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TERTIARY STUDENTS' PERCEPTIONS ON ELSA SPEAK APPLICATION FOR PRONUNCIATION LEARNING

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Abstract:
In the context of Industry 4.0, the integration of Artificial Intelligence (AI) into English language education is increasingly prevalent. Notably, the proliferation of English language applications, exemplified by the Elsa Speak Application, underscores the noteworthy advancements in pedagogical tools for English instruction. This study aims to scrutinize the perspectives of non-specialized students within the High-quality program at Can Tho University (CTU), investigating their encounters with learning English pronunciation through the application of Elsa Speak. The research employed a structured questionnaire distributed to a cohort of 180 students. The outcomes reveal a predominantly positive reception among students regarding the process of acquiring pronunciation skills through the Elsa Speak Application. Significantly, the application contributes to an augmented grasp of pronunciation, development of English language proficiency, and overall enhancements in learning outcomes. This exploration provides insights into the efficacy of the Elsa Speak Application in fostering positive educational experiences for non-specialized students, thereby contributing valuable data to the discourse on the integration of AI in language education within the Industry 4.0 paradigm.

Keywords: Elsa Speak, students' perceptions, English pronunciation learning

1. Introduction

Pronunciation stands as a fundamental speaking skill crucial for effective communication, and a lack of proper guidance can result in diminished confidence and comprehension difficulties when dealing with a foreign language. Successful communication in English is significantly influenced by pronunciation, which plays a pivotal role in conveying meaning, enhancing comprehension, boosting confidence, and

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leaving a positive impression. It also plays an important role in speaking and serves as a foundational skill for the development of speaking and listening abilities.

Recognizing the vital role of pronunciation, the need for practice and improvement becomes evident. Advanced pronunciation learning applications, such as Elsa Speak Application, have emerged with modern technology. Founded in 2016 by Van Dinh Hong Vu and Xavier Anguera, Elsa Speak Application employs Artificial Intelligence and speech recognition to enhance pronunciation effectively. This application facilitates pronunciation practice through exercises involving vocabulary, sentences, and paragraphs, providing instant feedback through audio recording technology. Elsa Speak Application's user-friendly interface supports learners at various proficiency levels and includes tests aligned with international standards like IELTS or TOEFL.

Several universities in Vietnam have recognized Elsa Speak Application's value in improving students' pronunciation skills. The positive perceptions of EFL learners towards Elsa Speak Application indicate its effectiveness in fostering enthusiasm for pronunciation improvement (Darsih et al., 2021).

Perceptions play a crucial role in the language learning process, representing learners' attitudes towards educational programs. Positive perceptions of Elsa Speak Application among EFL learners contribute to its integration and effectiveness in guiding language learning journeys. This research focuses on students in a High-quality program at CTU who use Elsa Speak Application in their English pronunciation course. The study aims to explore students' perceptions and challenges regarding Elsa Speak Application utilization for English pronunciation, with a primary goal of enhancing pronunciation skills. The research addresses the following questions:

- What are students' perceptions of using Elsa Speak Application in learning English pronunciation?

2. Literature Review

Several studies in various contexts highlight the crucial role of English pronunciation in developing speaking and listening skills. Cakmak (2019) emphasizes that mastering pronunciation is essential for fluent English communication. Rafael (2019) points out the significance of pronunciation, noting the limited time speakers have to think and correct pronunciation while speaking. This underscores the need for tools like Elsa Speak Application, designed to support learners in pronunciation practice.

Akhmad & Munawir (2022) conducted a study with 20 English education students, finding that using Elsa Speak Application significantly improved pronunciation skills. Darsih et al. (2021) surveyed 94 students at Kuningan University, Indonesia, revealing positive perceptions of Elsa Speak Application across various aspects, including content, pedagogy, assessment, multimedia, and automatic speech recognition. Students expressed interest in learning to speak with Elsa Speak Application, highlighting its beneficial impact on speech learning.

Samad & Aminullah (2019) investigated 12 students in Indonesia, finding that Elsa Speak Application's content design was considered very good, and the pedagogical aspect supported students in distinguishing vowel sounds and improving pronunciation. The research also indicated that Elsa Speak Application not only enhanced pronunciation but also motivated students to practice English pronunciation.

Meri-Yilan's 2018 study involved students at Agri Ibrahim Cecen University, Turkey, in a preparatory class for interpretation and translation. Results revealed that students appreciated Elsa Speak Application's effectiveness in learning and improving pronunciation. Elsa Speak Application helped students recognize mispronounced sounds and taught them correct pronunciation, contributing to increased comfort and confidence in English communication.

In summary, students from various countries consistently acknowledge Elsa Speak Application's positive impact on pronunciation, emphasizing its role in improving accuracy and inspiring regular pronunciation practice. Overall, students maintain a favorable attitude towards using Elsa Speak Application to enhance their pronunciation skills.

In Vietnam, the use of English learning applications, facilitated by technological advancements and Artificial Intelligence (AI), has become increasingly popular. One such application, Elsa Speak Application, specifically designed to assist in pronunciation learning, has been the focus of limited but positive research. Studies by Phuong (2022), Qui et al. (2021), Tran (2020), Huong et al. (2019), Linh & Thy (2019), and Huong & Long (2018) shed light on the perceptions and effectiveness of ESA in various educational contexts.

Phuong (2022) conducted a study at Tay Do University, revealing that students had generally positive perceptions of English learning applications, including Elsa Speak Application. Qui et al. (2021) investigated the popularity of English-language learning applications among Van Lang University students, finding that Elsa Speak Application significantly enhanced students' speaking skills. Tran's (2020) study on mobile technology for language learning yielded mixed results, but learners using Elsa Speak Application expressed curiosity and a desire to learn. Huong et al. (2019) explored the impact of Elsa Speak Application on English pronunciation proficiency, concluding that its use had a positive effect on learning and teaching. Linh & Thy (2019) investigated the flipped classroom model, finding that Elsa Speak Application contributed to improved pronunciation skills and positive attitudes among Vietnamese university students. Huong & Long's (2018) study on EFL software programs in central Vietnam showed that Elsa Speak Application received positive feedback for its effectiveness and convenience for learners.

Despite limited research in Vietnam on Elsa Speak Application's role in improving pronunciation, the studies collectively indicate positive student perceptions and the application's significant contribution to pronunciation skills. Globally, research on Elsa Speak Application consistently emphasizes its positive impact on pronunciation improvement and learner engagement.

The Ministry of Education and Training (MOET) in Vietnam recognizes the significance of Information Technology (IT) in education and has incorporated the application of IT skills into the professional standards of teachers in general education institutions. This integration is outlined in Circular 20/2018/TT – 07/08/2016 and the Competency Framework for foreign language teachers. Additionally, the government, through Decision No. 131/QD-TTg on January 25th, 2022, has initiated a project focusing on enhancing the application of information technology and digital transformation in education and training from 2022-2025, with an orientation towards 2030.

In the context of the 4.0 technology era, various Artificial Intelligence applications, including Elsa Speak Application, have been developed to promote learner autonomy, motivation, and pronunciation skill practice. The significance of pronunciation in the evaluation of language proficiency, as observed in the grading system for the listening and speaking section of the VSTEP, underscores the importance of this aspect in determining exam outcomes.

However, there is a limited number of studies on students' perceptions regarding the use of Elsa Speak Application, with most relevant research originating from Indonesia. Recognizing this gap, the call for research aims to survey students' perceptions during the use of Elsa Speak Application at CTU. This research aims to help students identify strengths and limitations, draw lessons from their experiences in learning English pronunciation, and ultimately enhance the overall learning and training quality at CTU.

3. Material and Methods

The researchers employed both quantitative and qualitative methods to investigate students' perceptions of using Elsa Speak Application for pronunciation learning, exploring the advantages and disadvantages encountered in pronunciation classes. They adopted a methodological approach encompassing theoretical review, practical application, and recommendations. By reviewing relevant literature on student perceptions of Elsa Speak Application usage and the challenges and benefits faced during learning, the researchers designed a questionnaire based on Matins et al.'s (2016) model, comprising 41 items and two short-answer questions across five aspects: Content Design, Pedagogical Design, Assessment or Flexibility, Multimedia Design, and Automatic Recognition Speech Design. After a pilot study with 35 students to ensure reliability, the finalized questionnaires were distributed to 180 students for comprehensive data analysis regarding their perspectives on using Elsa Speak Application.

The study involved 180 non-majored English students in CTU's High-quality program, primarily in Course 47, all using Elsa Speak Application for English pronunciation. Participants obtained a 6-month Pronunciation in Practice course copyright, managed by the Department of General English. Elsa Speak Application practice, mandatory and constituting 10% of the module score, was consistent for all students. Demographically, participants, aged 18-20, represented diverse backgrounds, with 57.2% male and 42.8% female. Most (86.1%) had over 6 years of English learning,

while 13.9% had less than 6 years. In Elsa Speak Application experience, 64.4% used it for less than 6 months, and 35.6% for more than 6 months.

Table 3.1: Demographic Data of Participants for Questionnaire

Number of Participants (N = 180)		
Gender		
Male N = 103 (57.2%)		Female N = 77 (42.8%)
Age Range		
18 years old – 20 years old		
< 6 years N = 25 (13.9%)		> 6 years N = 155 (86.1%)
Learning Experience for ESA		
< 6 months N = 116 (64.4%)		> 6 months N = 64 (35.6%)

From Table 3.1, the study utilized document analysis to create a thorough questionnaire for participants, aligning with theoretical foundations to clarify the study's objectives. Although initially comprising 72 items from Martins et al.'s (2016) EFL/ESL pronunciation teaching software, the questionnaire was customized to include 41 relevant items for this research. Additional inquiries (42 and 43) delved into learners' challenges and recommendations. Administered to 180 non-majored English students at CTU, the survey underwent a pilot test with 35 participants for clarity and reliability, yielding a high-reliability score (0.860>0.7). Subsequent Descriptive Statistical Analysis unveiled students' attitudes towards factors influencing English pronunciation learning on Elsa Speak Application, facilitating the identification of key factors and the formulation of recommendations for an improved Elsa Speak Application learning experience.

4. Results and Discussion

The main questionnaire underwent a reliability analysis using SPSS version 26 software, and the resulting Cronbach's Alpha coefficient is 0.860. This value indicates that the questionnaire is statistically reliable, and all the data collected from it can be used for further analysis to address the research questions.

The purpose of the questionnaire was to assess students' perceptions of learning English pronunciation through the Elsa Speak application. Descriptive statistics were conducted to calculate the average scores and standard deviation for the five dimensions of the questionnaire. Specifically, the mean score and standard deviation for students' perceptions of these five aspects are presented in the following sections:

4.1 Students' perceptions towards the Content Design of Elsa Speak Application

Table 4.1 provides a descriptive analysis of 8 items that further clarify the students' perceptions of the Content Design of the Elsa Speak Application.

Table 4.1: Descriptive Statistics of Content Design

Item	Mean	Std. Deviation
Content Design		
1. The program addresses the vowel sounds.	4.22	.619
2. The program addresses word stress.	4.26	.661
3. The program addresses connected speech phenomena (e.g., linking, reductions, assimilation).	3.81	.904
4. The program addresses the dipthongs.	3.95	.749
5. The program addresses the consonant sounds.	4.13	.646
6. The program addresses the syllabic constituents (e.g., initial consonant clusters as *drive, stop; jump, help*).	4.18	.741
7. The program addresses intonation.	4.14	.683
8. The program addresses sentence stress.	4.15	.630

Looking at Table 4.1, it can be seen that students have positive perceptions about the Content Design of the Elsa Speak Application. More specifically, most participants agreed that Elsa Speak's Content Design did a good job of providing word stress exercises (M = 4.26, SD = .661) and including the program's vowel exercises (M = 4.22, SD = .619. In addition, students mainly agreed that when practicing, the application will provide comments when users answer correctly and incorrectly (M = 4.18, SD = .741) and the app also provides accent exercises (M = 4.15, SD = .630). Additionally, the students also agreed that the app provides intonation exercises (M = 4.14, SD = .683) and consonant exercises (M = 4.13, SD = .646). Regardless, students also agreed on the application of diphthongs (M = 3.95, SD = .749) and they least agreed with the statement that the app provides exercises on the phenomenon of sound connection (M = 3.81, SD = .904).

4.2 Students' perceptions towards the Pedagogical Design of Elsa Speak Application

In Table 4.2, the Pedagogical Design of Elsa Speak Application is analyzed through students' perceptions of sixteen questionnaire items.

Table 4.2: Descriptive Statistics of Pedagogical Design

Item	Mean	Std. Deviation
Pedagogical Design		
1. The order in which the activities are presented is flexible.	4.01	.784
2. The instructions are clear and objective.	4.06	.844
3. The activities work on the perception of rhythm, stress, and intonation.	4.16	.653
4. The program contrasts different vowel sounds.	4.10	.702
5. The program contrasts different consonant sounds.	4.11	.797
6. The program uses phonetic symbols to present and practice vowel and consonant sounds.	4.11	.721
7. The program presents the contents organized sequentially.	3.98	.784
8. The activities work on the production of sounds.	4.19	.775
9. The activities work on the perception of rhythm, stress, and intonation.	4.19	.686
10. The activities work on the distinction of intonation patterns.	4.12	.760

11. The program uses phonetic transcriptions to present and practice rhythm, stress and intonation.	4.14	.605
12. The audio scripts are available.	4.06	.892
13. The activities are varied.	3.99	.795
14. It allows the users to restart from where he left off.	3.86	.975
15. It is easy to go in and out of a section.	4.07	.805
16. The activities work on the perception of sounds.	4.12	.730

From the Descriptive Statistics results, the overall results show that most English non-majored students at Can Tho University find the Pedagogical Design of Elsa Speak appropriately to practice pronunciation. Through Table 4.2, it can be seen that learners agree that the application's activities help learners improve their pronunciation (M = 4.19, SD = .775) and in addition, the application's activities help learners improve their pronunciation. improve phonetics through rhythm, stress, and intonation (M = 4.19, SD=.686). Furthermore, students agreed that the app's activities help learners recognize rhythm, stress, and intonation (M = 4.16, SD = .653) as well as the app's use of pronunciation characters helps learners practice rhythm, stress, and intonation (M = 4.14, SD = .605). Activities that help learners distinguish intonation in each sentence (M = 4.12, SD = .760) and help learners listen and distinguish sounds in English (M = 4.12, SD = .730) are also popular with many people learning to agree.

On the other hand, the application also helps learners distinguish different consonants (M = 4.11, SD = .797) as well as use pronunciation characters to help learners practice vowels and consonants (M = 4.11, SD = .721) and the application also helps learners distinguish different consonants (M = 4.10, SD = .702). In addition, when using the application, learners can log in and export lesson sections easily (M = 4.07, SD = .805), and provide exercises on word stress. (M = 4.06, SD = .844), providing text and answers for listening exercises (M = 4.06, SD = .892) and the sequence of application activities are designed to be flexible (M = 4.01, SD = .784) are agreed upon by the learners. Nevertheless, students also have opinions about the application's diverse activities (M = 3.99, SD = .795) as well as the sequential arrangement of content sections in the application (M = 3.98, SD = .784) and users can restart immediately when exiting the application (M = 3.86, SD = .975).

4.3 Students' perceptions towards the Assessment or Flexibility of Elsa Speak Application

Table 4.3 displays perceptions of Elsa Speak Application of Assessment or Flexibility through seven items.

Table 4.3: Descriptive Statistics of Assessment/Flexibility

Item	Mean	Std. Deviation
Assessment/ Flexibility		
1. The program asks the user to try again when the user makes an error.	3.77	1.067
2. Activities that can be redone by the user.	4.17	.851
3. It allows the user to select between male or female voices.	3.43	1.104
4. ESA explains the user's error.	4.08	.871
5. It gives comments on the correct and incorrect answers.	3.94	.901
6. The errors are signalled so that the user may have the option to redo the activity.	4.19	.756
7. The results can be printed.	3.65	.989

It can be seen (Table 4.3) that students strongly agree with the application of error notification to help learners have the opportunity to redo the lesson (M = 4.19, SD = .756) and help learners to redo the lessons. (M = 4.17. SD = .851). In addition, learners have a positive perception of the application explaining learners' errors (M = 4.08, SD = .871), and the application also helps learners make comments when they complete mixed exercises whether the result is correct or incorrect (M = 3.94, SD = .901). Nonetheless, requiring learners to redo the exercise when making mistakes (M = 3.77, SD = 1.067) and allowing learners to choose between male and female voices received many comments and standard deviations also showed many differences in student responses. Ultimately, the fact that learners can print results after completing the lesson has the lowest value (M = 3.65, SD = .989).

4.4 Students' perceptions towards the Multimedia Design of Elsa Speak Application

Students' perceptions towards the Multimedia Design of Elsa Speak Application are shown through seven items in Table 4.4 below:

Table 4.4: Descriptive Statistics of Mutilmedia Design

Item	Mean	Std. Deviation
Multimedia Design		
1. The program describes the sound as clear (free of noise).	3.68	1.086
2. The icons are easily comprehensible.	4.01	.802
3. Elsa Speak uses animation to demonstrate the production of sounds.	3.89	0.845
4. It uses video images and clear to show lip movements when producing sounds.	3.74	1.048
5. The program uses voice recording activities.	4.16	.659
6. The program is easy to access the menu.	4.02	.766
7. The screen layout is clean (icons, colours, and images do not cause visual pollution).	1.97	.991

From Descriptive Statistics (Table 4.4) with mean score values, it can be seen that students have a positive view and correct perception of Elsa Speak application of Multimedia Design aspect. This is shown by the fact that most items reach mean with high values. The majority of students agree that the application records the learner's voice when pronouncing (M=4.16, SD=.659), and learners can easily access the menu (M= 4.02, SD= .766). At the same time, learners also have positive perceptions about providing recognizable symbols for learners (M= 4.01, SD=.802) and displaying sound waves when practicing pronunciation (M= 3.89, SD = 0.845). However, learners also have many opinions about the application's use of clear video images to display lip movements when pronouncing (M= 3.74, SD= 1.048) and the application's clear sound processing (no noise) (M= 3.68, SD= 1.086) are two statements with large standard deviations, showing the difference in students' answers. Finally, there is the opinion that the application has a clear screen layout (icons, colors, and images do not cause visual discomfort) (M = 1.97, SD = .991), which shows that learners do not agree with this statement.

4.5 Students' perceptions towards the Automatic Speech Recognition System of Elsa Speak Application

Elsa Speak is an application that uses exclusive Artificial Intelligence including Automatic Speech Recognition to provide accurate user speech. This is a special and useful feature, so students will have a multidimensional view of this aspect of the application. Like the aspects that have been considered above, with this last aspect, the questionnaire was also used to collect students' opinions with three items.

Table 4.5: Descriptive Statistics of Automatic Speech Recognition System

Item	Mean	Std. Deviation
Automatic Speech Recognition System		
1. The program does not consider disfluencies/hesitations.	2.98	1.307
2. The program uses Automatic Speech Recognition to provide immediate feedback on the user's pronunciation.	4.28	.496
3. The program is not sensitive to external noise.	1.84	.644

In Table 4.5, it is evident that learners hold varying opinions on this matter. Most learners concur with the notion that the application utilizes automatic speech recognition to offer instant feedback on their pronunciation (M = 4.28, SD = 0.496). However, learners have conflicting views and disagree with the fact that the application provides exercises on sentence stress (M = 2.98, SD = 1.307) and that the application is not affected by external noise during the user's interaction with the application (M = 1.84, SD = 0.644).

5. Recommendations

Based on the research findings, we propose solutions built upon the perceptions when learning English pronunciation on the Elsa Speak application. These solutions aim to improve the effectiveness of using Elsa Speak Application in learning English pronunciation. First of all, Elsa Speak Application provides the ability to track individual

student progress. Therefore, teachers can use this feature to evaluate and monitor students' progress in pronunciation skills. It helps teachers better understand the strengths and weaknesses of each student, thereby offering effective teaching methods. In addition, the lecturers and the School of Foreign Languages can encourage activities related to Elsa Speak Application, such as competitions or organizing exchange sessions, so that students have the opportunities to apply the skills learned through Elsa Speak Application. The lecturers or the School of Foreign Languages can create a positive learning environment by encouraging shares and feedback among students. Elsa Speak Application can be used as a tool to communicate and share progress. It not only helps to improve pronunciation skills but also builds confidence and teamwork in learning English.

6. Conclusion

The study analyzed the students' perceptions on five aspects: Content, Pedagogical, Flexibility or Assessment, Multimedia and Automatic Speech Recognition System by quantitative and qualitative method with 43-item questionnaire and five questions for semi-interview. The findings reveal that the participants have good perceptions of the Content Design of Elsa Speak Application lessons. In other words, Elsa Speak Application has provided a variety of exercises that are crucial for students in learning pronunciation such as vowels, stress, diphthongs, or syllables. Most of the students agreed that these exercises were suitable for them. Similarly, in terms of Pedagogical Design, many students shared that they like the Pedagogical Design of Elsa Speak Application because it has detailed instructions that help students distinguish between vowels and consonants.

In terms of Multimedia Design, the participants had a positive attitude towards Multimedia Design such as the installation, the animation, the images, and the sounds of the Elsa Speak Application. Moreover, the Multimedia Design motivates the students to practice pronunciation. It can be seen from the research that the Automatic Speech Recognition System is a huge benefit in learning pronunciation because it helps students correct their errors and mistakes with detailed instructions for each sound.

The findings of the research also showed that there are many benefits to the students when they use Elsa Speak Application to improve their pronunciation. Most of the participants enjoy using this application, and each student has their own interest in each aspect of Elsa Speak Application. In conclusion, based on the research findings and discussion, it can be concluded that the students had a positive view towards the use of Elsa Speak Application in pronunciation classes.

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Conflict of Interest Statement

The authors declare no conflicts of interest.

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