



Improving Students' Pronunciation in Word Stress through TTS (Text To Speech) Feature: On a Google Translate Application

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Abstract

This research aimed to find out the improvement of students' pronunciation in word stress through *text-to-speech software* at the 11th-grade students of SMAN 1 Kaledupa, in the academic year of 2021/2022. The samples of this study were 22 students, and purposive sampling was applied for this research. This research used a pre-experimental research design where there were three sessions conducted to reach the result of this research. Pre-test and post-test design consisted of 5 meetings, including the treatments. The pre-test in this research is to obtain students' prior knowledge, and the post-test is to measure students' improvement after the researcher applies or uses the *text-to-speech software* in the treatment session. The finding of this research showed a significant improvement in students' pronunciation after the use of *text-to-speech software*. This was proven by the mean score before treatment was 32.04, and the mean score after treatment has given was 60. The percentage of the improvement was 87.26%. The t-test value (6.106178) was higher than the t-table value (2.07961). H1 is accepted while H0 is rejected, and it can be concluded that there is a significant improvement in students' pronunciation in word stress.

Keywords: *Google Translate Application, Text-to-speech software, Pronunciation, Word Stress*

Introduction

English is known for the difficulties to speak and pronounce the words, because of differences in symbol and it sounds, sometimes it has the similar sounds when people pronounce it and people get confuse with it. Anugrah (2019) expressed that student's mostly got struggle to speak English because they don't know how to pronounce the vocabularies they possess. In some circumstances, people will ask to repeat what we say when there is a word that has several similarities sounds. In this case is related with word stress. Meanwhile, Think& Thao (2020) in their research at the University of Phan Thiet, most students does not pay much attention to their English pronunciation practice, which is believed to have significant impacts on students' obtaining a good pronunciation and affected the fluency in conversation.

In Indonesia, people use English as a second language. English is mostly used by students only in learning process on classroom or when the teacher insists to use it in

learning process. It cannot be denied that most students get struggle with English pronunciation. In some circumstance the sound of a word is different from its written form Ramelan (2003). For example, the word Island is pronounced /'aɪ.lənd/. While in Indonesian language, we pronounce it /island/. Brophy (2010) stated that another problem or difficulty in learning pronunciation is students hearing or how they catch information from someone else either from their teachers or classmates. People have different level hearing ability. There are so many factors that affect pronunciation learning for the students considering that every student has different sound characteristic while trying to speak in English Toci (2020). Mother language or native language is one of important affect and suggesting the learners while they are trying to learn pronunciation Ladd (2008).

Word stress also has another function that is to distinguish same word which has different meaning, with word stress we can easily recognize and identify the words. For example, the word "present". If we highlight the stress in the first syllable (**pre**sent) it means a gift (noun), but it is going to be different if the stress is in the last syllable (pre**sent**) the meaning is changing to show, grant, display (verb). Unstress may be defined as the absenteeism of these. In the words "**s**ister" and "**w**riting", we can see that the stress is on the first syllable, where this explain the unstressed are on the last syllable. Words stress can be recognize by focusing on the syllables that highlight by pitch prominence, loudness vowel, and the volume when produced. Syllables with stressed usually have higher pitch prominence compare with the unstressed, and it's also longer and louder with full vowel on it (Roach, 2009). The same words can have different meaning if the stress is on the different syllables. Putting stress in the wrong places can lead into different meaning for some words. Gerald (2000) stated that every word with more than 1 syllable is always having one syllable with more pitch prominence on it than the others. For instance, the words "**s**ister" and "**w**riting", they has 2 syllables and stress is on the first syllable. The word with more than 3 syllables, such as "**po**tato" and "**ba**nana" has pitch prominence on the second syllable. Gerald (2000) expressed that, in a word the stress can be on the first, second, or last syllables that have pitch prominence, higher volume, and the loudness. The others syllable need to unstressed for clarifying the main stress in a word.

Technology has a huge impact in human life, which is not only to make our life easier but also help us a lot in term of education. Pennington (2019), the use of mobile devices, such as smartphones and tablets, is a growing trend in language learning for students who learn English as their second language. Recently, with the improvement of technology we can listen the pronunciation of any words with different accent by just typing them in text-to-speech software which is available on Google translate application in our smartphone. Dutoit (1997) defines text-to-speech as the production of speech by machines, by way of the automatic phonetization of the words and sentences to utter. Text-to-speech is technology that changes text information straight into a voice reading, everything we type on it can be pronounced correctly and naturally by the use of natural semantic analysis with artificial intelligence (Huang & Liao, 2015). Bione et al (2016) stated that students had an overall positive impression of TTS-generated voices. TTS has the prospective for students to improve their pronunciation by self-study and the teaching space can be covered (Cardoso et al, 2012).

Word stress is the feature in English pronunciation which usually students does not paying much attention on them. Many research has already shown that possess enough knowledge about stress can make EFL students easily understand someone in a conversation and to recognize important words in a sentence. This is what underlies the importance of this research to be conducted, to avoid making mistakes and to prevent poor pronunciation by using text-to-speech software can be reduces significantly.

Method

In this research, the researcher was used a quantitative approach to analyze the data. The researcher was applying a pre-experimental research design, involving pre-test and post-test to measure students' ability in pronunciation. Also, the researcher was used post-test in the last meeting to find out the students' improvement through the use of text-to-speech software. The total student in the 11th grade at the SMAN 1 Kaledupa in the academic year of 2021/2022 were 123 students and consists of 5 classes. XI MIPA 2 class with 22 students was selected through purposive sampling. The independent variable of this research is the use of text-to-speech software with an American accent in learning pronunciation. The dependent variable is students' pronunciation skill in word stress.

There were 40 list of words in total consist of nouns and verbs with 2-3 syllables for the instruments in this research and its used in pre-test and post-test. Pre-test aimed to find out the prior knowledge of students' pronunciation in word stress with list of 20 words that consist of 10 nouns and verbs with 2-3 syllables and it was conducted in the first meeting. While, post-test was designed to find out the improvement of students' pronunciation in word stress through text-to-speech software with an American accent and it was conducted in the last meeting with the list of 10 nouns and 10 verbs with 2-3 syllables. The students were given pre-test and post-test which both of them has the same amount of words list. The researcher asked students to pronounce the words with stress on it, the students called one by one according to absence list, their voice recorded as the data to be analyzed in this research. The significance level in this research was at 0.05 which are compatible and acceptable in this study.

22 students from class MIPA 2 were selected to be the participants of the study. All the participants did the pre-test in order to identify their pronunciation ability before using the text-to-speech software in learning process. After that, the students learned how to use text-to-speech software on a Google translate application in treatment session for 3 meetings, in this session the researcher direct students practice to pronounce some difficult words with the help of text-to-speech software. Students can correct their pronunciation by imitating voice or sounds produce by the text-to-speech software. After finished the treatment, the students were given the post-test. After that, the data from the pronunciation test were analyzed. The data obtained from the pronunciation test were analyzed using the theory from Gay et al (2012) where there are some several step to reach the conclusion in this research, they are; 1) scoring students correct answer pre-test and post-test 2) then put them in classification score with the range from 0-100 (Very poor-Excelent), 3) find out the mean score both pre-test and post-test, 4) calculate the percentage of improvement of the students, 5) calculate the value of test of significance, 6) the last is doing the hypothesis testing.

Findings and Discussion

Findings

1. Students Frequency on pre-test and post-test

The following table was the result of students' pre-test and post-test with the frequency in each classifications score:

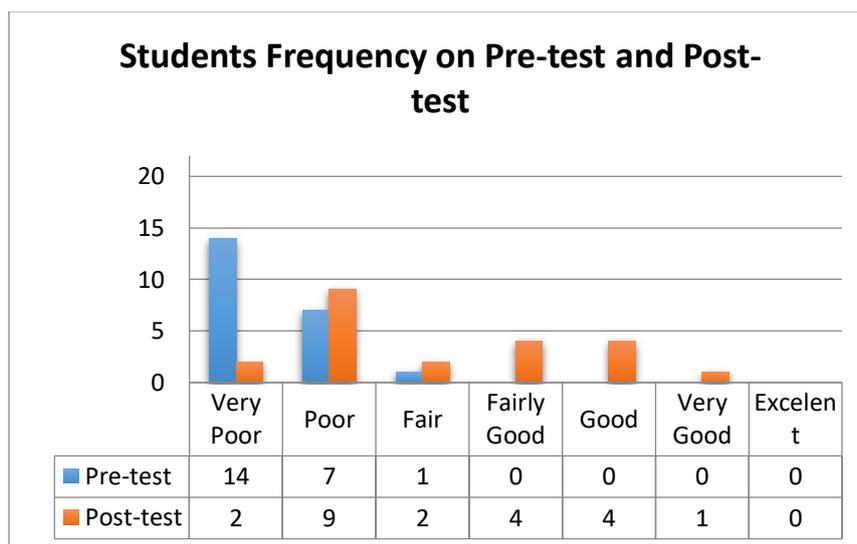


Figure 1: Students Frequency on pre-test and post-test

1.1 The frequency and percentage of students in pre-test

As shown in figure 1, the highest percentage in pre-test was in very poor category (0-35) with 63,63% where there were 14 students in this score range. Next is in the poor category (36-55), there were 7 students in this category with the percentage of 31,81%. Then in the Fair category (56-65) with 4,54% percentage, there was only 1 student got in this score range. The last four categories which are; fairly good (66-75), good (76-85), very good (86-95), and excellent (96-100) there were no students out of 22 get in this score range (0%). Finally it can be concluded that students' pronunciation in pre-test was *very poor* categorized.

1.2 The frequency and percentage of students in post-test

Based on figure 1, in the excellent category (96-100) there were no students got in this score range (0%). Next is in the very good category (86-95), there was 1 student (4,54%), then in the very good category (86-95) and good category (76-85) each of them there were 4 student (18%) got in this score range. 2 students (9,09%) were in the fair category (56-65). There were 9 students (40,90%) in poor category (36-55) and there were 2 students (9,09%) in very poor category (0-35). The result from the post-test can be concluded that students' pronunciation was *fair* categorized. The following table was the students' result of post-test.

2. The mean score of pre-test and post-test

The result of mean score from pre-test and post-test and the percentage of students' improvement in pronunciation after it calculated can be seen in the following table:

Type of Test	Mean Score	Improvement
Pre-test	32.04	87.26%
Post-test	60	

Table 1: Mean score of pre-test and post-test

The mean score of students in pre-test was 32.04 where it was indicated that students' pronunciation was in very poor categorized. The mean score in pre-test was low considering that students did not get any exposures related with word stress material and the use of text-to-speech software. Since students acknowledged the word stress and got to know the use of text-to-speech software to learn pronunciation where this section they obtain from treatment session, their mean score is improving to 60 where it was in the fair

categorized. After calculating the mean score of pre-test and post-test it can be known that students' pronunciation improvement is by 87.26%.

3. Hypothesis Testing

Pre-test and post-test which are the test variable is statistically different on alpha level (α) = 0.05, at the degree of freedom (df) $N-1 = 21$ to see the difference.

Statistic				Result
α	Df	t-test	t-table	t-test>t-table
0.05	21	6.106178	2.07961	H ₀ : rejected H ₁ : accepted

Table 2: The result of hypothesis testing

Table 2, indicates that the value of the t-test (6.106178) was greater and higher than the value of the t-table (2.07961). From the result of hypothesis testing it is certain that the H₁ (alternative hypothesis) is accepted considering the t-test value was greater than the t-table value, then the H₀ (null hypothesis) was rejected because of the t-test value is higher than the t-table value.

DISCUSSION

This research was conducted to investigate students' improvement in pronunciation specifically in word stress. The results of this study indicate that the text-to-speech software has a positive impact on students' pronunciation on word stress after applied and used on treatment session.

1. The Use of Text-to-speech Software

As be shown in findings for the result in the table 2 that has been analyzed, students' pronunciation in words was enhancing. As been indicated in figure 1 that shown the frequency and rate percentage for the results of students' score in pre-test and post-test. The score of students pronunciation in post-test was increase, compare to pre-test that hold before the treatment session where Google translate application with text-to-speech software is used for couple of meeting in class. This is related with Huang & Liao (2015), James (2016), and Anugrah (2019) where they also found the improvement of students' pronunciation after used text-to-speech in learning process.

In figure 1, the findings shows that students' pre-test percentages in every classification score mostly were in the very poor category with 14 students out of 22 and the mean score was 32.04. This is similar and corresponded with Anugrah (2019) and Huang & Liao (2015) where students' pronunciation in pre-test was low considering there is no exposure with the use of text-to-speech software in learning process. This is indicated that students' pronunciation at the 11th grade in SMAN 1 Kaledupa especially in the class XI MIPA 2 were low because most of they were struggle to pronounce some alphabet letter, words and lacked of knowledge on wordsstress in pronunciation.

In the first meeting for treatment session, the researcher found that there were a few students got struggle with some alphabet letter that has a different sound when it pronounce, the text-to-speech software has been started used from this meeting. In the second meeting and third meeting, the researcher introduced and showed how to use the Google translates application with text-to-speech software for them to maximize their pronunciation especially in word stress. In this session the researcher mostly does the drill and practice method to stimulate students skill and understanding in English pronunciation.

Reading some sort paragraph and doing some dialogue are necessary in order to make students get used and to know how to pronounce the words correctly, as stated by James (2016) in his research that students' pronunciation can be improved by reading and doing some dialogue with classmate where it can be affect in both segmental and suprasegmental features in pronunciation.

The role of text-to-speech software in treatment session was to made students familiar and to make them pronounce the words correctly with word stress in it, by imitating the sound or voice produce by the text-to-speech software. This is the main part of drill and practice method in this research, this method compatible with the use of text-to-speech software in class where they can directly correct themselves if they pronounce word incorrectly by imitating the sound or voice produce by text-to-speech software. As stated by Huang & Liao (2015) in their research that the students were easily corrected their pronunciation mistakes by imitating the voice produced from Text-to-speech system. After applied the use of text-so-speech software for learning in treatment session, the researcher hold the post-test in order to find out and to measured students' pronunciation in word stress.

In the post-test as shown in table 1, the result indicated that students mean score was 60 and it categorized in fair category, while in the pre-test students mean score was 32.04. It can be concluded that after giving some treatments by using text-to-speech software, students' pronunciation in word stress was improving where the researcher has found that the improvement was by 87.26%.

2. Test of Significance and Hypothesis Testing

After analyzed the data, the researcher found that the value of t-test was 6.106178 which is higher and greater than the value of t-table which is 2.07961 as shown in table 2, on alpha (α) level of significance 0.05 at the degree of freedom (df) of 21. It was the result of teaching the students' pronunciation in word stress through the use of text-to-speech software in the classroom.

Based on the result of the test, it's found that there was an improvement of students' pronunciation in word stress. This can be seen from the result of pre-test and post-test where there was a significant increasing after the use text-to-speech software in learning process. In treatment session with the use of text-to-speech software was leading the students to be able learn by themselves and to practice without accompany by their teacher or friend. Doing repetition pronounce also the main cause for students improvement in this research because students are more confident to imitate the sounds produce by text-to-speech. From the result of hypothesis testing it is certain that the H1 (alternative hypothesis) is accepted considering the t-test value was greater than the t-table value, then the H0 (null hypothesis) was rejected because of the t-test value is higher than the t-table value. Based on the data that has been analyzed it can be concluded that the students in XI MIPA 2 at SMAN 1 Kaledupa was increased.

Conclusion

This study aims to find out the improvement of Students' Pronunciation in Word Stress through TTS (text-to-speech) feature: On a Google Translate Application. Researchers really hope that the results of this study can be useful as reference material for readers or future researchers who will take the similar research topic. This study used a quantitative research design to analyze the data and pre-test and post-test are used to collect the data where 22 students at 11th grade in SMAN 1 Kaledupa in the class XI MIPA 2. Based on the findings and discussion, the researcher found that students pronunciation in word stress after the use of text-to-speech software on Google translate application at the 11th grade in

SMAN 1 Kaledupa in the class XI MIPA 2 was improved. This is supported by the mean score in the pre-test (32.04) and the mean score of pre-test (60), it means that the mean score in post-test was higher than pre-test which indicate there was an increasing in score. Meanwhile for the t-test value was 6.106178 and the t-table value was 2.07961, this result imply that the t-test value greater than the t-table value where in this case the H0 (null hypothesis) was rejected and the h1 (alternative hypothesis) is accepted.

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Improving Students' Pronunciation in Word Stress through TTS (Text To Speech) Feature:
On a Google Translate Application

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