

CHAPTER 1. INTRODUCTION

1.1 Project Background

In the current era of globalization, English occupies an increasingly irreplaceable position in international communication. It has become a universal communication tool that allows individuals from different cultural backgrounds and countries to interact and collaborate. Skills in speaking and understanding English are no longer just a valuable asset, but an essential necessity in this increasingly connected world. English, as a global lingua franca, is used in a variety of contexts, including business communication, academic studies and professional careers (Zulfiyaxon Dilmurod qizi (n.d.)).

Students who are non-native English speakers often face a number of significant challenges in their efforts to develop English pronunciation proficiency. The main challenge they face is inaccuracies in the pronunciation of English sounds, which often differ from the sounds in their native language. This includes inappropriate pronunciation of words, incorrect spelling, different accents, and problems with intonation and rhythm in speaking English. These kinds of challenges can result in a lack of clarity in communication, and can ultimately be detrimental to students' ability to communicate effectively, especially in environments that require the use of English.

Many experts have highlighted the importance of pronunciation in communication. Pronunciation becomes a major aspect of understanding and interpreting speakers' intentions and spoken language and its speakers can be considered unintelligible if they are pronunciation poor (*How to Cite*, 2021). Inadequate pronunciation skills can be a serious barrier in communicating in English, as this can result in lack of confidence when speaking and confusion for both parties. In addition, mispronunciations can lead to misunderstandings, which can hinder the process of information exchange and defeat the purpose of communication. Therefore, it is important to understand these challenges and find effective solutions that can help non-native English speaking students overcome their pronunciation problems.

The conventional approach to addressing English pronunciation issues usually involves corrections from experienced teachers or instructors. However, this method has certain limitations that can affect its effectiveness. One of the main limitations is the often insufficient motivation for students to actively engage in improving their pronunciation. Students may feel intimidated by corrections coming from outsiders, and this approach may lack focus on students' self-growth. In addition, this traditional correction method tends to be reactive rather than proactive. Corrections often happen after pronunciation errors have occurred, instead of preventing them beforehand. Therefore, there is an urgent need to develop a more adaptive and user-oriented approach that motivates students and supports self-directed learning in English pronunciation correction.

Despite the limitations of such traditional methods, conventional approaches to teaching pronunciation have not adequately addressed the special needs of secondary school students who speak English as a second language. They often involve repetitive exercises that can lead to boredom and loss of interest. As a result, learning is often passive and creates limited progress. This is why a strong demand exists for innovative solutions that match the unique challenges faced by non-native English speaking secondary school students in improving their English pronunciation skills.

In an effort to address the challenges faced by non-native English speaking students in improving their pronunciation skills, an innovative solution has emerged, the "Voicesense" project. "Voicesense" is a mobile app specifically developed for middle school students (1st to 3rd grade) who are non-native English speakers. The app is equipped with advanced voice sensor technology that is capable of automatically detecting errors in pronunciation. However, what sets "Voicesense" apart from conventional approaches is the constructivist approach it adopts.

The constructivist approach to learning, which is the foundation for "Voicesense," aims to empower students to be more actively involved in their pronunciation improvement process. The app creates a learning environment that encourages active participation, reflection, and self-growth in overcoming

pronunciation errors. As such, students using "Voicesense" are not just passive recipients of corrections, but rather they are encouraged to independently reflect on their mistakes and strive to correct them. This innovative approach provides a more effective solution in overcoming the barriers commonly faced in learning English pronunciation.

The main principle of the "Voicesense" project comes from John Dewey's constructivist learning philosophy, which supports a learner-centered approach to learning. According to Dewey, the most effective learning occurs when students actively participate in the learning process through their own reflection and experience. This method may be beneficial for improving non-english speaking students' ability to speak in english (Givi Efgivia et al., 2021)

In line with constructivist principles, "Voicesense" is designed to have a significant positive impact on improving the english pronunciation of non-native secondary school students. The feedback cycle implemented in the app is crucial in promoting continuous improvement in speaking skills. This approach allows students to actively engage in a process of deep reflection on their mistakes and always strive to improve their speaking. Thus, "Voicesense" is not only an innovative solution in improving the english pronunciation proficiency of non-native english-speaking students, but also reflects the importance of implementing a learner-centered learning approach.

1.2 Problem Statement

The problem that can be raised based on the background that has been texted above are:

- a. Non-native secondary students often face challenges in improving their English pronunciation due to a lack of personalized and targeted practice materials and feedback. Existing resources and methods may not cater to the specific pronunciation needs and challenges faced by individual learners, hindering their progress in developing accurate pronunciation skills effectively. This lack of personalized and targeted pronunciation practice and feedback limits non-native speakers' ability to identify and correct

pronunciation errors and impedes their overall improvement in English pronunciation

- b. Non-native secondary school students often lack opportunities for active engagement and self-reflection in their pronunciation improvement. Traditional language learning approaches can focus on passive learning methods, such as listening and repetition, without encouraging students to actively analyze and reflect on their own pronunciation. This limits their ability to identify and correct pronunciation errors and hinders their overall progress in pronunciation improvement, as constructivist learning emphasizes active engagement and self-reflection.
- c. Non-native secondary student face challenges in maintaining motivation and tracking their progress in pronunciation improvement. Without a system that provides clear progress tracking and opportunities for self-assessment, learners may feel disheartened and find it difficult to gauge their improvement accurately. This lack of motivation and progress tracking hampers their overall pronunciation development.

1.3 Objectives

The main objectives of the "Voicesense" project, in line with John Dewey's constructivist philosophy, are as follows:

- a. To develop a system that allows users to record and check their pronunciation, providing them with a learning material to practice and improve their English pronunciation.
- b. To provide real-time feedback on pronunciation accuracy, highlighting areas that need improvement and offering suggestions for correction, which incorporates constructivist learning.
- c. To provide scores and progress tracking to monitor users' pronunciation improvement over time, motivating them to continuously practice and strive for better pronunciation skills.

1.4 Significance

In this project, the significance of this study include:

- a. Improved English communication skills: By developing a system that allows users to record and check their pronunciation, the project provides a learning platform for non-native secondary student to practice and improve their English pronunciation. This significant aspect helps users enhance their overall English communication skills, enabling them to effectively communicate and be understood in various contexts.
- b. Enhanced learning through real-time feedback: The project's provision of real-time feedback on pronunciation accuracy is a significant feature that promotes a constructivist learning approach. By highlighting areas that need improvement and offering suggestions for correction, the project encourages users to actively engage in the learning process and take ownership of their pronunciation improvement journey.
- c. Motivation and progress tracking: The project's inclusion of scores and progress tracking is a significant aspect that motivates users to continuously practice and strive for better pronunciation skills. By monitoring their pronunciation improvement over time, users are encouraged to set goals, track their progress, and celebrate their achievements, fostering a sense of accomplishment and driving them towards continuous improvement.

1.5 Scope

1.5.1 System Scope

- a. Development of the "Voicesense" application to improve english pronunciation skills of non-indigenous secondary school students.
- b. Utilization Sistem zation of voice sensor technology to detect and record the students' pronunciation.
- c. Identification of pronunciation errors and error-based feedback to students.

1.5.2 User Scope

- a. The main users of the "Voicesense" app are non-native high school students. They will use this app to improve their English pronunciation skills and

enhance their speaking ability.

- b. Instructor or teacher: the app will be used by instructors or teachers as a tool in the pronunciation teaching process. They will monitor and assist students using the app.

1.5.3 Project Scope

- a. Application Technology Development:

This covers all stages of technology development related to the "VoiceSense" application, including user interface design, functionality development, and software architecture implementation.

- b. Test and Evaluation of the Application:

This involves the entire process of testing the app with non-native English speaking high school students as test subjects. It includes planning, conducting, and analyzing the trial data. The aim is to evaluate the effectiveness of the app in improving students' English pronunciation skills.

- c. Continuous Development and Project Management:

This involves the improvement and further development of the "VoiceSense" app based on the trial results and data analysis. In addition, it involves project management which includes planning, controlling, and reporting on the overall progress of the project to ensure that the project runs on schedule and achieves the research objectives.

1.6 Project Summary

The "Voicesense" research project is an attempt to address the challenges faced by non-native english-speaking high school students in improving their english pronunciation skills.

The project developed an innovative mobile app, "Voicesense," specifically designed to identify and provide automatic feedback on pronunciation errors. The app features advanced voice sensor technology that detects pronunciation errors. Grounded in John Dewey's constructivist learning philosophy, transforming students from passive recipients of correction to active agents of improvement, encouraging participation, self-growth in pronunciation, and constructive feedback,

the app empowers learners to independently recognize and correct pronunciation errors, ultimately developing language proficiency and communication skills.

This project involves the implementation of "Voicesense" on secondary school students from levels 1 to 3 who are non-native english speakers. The research is expected to provide insights into the benefits of constructivist approaches and the positive impact of "Voicesense" as a learning tool, with the aim of providing a relevant and useful solution for the english language education of non-native English-speaking secondary school students.