciation skills were better able to meet the needs and expectations of tourists, leading to higher levels of guest satisfaction and positive reviews. In sum, improving hosts' English pronunciation skills should be a priority for the development of the homestay tourism industry for all nations in the Mekong region.

English Pronunciation in Community-based Tourism (CBT)

English has been recognized as a powerful component in boosting community-based tourism. CBT is considered an excellent tool for economic leverage, development cooperation, and poverty reduction around the globe. The potential of a community is fostered by creating a unique type of tourism. CBT has therefore been created to assist locals in uncovering the potential of regional know-how that can promote the development of socio-economic, linguistic, and cultural heritage

(Nomnian et al., 2020). However, even though its intention has been made clear, CBT has faced significant obstacles in meeting its mission. In this sense, one of the pervasive issues noted in the literature review is the lack of proficiency in English pronunciation skills of the locals (Prachanant, 2012). There are not many fieldwork-based descriptions of English language use in situations related to tourism (Phanthaphoommee and Nomnian, 2022). It is clear from the review of studies in this area that the language limitations of the hosts have drawbacks that are frequently overlooked in the Thai tourism industry.

English for Specific Purposes *(*ESP*)*

English for Specific Purposes (ESP) is among the relevant teaching approaches in the CBT context. ESP takes place when the classroom features English aimed at professional training (Pardayevna et al., 2021). It is an all-encompassing teaching process that includes a wide range of sub-divisions, with new ones being added to the list each year. ESP is flexible and often intended for intermediate or advanced students, but it may also be used with novices. As ESP is centered on the language (grammar, lexis, register), skills, discourse, and genres suited to specific activities, it could be the right method to address the unique requirements of the learner.

However, regarding implementation of ESP into the specific learning context, some argue that it is the environment in which the language will be utilized, rather than the material itself, that is a key differentiator of ESP courses. According to Gollin-Kies et al. (2015), ESP should concentrate on the role of language in developing group values and self-identification, as well as uncovering and evaluating the mechanisms by which individuals might become proficient in using language in particular contexts for their own goals. In the same way, Dudley-Evans and St John (1998) assume that all ESP teaching should reflect the methodology of the disciplines and professions it serves. Therefore, ESP is considered different from other forms of English language instruction.

Informal Instruction in English Language

Teaching and learning practices are frequently based on factors such as student levels, needs, interests, and backgrounds, as well as on the cultural setting of the classroom. It is not surprising that many residents of rural areas lack the English language skills necessary to interact with tourists. This explains why CBT was unsuccessful in most Thai communities. For instance, the beneficiary population found it difficult to participate in tourism promotion activities if they could not communicate. In many studies, they felt disappointed if they were unable to take part in the tourism activities (Luo, 2022). Moreover, they would not be able to interact with tourists in a meaningful way, talk about their everyday lives, or share experiences. It is obvious that the personnel at local communities should be insightful hosts who are able to handle the many kinds of communication that take place between tourists and the community.

Artificial Intelligence for Language Learning

According to Lu et al. (2018), CBT practitioners who were operating primarily as micro-business owners—such as homestay owners, farmers, and traditional coffee shop owners—had difficulty using English to accommodate their visitors. Mastering English pronunciation skills requires a great deal of time, effective methods of learning, and appropriate training materials. Operators in the Thai CBT context speak Isan as their first language and Central Thai as their official tongue. An additional challenge is that many of them had not had exposure to English after their high school years. As a result, their level of English competence was low. Another barrier to attending in-person language classes was that they had to devote long hours of physical labor to earning a living because of their socio-economic background and status as micro-entrepreneurs (Nomnian et al., 2020). Consequently, the extra classes in English didn't appeal to them.

Pronunciation abilities include producing, receiving, and processing information in order to formally or informally communicate meaning and maintain social connections (Brown, 2001). Thus,

AI applications on mobile phones can be considered tools with which users build their pronunciation depending on their affective state as well as their speaking.

Learning Theory in Language Learning

In this scenario, affective psychological factors such as motivation, attitude, self-confidence, risk-taking, and anxiety are so prevalent that they can cause affective states (Krashen, 1982). In designing AI-based lessons in mobile applications, three types of anxiety were distinguished: trait, state, and situation-specific (MacIntyre and Gardner, 1991; Teimouri et al., 2019). Situation-specific anxiety is a persistently unfavorable emotion that is primarily brought on by a specific circumstance, such as a test, a public speaking engagement, or class participation. Foreign language anxiety (FLA), which is specific to circumstances when FL is being learned, is an illustration of situation-specific anxiety. The AI-based courses should improve the students' pronunciation skills, which are affected by both their emotional state and their speaking and listening abilities. Practicing pronunciation in class raises anxiety, yet achieving learning objectives requires them to have self-confidence. Anxiety is a persistently negative emotion that is associated with a particular event, such as a test, a public speaking engagement, or class participation. This emotion is thought to be an impediment to practicing pronunciation. According to Horwitz et al. (1986), anxious students report complicated sensations of dread, anxiety, fear, loss of focus, forgetfulness, and heart palpitations. Affective psychological factors influence the affective state (Krashen, 1982). In this sense, artificial intelligence (AI) could make it possible to engage in socially similar activities, and interaction allows learners to identify differences between their own (production) inter-language and the written or spoken TLs of their virtual counterparts (Lee, 2022). The efficient use of a variety of pedagogical strategies in intelligent computer-assisted language learning and instruction is enabled by AI capabilities (Zawacki-Richter et al., 2019; Zhang and Zou, 2020). As dialogue-based computer-assisted language learning systems, AI

chatbots fall under the first group (Bibauw et al., 2022). Thus, artificial intelligence (AI) with an oral interface can simplify the lives of those who use it.

AI-based Lesson

Several cognitive models such as Skill Acquisition Theory and Processability Theory, as well as sociocultural theories such as Sociocultural Theory and the Zone of Proximal Development point out that by taking part in a very explicit activity, participants will directly improve their pronunciation and pronunciation skills. AI-based lesson design, inspired by ELSA Speak, which is a language learning app that uses advanced speech recognition technology and artificial intelligence to help non-native speakers improve their English pronunciation and fluency, is therefore considered a crucial part of this study. On the users' smartphones, the app will serve as a pronunciation coach. The design of the app in the study, however, was based on the ESP concept, using the CBT hosts' background and the language skills required to develop lessons. The topics had been surveyed by the researchers to provide what the communities and the local tourism operators wanted. With exercises at the word, phrase, and dialogue levels, the app was created to serve as a pronunciation coach. The app uses proprietary speech recognition technology and personalized, gamified programming to give users instant feedback via accurate percentages. It can be downloaded from the Google Play store, making it convenient for most mobile users.

Conceptual Framework

In conceptualizing this study, the design of the application was considered a significant part. The specially designed AI-based lessons were aimed at improving the English pronunciation of the participants who were the local homestay owners. The research concept involved several issues. For example, homestay owners may live in rural areas where there are limited English language learning opportunities, or they may have other responsibilities that leave them with little time to focus

on improving their English language skills. These factors, unfortunately, affect their roles in promoting cultural exchange and local tourism.

This study, thus, was intended to design an application of AI-based lessons aimed at improving the English pronunciation of homestay owners and to evaluate the effectiveness of the application in achieving this goal. The researchers employed a mixed method approach to investigate the impacts of the AI-based lesson in English pronunciation on the pronunciation skills of the homestay hosts in the local area. Participation in the research was voluntary. Thus, the participants were mixed of genders, age ranges, careers, and English language proficiency levels. The AI-based language learning application was designed to address the specific needs of homestay owners, and included common vocabulary and pronunciation. Figure 1 illustrates the process in design and development of the AI-based lessons.

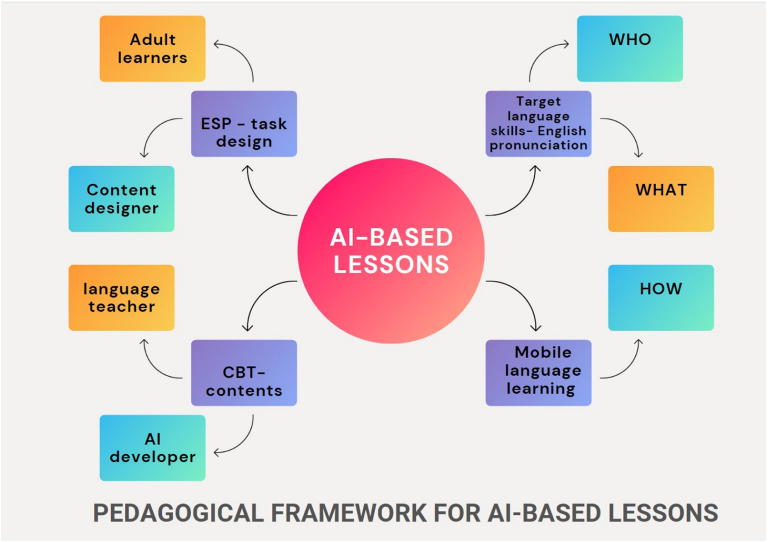

Figure 1 The process in development of the AI-based lessons

As illustrated in Figure 1, the application was delivered through a smartphone or tablet and was available in both online and offline

modes. Participants were asked to complete a minimum of 30 minutes of daily practice using the application for a period of four weeks. To evaluate the effectiveness of the application, a pre-test and a post-test were administered to assess improvements in English pronunciation. Furthermore, an interview was conducted to gather qualitative data on participants' experiences and perceptions of the application. The study aimed to provide valuable insights into the potential of AI-based language learning applications to improve the English pronunciation of local homestay owners and to enhance the quality of the tourism industry in the region.

Research Methods

In this research, the focus is on developing AI-based lessons to improve the pronunciation skills of learners in an English for Specific Purposes (ESP) course. In this section, the design, development, and implementation of the AI-based lesson and the methods used to evaluate its effectiveness are described.

AI-Based Lesson Development

The development of AI-based lessons to promote pronunciation skills can be broken down into several steps. Figure 2 presents details of how these lessons were developed. First, the researchers identified the learning objectives related to the specific pronunciation skills that CBT hosts need to learn. This was done through a needs analysis. Next, the outline of the lessons was examined by language experts and CBT stakeholders to identify the most important skills to focus on. Then, the appropriate technology was selected from various AI technologies available including speech recognition, natural language processing, and machine learning. Once the learning objectives and AI technology had been identified, learning materials were curated and created. The next step was mainly done by the programmers. It was the development of an adaptive learning algorithm which can analyze the learner's progress and provide personalized feedback based on their performance.

After that, the AI-based lessons were tested with a pilot group of users to gather feedback and make improvements to the lessons as needed. Next, the AI-based lessons, which include features like progress tracking, personalized learning plans, and access to language tutors, were distributed to CBT hosts through a mobile application.

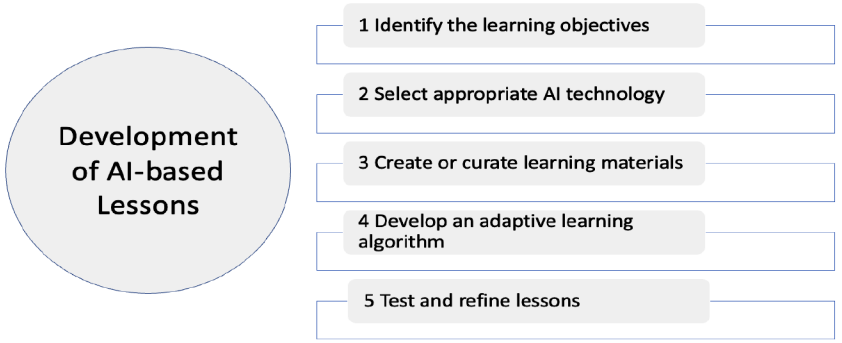

Figure 2 AI-based lesson development

As illustrated in Figure 2, developing AI-based lessons to promote pronunciation skills for CBT hosts involved a comprehensive process that required careful planning, collaboration with experts, and the use of appropriate AI technology.

Each AI-based lesson consists of a welcome page, a story page, a conversation page, a vocabulary page, and a results page. Figure 3 provides lists of vocabulary in the ten AI-based lessons. According to Figure 3, a learner begins the first lesson by listening to a recording which is narrated by a native speaker in simple English. Next, the learner listens to a conversation made about the story he/she listened to earlier. After that, the learner can listen to word pronunciation. The ten words in this activity are related to the unit. The learner is allowed to begin any activity. In addition, the learner can click the button at the bottom corner of the screen to try his/her pronunciation skills. For this function, the learner speaks the sentence or word that appears on the screen to the mobile phone, and then the result of how well the sound

made by the learner compares with the sound embedded in the application. The result of each word/sentence pronunciation is in percentage format. If the scores are under 80 percent, the student can redo it five times. The highest score is recorded if it is more than 80, or the learner can skip to the next words. Table 1 presents vocabulary included in the ten AI-based lessons.

Table 1 List of vocabulary in the AI-based lessons

Category	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
People	Tourist	Husband	Wife	Son	Daughter	Girl	Boy	Neighbours	Children	Elder
Accommodation	Homestay	Hotel	Bed	Blanket	Pillow	Comb	Toothbrush	Toothpaste	Towel	Toilet paper
Culture	Buddha image	Pay respect	Pour water of dedication	Dedicated to loved ones	Monk	Offer food to the monk	Listen to the sermon	Make merit	Buddha holy day	The candlelight procession
Farm	Rice field	Farm	Garden	Cottage	Farmer	Buffalo	Harvest	Garden view	Grow rice	Rice mill machine
Massage and spa	Herbal massage ball	Herbal compress massage	Facial massage	Pressure point massage	Herbal wrap	Herbal bath	Herbal scrub	Oil massage	Back massage	Massager
Shopping and souvenir	Thai weaving	Tie dyed fabric	Basketry	Textile fabric	Convenience store	Market	Grocery	Cheap	Expensive	Souvenir
Thai boxing	Boxing shorts	Boxing gloves	Head guard	Mongkhon headband	Mouth guard	Punch	Uppercut	Foot-thrust	Kick	Boxer
Thai dance	Thai folk dance	Walk in a circle	Delicate	Beautiful	Smile	Pleat	Lift foot	Inverted pleat	Flex the hand upward at the wrist	Movement
Tradition	Holy thread	Tray	Ceremony	Brahman spell	spirit	Brahma priest	Pedestal tray	Blessing	Boiled egg	Thread
Transportation	Airport	Airplane	Vehicles	Bus station	Motorbike	Taxi	Train	Train station	Pick up truck taxi	Auto rickshaw (Tuk-tuk)

The Pre-test and the Post-test Constructions

The design, validity, and reliability of the pre-test and post-test involved several steps. First, the learning outcome was identified to measure the targeted specific pronunciation skills. As the pronunciation skills in this study were intended for hosts of a CBT business with limited background and familiarity with the target language, the level of difficulty was based on their language ability. The pilot test was arranged with a small group

of other non-participants who were from the same area. The pre-test was administered before the instruction on pronunciation skills had taken place. Then the instructors provided the orientation for the application. The participants were informed that during the process they were expected to practice, record, and listen to their own voice on the developed AI-based lesson, called LangGo. Then, LangGo analyzed their recordings and provided real-time visual feedback to help them improve their pronunciation. They were also informed of their right to withdraw at any time if they were unwilling or unable to be part of the study.

Research Procedures

The AI-based course was delivered through mobile learning and evaluated using a combination of quantitative and qualitative data collection methods. The three phases of data collection are described below.

Phase 1: A survey was conducted to learn more about the concept of community-based tourism (CBT) and the requirements for pronunciation. The findings, which included preferred learning styles, vocabulary, and dialogues, were crucial to the design of the lessons. In the application, there are lessons on relevant issues like hospitality, travel, and accommodation. Ten new words with their definitions and pronunciation are introduced in each lesson. In addition, a dialogue with the ten words was created in the CBT context. The final AI-based lessons were created after the full lesson draft was evaluated by three experts (an English native speaker, a senior language instructor, and a community-based researcher).

Phase 2: 1 Participants were chosen from a community with no history of community-based activities. The 15 participants ranged in age from 12 to 45. They were introduced to the idea of community-based tourism (CBT) first. The researchers then gave an example of how to learn English pronunciation for CBT hosts from the mobile application that was specifically created for the purpose. In this regard, the mobile application, Line, served as a platform for technical problem consultation,

sharing of results, idea exchange, learning experiences and prolonged language learning.

Phase 3: After each participant had finished the ten AI-based lessons, the researchers collected the application's learning results and conducted data analysis.

Research Results

This study specifically aimed to determine how AI-based lessons affect non-native English speakers' pronunciation skills. In each of the lessons, the ten English words were organized into words and dialogues. Participants in the study included four men and 11 women, totaling 15, with educational backgrounds ranging from elementary school through bachelor's degrees. Their ages ranged from 16 to 49.

Results of the Pre-test and the Post-test

The pre-test and the post-test were used before and after the learning of each lesson, respectively. For the pre-test, the participants pronounced the words and dialogues in each lesson without listening to the model voice. Figure 3 compares the instructions of the pre-test and the post-test.

Figure 3 Comparison of the pre-test and post-test processes

The software transcribed the speech and graded each word. Following that, the participants used Google AI-generated sounds to learn how to pronounce the words and dialogues on their own. After the drilling, the post-test—like the pre-test—was given after the students had gained confidence. They then wrote the two scores on the form as shown in Figure 2. It was suggested that they repeat the procedure until they had learned all the lessons. The following categories describe how the application rates pronunciation accuracy. Category 1 is for those who scored less than 30 percent on pronunciation accuracy. Subsequently, Category 2 is for the participants who could make scores between 30 and 40 percent accuracy of pronunciation. The highest grade, category 8, had a pronunciation accuracy rate of over 90 percent, as shown in Figure 4 below.

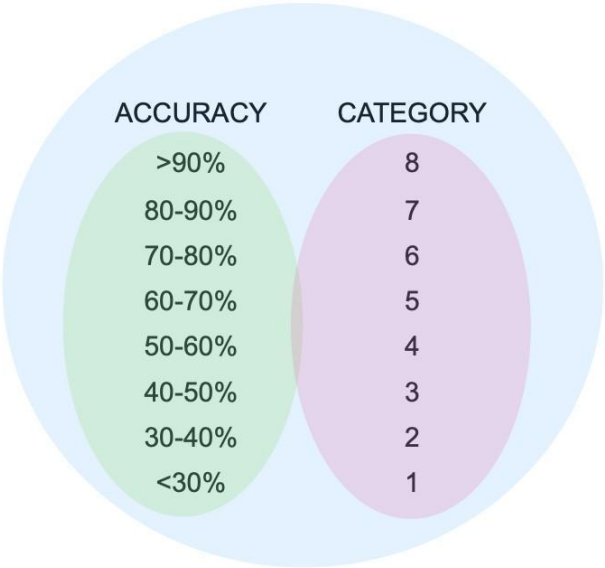

Figure 4 Accuracy evaluation

Figure 4 illustrates the categories of scores of pronunciation. There are ten sets of lessons covering subjects like self-introduction, lodging, dining, and festivals. There are 100 words in total, both short and long, of varying lengths. There are 64 single-word entries, 32 double-word entries, eight triple-word entries, and six four-word or longer entries. The words are typically simple ones that are frequently used in the context of local tourism.

According to the overall test results, the average pronunciation accuracy in the pre-tests was between 50 and 60 percent, with a range of accuracy at all levels from less than 30 percent to more than 90 percent. The post-test result accuracy increased to 70-80 percent after a month of learning pronunciation with LangGo, Google Voice Recognition. Thus, it appears that the LangGo application can improve pronunciation. Google Voice Recognition verifies 20-30 percent of voice accuracy on average and, as is obvious, accuracy improves with practice, declines at lower levels, and fluctuates. At higher levels, it goes up, as shown in Table 2.

Table 2 Frequency of Pre-test and Post-test of accuracy percentage

Accuracy percentage	Frequency	
	Pre-test	Post-test
>90%	109	246
80-90%	112	189
70-80%	83	99
60-70%	74	60
50-60%	131	64
40-50%	83	34
30-40%	61	18
<30%	77	20

The accuracy rate prior to training was approximately 30 percent, as shown in the table. Similarly, at a 30-40 percent accuracy range, it had a frequency value of 83 before training that was reduced to 34 after training. Furthermore, after training, the frequency value dropped from 77 to 20. The application record showed that these participants had insufficient training. However, it appears that with practice, accuracy

frequency and accuracy gradually rose. When viewed vertically, frequency of the low accuracy rates such as 30 percent and below or 30-40 percent decreased with practice. These increased with the high accuracy groups. The progress was consistent across all educational levels and ranged from a 20 to 30 percent improvement in each participant's ability to pronounce words correctly.

Table 3 Accuracy score across educational levels

Education degrees	Pre-test	Post-test
Primary	40-50%	60-70%
High school	50-60%	70-80%
Bachelor's	60-70%	80-90%

From Table 3, the average pronunciation accuracy increased according to the level of education. The table shows that as educational level rises, average pronunciation accuracy also tends to rise. The primary school level had the lowest pronunciation accuracy. Furthermore, when compared to the results of those with bachelor's degrees, those with high school diplomas had a lower level of pronunciation accuracy. For the range of progress that each educational background level could achieve, all made progress at an average rate of 10 percent; primary school progress ranged from 40-50 percent to 60-70 percent, high school progress ranged from 50-60 to 70-80 percent and university progress ranged from 60-70 to 80-90 percent.

When considering gender, it was found that the average pronunciation accuracy of females before practicing pronunciation was 50-60 percent and increased to 70-80 percent after practicing. The progress rates for the males were only 10 percent (from 60-70 to 70-80 percent). From the average before and after scores, females seemed to have a better ability to adapt to language than did the males.

Moreover, some words had a declining score among the participants, according to data gathered from the recording of the pronunciation practice that was verified by Google Voice Recognition. That is, some made lower scores on their post-test. After a thorough

check, the five items that seemed problematic and caused a decline in scores were ("husband," "son," "pair of boxing-shorts," "taxi," and "motorbike"). It is interesting to observe how smoothly long words are pronounced, such as "tie-dyed fabric." It seems the phenomenon of speech segmentation and automaticity in language processing allows language users to identify and extract individual words and phrases from longer utterances, even when they are pronounced quickly and without clear pauses.

Discussion

The primary emphasis of the research was analyzing the results of utilizing a specifically crafted lesson powered by Artificial Intelligence (AI) to evaluate the acquisition of English pronunciation skills by adult learners from the local tourism business who had limited experience with English pronunciation. The study also examined the difficulties involved in developing the application.

This section discusses the study's justifications and findings. As the data analysis suggests a strong positive relationship between progress and application use, the research objectives are well served. The results yield the uptake of English pronunciation skills of local business owners who were adult learners with a limited background in English pronunciation. The findings endorse the theory on anxiety of Horwitz (1986) that it is crucial to understand the role of anxiety in the context of learning. Ideally, individual learners should practice their pronunciation in their preferred learning environment (for example, at home). The participants performed better after hearing the pronunciation through mobile phones because they were presumably less anxious this way (Matsuda and Gobel, 2004). In the following sections, factors affecting the learning outcomes, the ESP course design, and Al-based lessons on mobile devices are discussed.

Factors Affecting Pronunciation Skills

From the results of pronunciation scores gathered from the participants, it is obvious that learning a foreign language is a complex process that

can be influenced by a range of factors, including gender, prior language proficiency, age, and others. First, gender can be a significant factor in foreign language learning. Female participants outperformed the male participants. In a study by Volchok (2018), female learners tended to outperform male learners in foreign language learning, particularly in tasks related to speaking and writing. Gender differences in language learning may be related to differences in motivation, anxiety, or learning strategies (Dornyei and Csizer, 2005).

As seen from the participants' demographic information, they had different levels of education. This means they had different degrees of previous English language learning. English proficiency can also have an impact on foreign language learning. It is not surprising that learners with higher levels of English proficiency tended to perform better in learning a second foreign language, as they were better able to transfer their existing knowledge of grammar and vocabulary to the new language. This is endorsed by a study by the National Academies of Sciences, Engineering, and Medicine (2017) which claims that learners with higher levels of English proficiency were better able to use English to support their learning of a third language. In other words, learners who are already proficient in English may be able to transfer their language skills, such as vocabulary, grammar, and reading comprehension, to the second language they are learning. This could provide them with a foundation that facilitates their acquisition of the new language, as there may be similarities or overlaps between English and the third language.

In this study, age is another factor that can influence foreign language learning. Although several research studies have suggested that younger learners may be more successful at acquiring a new language than older learners, particularly in terms of pronunciation (Flege et.al., 1999), the present study found that older learners may be more motivated and have better metacognitive skills that can support language learning. This is also acknowledged by Lasagabaster and Sierra (2002).

In summary, factors such as gender, English proficiency, age, motivation, learning strategies, and cultural background can all play a

role in foreign language learning. The acquisition of a foreign language, such as English, is contingent upon various factors. These factors should be taken into consideration when designing language learning programs and supporting language learners.

Utilizing the AI-based Lessons to Improve Pronunciation

The results of this study endorse the idea that AI-based lessons can be an effective way to improve the pronunciation skills of EFL learners with limited English background. Considering the participants to be the source of values derived from socio-cultural environments, the AI-based lessons were developed in accordance with their needs, who were also adults and professionals. With learners who had different background knowledge, the results were different. This means the level of education, and the exposure to the target language positively affect the pronunciation practice in the target language. Generally, grown-ups have more responsibility in managing their own learning, and this may be the reason why they made higher scores in all lessons.

The design of the AI-based lesson was crucial, and the incorporation of a sense of community into the lesson demonstrated its effectiveness. Significance of lesson design was endorsed by Strevens (1988) in that it met specific needs of the learner from the fact that it was developed according to the need survey and the community characteristics. The vocabulary and dialogues in the AI-based lessons were related in content to tourism disciplines, occupations, and activities. The tasks were constructed in the language appropriate to those activities in syntax, lexis, discourse, semantics. One of the features of the ESP course in this study is its integration of some basic English used in everyday life before presenting the ESP language for tourism, specifying what exactly it was that the learners had to do using English in CBT tourism.

In contrast to the SLA theory (Olson and Samuels, 1973), older learners in this study made higher scores in the pronunciation post-test. The findings differ from the SLA theory that one of the key distinctions between second language learners is age; younger language

learners are generally considered to be more successful. Many studies have shown that there is a correlation between age of acquisition and final attainment in at least some areas of the second language, with age proving to be the most reliable indicator of success. The idea, called 'the critical period hypothesis,' was initially discussed in the late 1960s (Krashen et al., 1979) This study claims that while a learner's beliefs and emotional characteristics are likely to have a direct impact on their second language acquisition, they may also be influenced by a number of other general factors related to their capacity and desire for learning as well as the method of instruction they choose. The pronunciation in this ESP is goal-directed, which means that the CBT hosts were not learning the language merely for its own sake, but rather because they needed to use it for work either currently or in the future.

Nieto and Zoller Booth (2009) backed up this idea by claiming that each locality has its own local wisdom, which varies from one society to the next. The tasks were created using local knowledge that was unique in nature and formed a pattern in the participants' socio-cultural system. The inclusion of the pre-test and post-test results demonstrates how carefully and successfully the local identity was accounted for when creating the lesson plan for the students. The ESP in this learning environment was non-formal learning, which was incorporated into scheduled activities that were not expressly defined as learning in terms of learning objectives, learning time, or learning support, but which nonetheless contained a significant amount of learning. Non-formal learning that takes place in adult education programs and self-directed informal learning are not entirely independent from one another.

Using AI-based Lessons on Mobile Devices

It is evident that mobile devices provided the participants with a means to access high quality resources and to practice at their convenience. The primary goals of this study in relation to the creation of AI-based lessons for CBT hosts were as follows: to provide a way to access high-quality resources and to make it easier for the students to practice

at their convenience, to close the gap between the possibilities offered by mobile learning and the enormous demand for ubiquitous language learning, to take into account the difficulties and opportunities of recognizing learning accomplishments through open learning, and to identify potential future directions for this field of research. Similarly, Kukulska-Hulme and Shield (2008) state that language acquisition is made possible by the use of a personal portable device, accessibility, and pronunciation across several contexts of use. In this learning context, the AI-based lessons built into the mobile devices seemed to be helpful.

The lessons were helpful because, according to Morley (2001), when a subject is interesting, it keeps the learner's interest and increases motivation. As the tasks were developed from the need survey conducted with the locals, they were interesting and were likely to be helpful in practice. Importantly, Nomnian et al. (2020) stated that using the right material at the right time and at the learners' pace can encourage them to learn their personal preferences, so they can access additional hearing input. In this way, learners will be encouraged to study more if they respond favorably to the exercises.

The study emphasizes two issues here. First, pronunciation is the heart of communication. It is dependent on pronouncing words correctly and speaking with excellent grammar as poor pronunciation results in ridicule and shame (Akhtar and Hussain, 2019). Thus, it is always compulsory for the non-native speaking English users to pronounce words in the target language appropriately. In this study, the participants started the first lesson with low levels as English EFL speakers. Fortunately, the progress they made proved that when they practiced pronouncing words in the target language with the AI application on their smartphone, their pronunciation skills improved. Typically, those who devoted quality time to practicing with the right tools and methods, and with a clear purpose found that acquiring new skills was possible (Zaragoza and Fraser, 2017).

The other issue is the importance of the digitalization of society that is altering how people work, live, and travel. It has created new opportunities for tourist enterprises to compete in international

marketplaces. In this study, the application of smartphones as a pronunciation learning resource was positively welcomed by the locals, thus shedding light on opportunities in the 21st century to use information technology for tourism to thrive (Buhalis and Law, 2008). It may ensure the nations with CBT potentials that the investment in and development of ICT-based digital economy infrastructure have facilitated tourism innovation and changed the dynamic between tourist providers and customers (Marino and Pariso, 2021). Mobile learning supports the growth of the tourist industry by increasing opportunities in rural regions to compete with powerful countries. It is crucial to make use of digital economy opportunities to advance sustainable tourism growth (Jiechang et al., 2020). Moving along with technological advancement leads to awareness of sustainable tourism growth. In the same vein, the Mekong region can harness the result of this investigation and learn how digitalization has affected tourism and consider SME, a crucial mechanism in setting up the ideal environment for the digital transformation of tourism business models and the broader tourism ecosystem. Together, Mekong countries should identify crucial policy considerations to encourage the adoption and use of digital technology by tourism SMEs and build up the region's community-based tourism network.

Conclusion

The use of AI applications on smartphones to learn English language pronunciation skills is appropriate for the CBT community members in Mekong region nations because of the importance of English proficiency and the cost-effectiveness of the apps. To promote community-based-tourism, hosts need to be familiar with the terminology associated with their services and products. The AI-based lesson ESP course in this study is a step towards creating a knowledgeable society. The AI lessons reduced learning barriers with their smart design. The age issue is one of several obstacles; older and younger students learn differently, and older students perform better. Learners do not need to be restricted to a

specific place, time, age, gender, or other traditional factors. Learning can take place at any time and by anyone. As the number of seniors in communities is increasing, for sustainability it is important to encourage people to continue learning, increase their knowledge, evaluate their progress, and succeed in the tourism business if they try.

Research Limitations and Recommendations

Even though the study of AI-based lessons has yielded positive results regarding learners' pronunciation skills, there appear some significant limitations concerning issues on the accessibility of AI-based pronunciation lessons, as well as the interaction. AI-based lessons on mobile phones do not provide the same level of interaction and feedback as traditional teacher-led instruction, which could limit their effectiveness.

Future studies are suggested to ensure that EFL learners have access to mobile devices and the necessary technology to use AI-based lessons. In addition, the shortcomings of these lessons, such as limited interaction, should be addressed through the development of more advanced AI technologies. Moreover, it is recommended that learners receive regular feedback on their pronunciation skills. Thus, AI-based lessons on mobile phones should be designed to provide instant feedback and to track progress. Also, as automated evaluation can only measure superficial learning, robust assessment will involve trainer interaction to evaluate in-depth learning in the context of non-formal education for adults.

References

Abdullah, S. and Hashim, H. (2021). Seamless Language Learning in an ESL Context. **Creative Education**, **12**, 1349-1363.

Akhtar, R. N. and Hussain, N. (2019). Testing ERE cycle in teaching business communication courses: experiential learning strategies. **Journal of Education and Educational Development**, **6**(1), 62-77.

Ardani, W., Rahyuda, K., Giantari, K., and Sukaatmadja, P. (2019). Customer Satisfaction and Behavioral Intentions in Tourism: A Literature Review. **International Journal of Applied Business and International Management**, **4**(3), 84-93.

Bibauw, S., Francois, T., and Desmet, P. (2022). Dialogue systems for language learning: Chatbots and beyond. In N. Ziegler and M. Gonzalez-Lloret (Eds.), **The Routledge handbook of second language acquisition and technology** (pp. 121-134). Routledge.

Brown, S. (2001). **Marketing—The retro revolution**. California: SAGE Publications Ltd.

Buhalis, D. and Law, R. (2008). Progress in information technology and tourism management: 20 years on and 10 years after the Internet—The state of eTourism research. **Tourism Management. 29**(4), 609-623.

Deerajviset, P. (2022). Research trends in the use of technology in English language education in ASEAN. **Journal of Mekong Societies, 18**(2), 76-104.

Dornyei, Z. and Csizer, K. (2005). The effects of intercultural contact and tourism on language attitudes and language learning motivation. **Journal of Language and Social Psychology**, **24**(4), 327-357.

Durdyev, S., Zavadskas, E., Thurnell, D., Banaitis, A., and Ihtiyar, A. (2018). Sustainable construction industry in Cambodia: Awareness, drivers and barriers. **Sustainability, 10**(2), 392.

Dudley-Evans, T. and St John, M. (1998). **Developments in English for specific purposes: A multi-disciplinary approach**. Cambridge: Cambridge University Press.

Flege, J. E., Yeni-Komshian, G., and Liu, S. (1999). Age of learning affects the learning of L2 pronunciation but not morphosyntax. **The Journal of the Acoustical Society of America 105**(2), 1033 (1999)

Gollin-Kies, S., Hall, D., and Moore, S. (2015). **Language for specific purposes**. London: Palgrave Macmillan.

Homsombat, W., Lu, L., Huang, S., and Chen, J. (2019). Language barriers in the hospitality industry in Laos: Implications for tourism development. **Journal of Travel Research**, **58**(5), 829-843. https://doi.org/10.1177/0047287518787875

Horwitz, E. K., Horwitz, M. B., and Cope, J. (1986). Foreign language classroom anxiety. **The Modern Language Journal**, **70**(2), 125-132.

Jiechang, X., et al. (2020). The realistic basis and main trend of global tourism innovation and development. **Journal of Urban Studies**, **41**(06), 14-19.

Kakandee, M., Na Nongkhai, A., Chuanon, C., Nilubol, K., and Budseetad, W. (2018). Barriers in English communication of tourism business entrepreneurs in Nong Khai province. **Journal of Humanities and Social Sciences Loei Rajabhat University**, **1**(2), 67-83.

Kalasin, S. and Charumanee, N. (2015). English needs of Thai hotel front desk staff in tourist attractions of southern Thailand in the move towards ASEAN Economic Community in 2015. **Journal of Liberal Arts, Prince of Songkhla University**, **7**(2), 1-22.

Krashen, S. (1982). **Principles and practice in second language acquisition**. Los Angeles, CA: University of Southern California.

Krashen, S. D., Michael, A. L., and Scarcella, R. C. (1979). Age, rate and eventual attainment in second language acquisition. **TESOL Quarterly, 13**(4), 573-582.

Kukulska-Hulme, A. and Shield, L. (2008). An overview of mobile assisted language learning: From content delivery to supported collaboration and interaction. **ReCALL**, **20**, 271-289.

Lasagabaster, D. and Sierra, J. M. (eds.) (2002). **Motivation and foreign language learning: From theory to practice**. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Lee, S. M. (2022). A systematic review of context-aware technology use in foreign language learning. **Computer Assisted Language Learning**, **35**(3), 294-318.

Lu, W., Tong, Y., Yu, Y., Xing, Y., Chen, C., and Shen, Y. (2018). Applications of artificial intelligence in ophthalmology: General overview. **Journal of Ophthalmology**, **2018**, 5278196.

Luo, Yibu. (2022). The role of language and cultural commodification in tourism. **3rd International Conference on Language, Art and Cultural Exchange ICLACE 2022).** (pp.3-6). Atlantis Press.

MacIntyre, P. D. and Gardner, R. C. (1991). Methods and results in the study of anxiety and language learning: A review of the literature. **Language Learning**, **41**(1), 85-117.

Marino, A. and Pariso, P. (2021). E-tourism: How ICTs help the local tourist district drive economic vitality-The case of Campania, Italy**. International Journal of Innovation and Technology Management 18**(3), 1-25.

Mantra, I. B. N., Widiastuti, I. A. M. S., Handayani, N. D., and Pramawati, A. A. I. Y. (2020). English language urgency for tourism and hospitality employees to boost global economy. **Palarch's Journal of Archaeology of Egypt/Egyptology, 17**(7), 5458-5469

Matsuda, S. and Gobel, P. (2004). Anxiety and predictors of performance in the foreign language classroom. **System**, **32**(1), 21-36.

Morley, M. (2001). Aural comprehension instruction: Principles and practices. In M. CelceMurcia (Ed.). **Teaching English as a second or foreign language.** (3rd ed.) (pp. 69- 85). Boston: Heinle and Heinle.

National Academies of Sciences, Engineering, and Medicine. (2017). **Promoting the Educational Success of Children and Youth Learning English: Promising Futures.** Washington, DC: The National Academies Press.

Nieto, C. and Booth, M. Z. (2009). Cultural Competence: Its Influence on the Teaching and Learning of International Students. **Journal of Studies in International Education**, **14**(4), 406-425.

Nomnian, S., Trupp, A., Niyomthong, W., Tangcharoensathaporn, P., and Charoenkongka, A. (2020). Language and community-based tourism: Use, needs, dependency, and limitations. **Advances in Southeast Asian Studies**, **13**(1), 57-59.

Olson, L. L. and Samuels, S. J. (1973). The relationship between age and accuracy of foreign language pronunciation. **The Journal of Educational Research**, **66**(6), 263-268.

Pardayevna, K. N., Muxtorjonovich, R. S., Voxidovich, N. A., Sharofiddinqizi, M. O., Anvar o'g'li, A. S., and Xolmaxmatovna, B. S. (2021). ESP (English for Specific Purposes) teaching process, methods, assessment, and issues. **Journal of Contemporary Issues in Business and Government 27**(1), 192-202.

Phanthaphoommee, N. and Nomnian, S. (2022). Crowdsourcing translation for community-based tourism empowerment in Thailand. In **Prospects and Challenges of Community-Based Tourism and Changing Demographics**. IGI Global.

Prabjanee, D. and Inthachot, M. (2013). Self-directed learning readiness of college students in Thailand. **Journal of Educational Research and Innovation**, **2**(1) Article 2, 1-11.

Prachanant, N. (2012). Needs analysis on English language use in tourism industry. **Procedia – Social and Behavioral Sciences**, **66**, 117-125.

Strevens, P. (1988). ESP after twenty years: A re-appraisal. In M. Tickoo (Ed.), **ESP State of Art.** (pp. 1-13). SEAMEO Regional Language Centre, Singapore.

Teimouri, Y., Goetze, J., and Plonsky, L. (2019). Second language anxiety and achievement: a meta-analysis. **Studies in Second Language Acquisition, 41**(2), 363-387.

Volchok, V. (2018). Differences in the performance of male and female students in partially online courses at a community college. **Community College Journal of Research and Practice**, **43**(2), 1-17.

Zaragoza, J. M. and Fraser, B. J. (2017). Field-study science classrooms as positive and enjoyable learning environments. **Learning Environments Research**, **20**, 1-20.

Zawacki-Richter, O., Marín, V. I., Bond, M., and Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education–where are the educators?. **International Journal of Educational Technology in Higher Education**, **16**(1), 1-27.

Zhang, R. and Zou, D. (2020). Influential factors of working adults' perceptions of mobile-assisted vocabulary learning with multimedia annotations. **International Journal of Mobile Learning and Organization**, **14**(4), 533-548.

Website

mekongtourism.org (2020). **GMS Tourism Performance 2019_V1**. Retrieved October 14, 2022, from https://mekongtourism.org/wp-content/uploads/2019-Source-of-Market-by-Country.pdf