

The Analysis of Pronunciation Application Based on the Concept of Artificial Intelligence

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Abstract: In English lesson classrooms, pronunciation has not received special attention starting from elementary to college. This urgency needs to be highlighted. After Covid-19 virus began to show its impact on the field of education, the learning process was carried out online. However, technology in the 4.0 era by utilizing artificial intelligence that focuses on applications has been a big help. Applications are growing very rapidly, especially pronunciation applications. Due to the growing number of pronunciation applications, the current study aimed at analyzing some pronunciation applications which could be found and downloaded using both Android and iOs and recommended to be used in higher education due to the concept of artificial intelligence, element, and aspect of pronunciation skill. Then, a qualitative descriptive method as applied using observation and documentation within November 2021 to March 2022. The researchers found 15 pronunciation applications as well as proved that the application called Elsa Speak is the most recommended one. It has more advantages, namely: can be downloaded for free, can detect pronunciation errors with 90% accuracy, users can get feedback to fix errors, provide 1.200 lessons and more than 60 topics, and offer an interactive dictionary. The assessment and score included pronunciation, fluency, intonation, word stress and listening. It also has a few disadvantages, including: free but paid downloads when using certain features, frequent errors, have disadvantages in the detection of user pronunciation, so sometimes there are mispronunciations. From the elements and aspects, it has been proven to be the most complete, namely stress, intonation, accuracy, and fluency. However, this pronunciation application is expected to be a recommendation for learning English pronunciation especially in the higher education environment anywhere and anytime.

Keywords: analysis, artificial intelligence, pronunciation application,

RESEARCH BACKGROUND

Language is a communication tool used using conventional system vowel marks known as pronunciation (John, 2010) in (Rifqiyah, 2021). However, when communication happens within different language backgrounds, they must be linked. Since English has been used thoroughly to connect with speakers with different language backgrounds, English is called lingua franca. As a lingua franca language spoken by non-native speakers, English is not the first language by such speakers. When English is not the first language, the way it is pronounced needs to get serious attention because it is not the mother tongue used as everyday

language. The mother tongue that is usually used in everyday language will certainly be easy in pronunciation because it is accustomed to using the language, but when English is not the mother tongue of the speaker, it will be difficult in pronunciation. The skill that is considered the most difficult in learning and learning English that requires a lot of effort is pronunciation (Haghighi & Rahimy, 2017; Gilakjani, 2016; Sadeghi & Heidar, 2016). Hence, learning English pronunciation needs a lot of effort. Moreover, in English lesson classrooms, pronunciation has not received special attention starting from elementary to college. This urgency needs to be highlighted. Pronunciation should be put on the same level as other aspects in English competence, such as vocabulary, grammar, reading, listening, writing, and speaking (Senowarsito & Ardini, 2019). Therefore, English pronunciation is something that needs to be considered and learned.

After Covid-19 virus began to show its impact on the field of education, the learning process was carried out online. The pronunciation classroom is one of the pieces of evidence that was quite affected by this pandemic situation (Tiara, et al. 2020). This situation became obstacles faced to learning English pronunciation. However, we are lucky to have entered the era of 4.0 where technology can be a solution to the current problems. The research conducted by (McCrocklin, 2014) on improving students' pronunciation skills based on sound detection technology by implementing pronunciation learning with the help of artificial intelligence that facilitates human work. Artificial intelligence can help the role of humans in replacing work, one of which is that it can help teach English pronunciation through applications. Due to the growing number of pronunciation applications, the researchers conducted the current study which aimed at analyzing some pronunciation applications which can be found and downloaded using both Android and iOs which are recommended to be used in higher education due to the concept of artificial intelligence, element, and aspect of pronunciation skill.

REVIEW OF RELATED LITERATURE

Pronunciation

Pronunciation is part of the pronunciation of words in English which is related to the way how the word is spoken and how the technique produces sound well and in accordance with the provisions. Pronunciation is Language skills are seen as the most different, this is because the ability to imitate sounds is not tied to language skills (Thomson & Derwing, 2014). Therefore, pronunciation is an ability that we must learn seriously. Moreover, the purpose of learning pronunciation is to make it easier for speakers to communicate using English clearly, then it can also prevent misunderstandings when communicating, and also as an assessment that the speaker's English is good even if not a native speaker.

Elements Pronunciation

According to Arimurti (2014), element pronunciation helps a person make it easier to convey what they want to say, therefore it is very important to learn element pronunciation.

Pronunciation elements are things that must be present in pronunciation, including; 1) stress is defined as a strong and loud emphasis on the syllables that give you an edge which consists of word stress, word groups stress, and sentence stress. 2) Rhythm is the movement of the sound produced through emphasis so as to form a pattern which consists of free verse, sprung rhythm, metrical rhythm. 3) Pitch and Intonation, pitch is the vibration that an instrument or sound evokes, and intonation is a melody that speaks of the low height of a tone that exerts pressure on a word.

Pronunciation elements are expected to help provide an understanding of how good English pronunciation techniques, because they already know part of pronunciation, Furthermore, pronunciation elements are also important to distinguish words with emphasis and high low sound that is considered, so that clearly the meaning produced by pronunciation, then the information received is conveyed well.

Aspects Pronunciation

In addition to the pronunciation element, it must be included in the assessment of how to pronounce good English, aspects of pronunciation also become an integral part of the pronunciation assessment criteria, then according to Ali Mustadi (2013:35), the aspects that evaluated on pronunciation is fluency of spelling and pronunciation, accuracy of spelling pronunciation, stress, & intonation.

Artificial Intelligence

Artificial intelligence, according to McCarthy (1956), is an intelligence designed to know the way of thinking humans and design a machine that can mimic human behavior. Another opinion about artificial intelligence expressed by Crevier (1993, p. 50) is an intelligent machine built on science and engineering. Artificial intelligence is an intelligence given to a computer system. Artificial intelligence has the benefit of helping human workers with the help of a system that can facilitate human work. In sum, application is software designed to aid human activities and which is part of artificial intelligence. For example, to replace teaching and service.

RESEARCH METHOD



Descriptive qualitative method was applied in the current study. According to Creswell (2014), Qualitative research is a type of research that can describe real events. In this study, the researchers explained what pronunciation applications based on the concept of artificial intelligence can be found. The data collection used in this study was observation and documentation toward the pronunciation applications based on AI by collecting information about the advantages and disadvantages as well as the element and the aspect of pronunciation provided on the application. The applications were collected within November 2021 to March 2022 using both Android and iOS. After that, the researchers listed down then analyzed them using 1) AI (McCarthy, 1956), 2) elements of pronunciation based on Arimurti (2014) including stress, rhythm, pitch, and intonation, 3) aspect of pronunciation Mustadi (2013) including accuracy, fluency, intonation, and stressing. To avoid similar terminology in element and aspect, the researchers combined them into stress, rhythm, pitch, intonation, accuracy, and fluency. The analysis of AI was in the form of the advantages and disadvantages so that it can be a recommendation to learn pronunciation anywhere and anytime.




RESULT AND DISCUSSION



Within November 2021 to March 2022, the researchers found 15 pronunciation applications which were based on AI concepts with the advantages and disadvantages. Then, they were analyzed using stress, rhythm, pitch, intonation, accuracy, and fluency to support the





pronunciation skill, so that the current study was able to recommend the most useful one that can be used by higher education students.




Tabel 1. List of Application Pronunciation


No.	Apps	Advantages	Disadvantages	Element and Aspect pronunciation
1.	ELSA Speak: English Learning App  https://play.google.com/store/apps/details?id=us.nobarrriers.elsa	It can be downloaded for free, can detect pronunciation errors with 90% accuracy, users can get feedback to fix errors, provide 1,200 lessons and more than 60 topics, and offer an interactive dictionary. Assessment and score that include pronunciation, fluency, intonation, word stress and listening.	Free but paid downloads when using certain features, frequent errors, have disadvantages in the detection of user pronunciation, so sometimes there are mispronunciations Must login first, paid.	Stress: V Rhythm: - Pitch: - Intonation: V Accuracy: V Fluency: V
2.	EPA (English Pronunciation Application)  https://play.google.com/store/apps/details?id=com.study.english.pronunciation	It can be downloaded for free, easily accessed online or offline, many full features, videos and easy to use, and also supports pronunciation learning independently wherever and anytime Divided into 6 parts sounds: short vowels, long vowels, Double vowel sounds, voiced consonants, other consonants which amount to 44 letters sounds, and there are stress features, explanations and features text translation	There is an ad display on the Application, often crashing. There are ads, when selecting the talk feature must be logged in first	Stress: V Rhythm: - Pitch: - Intonation: - Accuracy: - Fluency: -

<p>3.</p>	<p>Learn English Sounds Right</p>  <p>https://www.xamux.com/article/aplikasi-untuk-belajar-pronunciation/</p>	<p>Can be downloaded for free, can learn the alphabet phoneme symbol, by just out one of the words, the sound will appear</p> <p>There are 3 menu phonetic chart: Vowels, diphthongs, consonants</p>	<p>This app sometimes cannot open/error, The sound of pronunciation is very quiet and not very clear.</p>	<p>Stress: - Rhythm: - Pitch: - Intonation: - Accuracy: - Fluency: -</p>
<p>4.</p>	<p>TFLAT English Pronunciation – Speak English Pronunciation</p>  <p>https://play.google.com/store/apps/details?id=com.tflat.phatamtienganh</p>	<p>Can be downloaded for free, can be used offline, there are techniques on how to practice pronunciation such as: speaking, listening and writing.</p> <p>There are 7 menus: Short vowels, long vowels, Double vowel sounds, voiced consonants, voiceless consonants and other consonants.</p>	<p>cause it can be accessed offline, the vocabulary provided there is no update.</p>	<p>Stress: - Rhythm: - Pitch: - Intonation: - Accuracy: - Fluency: -</p>
<p>5.</p>	<p>Say it English pronunciation</p>  <p>https://play.google.com/store/apps/details?id=com.opus.elt.sayit</p>	<p>There is a menu: look up as a pronunciation exercise provided vocabulary, test as an exercise that has a level, there are texts, there are vowels, diphthongs, consonants.</p>	<p>After 7 days the application is paid.</p>	<p>Stress: V Rhythm: - Pitch: - Intonation: - Accuracy: - Fluency: -</p>

<p>6.</p>	<p>English Pronunciation by Yobimi</p>  <p>https://play.google.com/store/apps/details?id=com.scdgroup.englishpronunciation</p>	<p>There are pronunciation tips, facilities to train the ability to speak and write, can be downloaded for free</p> <p>There are 7 parts of sound in level basic: short vowel sound.</p> <p>long vowel sound, Diphthong, voiced consonant, unvoiced consonant, other consonant.</p> <p>There are 4 parts of level Advanced: Linking lesson, Syllables stress lesson, Sentence stress lesson, and intonation.</p> <p>There are 6 parts of pronunciation tips: Silent letters, Homophones and Homographs, Pronounce specific word, pronounce specific spelling to sound, pronounce specific practice topic, other lessons. And sound, Interesting view because there are pictures</p>	<p>There is a video feature but can't be played, there are quiz and practice features.</p> <p>There are ads</p>	<p>Stress: V</p> <p>Rhythm: -</p> <p>Pitch: -</p> <p>Intonation: V</p> <p>Accuracy: -</p> <p>Fluency: -</p>
<p>7.</p>	<p>English Sound pronunciation-Learn&Check</p>  <p>https://play.google.com/store/apps/details?id=com.thebrodyaga.englishsounds</p>	<p>A good application, not only can you hear pronunciation on the application, but users can record the pronunciation in order to compare.</p> <p>There are 3 parts of sound: Vowel sound, R-controlled vowels, Consonant sounds,</p> <p>There is a video feature explaining the pronunciation of each word, and there is a training feature that can record sound and compare with the pronunciation of native speakers.</p>	<p>Loading the video for a long time, containing ads.</p>	<p>Stress: -</p> <p>Rhythm: -</p> <p>Pitch: -</p> <p>Intonation: -</p> <p>Accuracy: -</p> <p>Fluency: -</p>

<p>8.</p>	<p>English phonetics- English pronunciation, IPA</p>  <p>https://play.google.com/store/apps/details?id=com.ipa.phienam.phatam.tienganh.englishphonetics</p>	<p>Easy to understand, makes it easy to learn English, can use text and be told about phonetics and how to pronounce it, text can use images and cameras,</p> <p>equipped with speech reading that can be adjusted as desired and there is a translation feature.</p>	<p>There is an ad, This Application sometimes the video can't be played, Audio is often crushed, many are locked.</p>	<p>Stress: - Rhythm: - Pitch: - Intonation: - Accuracy: - Fluency: -</p>
<p>9.</p>	<p>Quick pronunciation</p>  <p>https://play.google.com/store/apps/details?id=com.tiago.tspeak</p>	<p>There are 2 menus: Minimal pairs and Tongue-twisters (level 1-8)</p> <p>Volume, speed, pitch.</p>	<p>There are ads, some paid features.</p>	<p>Stress: - Rhythm: - Pitch: V Intonation: - Accuracy: - Fluency: -</p>
<p>10.</p>	<p>Pronunroid-IPA pronunciation</p>  <p>https://play.google.com/store/apps/details?id=com.hoardingsinc.pronunroid</p>	<p>Games that train phonetics consisting of Look up words, guessing symbols, guessing pronunciation, guessing spelling and searching for words with 2000 words in this application, can search for the pronunciation of each word with the search feature.</p>	<p>The game is less interesting and boring.</p>	<p>Stress: - Rhythm: - Pitch: - Intonation: - Accuracy: - Fluency: -</p>
<p>11.</p>	<p>Spell and pronounce it Right</p> 	<p>There are 4 Menus: Spell Checker, Pronunciation, Translator, Dictionary. Equipped with speech to text and text to speech features, it has 2 pronunciation and spelling</p>	<p>Contains ads that always appear, sometimes errors</p>	<p>Stress: - Rhythm: - Pitch: -</p>

	<p>https://play.google.com/store/apps/details?id=com.SpellCheck.TypeandSpeak.WordPronunciationChecker</p>	functions.		<p>Intonation: - Accuracy: - Fluency: -</p>
12.	<p>Correct spelling and pronunciation</p>  <p>https://play.google.com/store/apps/details?id=com.apptech.solutions.pronunciation.and.spelling.correct</p>	Small application size, minimal battery usage, easy to learn, free application that serves to check spelling.	There are ads, the voice recorder feature sometimes captures the sound of pronunciation is not appropriate	<p>Stress: - Rhythm: - Pitch: - Intonation: - Accuracy: - Fluency: -</p>
13.	<p>English pronunciation training</p>  <p>https://play.google.com/store/apps/details?id=io.codigofonte.english</p>	There are 3 parts: Vowel sounds, consonant sounds and cluster sounds. Each letter has a video reciting it with a sample word accompanied by the sound There are 500 vocabulary, alphabet phonetics internationally and 52 videos and tips on how to use the mouth and tongue correctly in learning English pronunciation.	Contains ads, cannot write words / letters according to the user's wishes, can only try what is in the application.	<p>Stress: - Rhythm: - Pitch: - Intonation: - Accuracy: - Fluency: -</p>
14.	<p>Pronounce it</p>  <p>https://play.google.com/store/apps/details?id=com.maco.pronunciationchecker</p>	Can learn pronunciation offline, built-in dictionary for clear understanding, can use sound.	The features are very simple, there is no vocabulary to practice.	<p>Stress: - Rhythm: - Pitch: V Intonation: - Accuracy: - Fluency: -</p>

<p>15.</p>	<p>PEP(perfect English pronunciation)</p>  <p>https://play.google.com/store/apps/details?id=net.vproductions.pp</p>	<p>There are 4 menus provided: Getting started, the difficult sounds of English, the rhythms of English and Applying professional speech.</p> <p>Easy to use, equipped with comprehensive lessons including: p eluding of articulation muscle muscles, interactive jaw exercises, facial diagrams to instruct proper tongue placement, being able to practice and track learning progress with audio and recording.</p>	<p>The video and some of its browsing features are locked and paid.</p>	<p>Stress: V Rhythm: V Pitch: - Intonation: - Accuracy: - Fluency: -</p>
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Of the 15 applications provided in the table, the results of the analysis proved that the application called ELSA SPEAK is the application that has the most advantages, namely: it can be downloaded for free, can detect pronunciation errors with 90% accuracy, users can get feedback to fix errors, provide 1.200 lessons and more than 60 topics, and offer an interactive dictionary. The assessment and score included pronunciation, fluency, intonation, word stress and listening. And it has a few disadvantages, including: free but paid downloads when using certain features, frequent errors, have disadvantages in the detection of user pronunciation, so sometimes there are mispronunciations. From the elements and aspects, it has been proven to be the most complete, namely stress, intonation, accuracy, and fluency.

CONCLUSION

It can be concluded that by utilizing pronunciation application based on artificial intelligence concept is important. It was found 15 pronunciation practice applications with various models equipped with benchmark elements and aspects of pronunciation that have advantages and disadvantages of analysis. Out of the 15 pronunciation applications, Elsa Speak is the application that has the most advantages, but the applications that have been developed have not been able to fully meet the standard criteria covering elements and aspects of pronunciation. However, this pronunciation application is expected to be a recommendation for learning English pronunciation especially in the higher education environment anywhere and anytime.

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