

THE USE OF PRAAT IN LEARNING ENGLISH DEBATE IN INDONESIAN EFL CLASSROOM

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Abstract: This study aims to analyze the elements of suprasegmental sound in English debates consisting of stress and intonation by using the PRAAT computer program and students' perceptions toward the use of PRAAT in learning English debate. The data of this study were taken from the practice of debate in the General English class which is a compulsory course in Universitas Kuningan. A total of 30 students from one class of General English were involved in this study. The method used is a mixed method. Several instruments were used to collect data including observation and documentation for qualitative data, and questionnaires for quantitative data. PRAAT program version 6.0.33 was used to analyze the stress and intonation patterns, while questionnaire was used to determine students' perceptions toward the use of PRAAT in mastering English debate. The results showed that the use of intonation and stress can affect the meaning of speech, especially in debate. Furthermore, students gave a positive response to the use of the PRAAT application in understanding the correct intonation patterns and pressure in speaking English.

Keywords: PRAAT; debate; EFL classroom

INTRODUCTION

Debate does not only convey a series of words or sentences, but also the meaning behind each utterance phonologically. Basically, debate is one part of language skills that are used systematically to accomplish or achieve certain goals (Abidin, 2013). In practice, the expression of debate is not only reflected in body language, but also in the phonological systematics of speech. The phonological aspect is called suprasegmental, namely phoneme sound that is influenced by speech, pressure, and intonation (Truesdale, 2018). The suprasegmental aspects related to speech or sound segments (phonemes), namely tone, pressure, joints, intonation. Then, Styler (2017) said that suprasegmental morphemes occur from segmental phonemes, such as phonemic pressures, tones, or pauses. Furthermore, Simpson (2012) stated that suprasegmental or prosody is an aspect that must be included in phonology. It means suprasegmental study is the domain of phonological area that in the discourse is intended to examine the production of meaning or ideology.

In mastering debate as a means to sharpen communication and argumentation skills, an understanding of the use of intonation is needed, which is one of the important suprasegmental elements. Intonation is very instrumental in distinguishing sentence intentions (Muslich, 2008; Kridalaksana, 2009). Differences of intonation, pressure, or the tone of the teaching of a morpheme in the text can bring different meanings if those are spoken in different ways so that phonological speech is strongly influenced by the context of speech, in this case the context of discourse.

On the other hand, suprasegmental is something that accompanies the phoneme, which can be in the form of sound pressure (intonation), long-short (pitch), and sound vibrations that indicate certain emotions. Suprasegmental is the element that "accompanies" and influences the sound of language, and not the true sound. Suprasegmental elements are also called prosody (Muslich, 2008: 81). In contrast to Marsono (1999) suprasegmental sounds are sounds that accompany segmental sounds. Verhaar (2010) explains that the suprasegmental sounds

include intonation, tone, accent and pressure. In fact, the phonetic description of suprasegmental sounds is only the basis for a phonemic description. However, in many ways the phonetic and phonemic aspects are not easily distinguished. The easiest way to understand the suprasegmental element is through an acoustic phonetic approach. There are two acoustic properties that influence the suprasegmental elements, namely frequency and amplitude (Nespor and Vogel, 2007). These two elements are very influential in the suprasegmental elements and they are very related. The difference between the two sounds is based on whether or not the sound is segmented. Sounds that can be segmented, like all vocal and consonant sounds are segmental sounds. While sounds or elements that cannot be segmented, accompanying segmental sounds, such as pressure, tone, pause and duration (elongation) are called suprasegmental or non-segmental sounds or elements (Chaer, 2013; Ladefoged, 2015).

To measure the frequency of air vibrations in the form of waves, a device called an oscillograph is used. Similar tools then appeared, such as spectrograms, which allowed us to know the acoustic quality of the sound of the words to be analyzed (Yusuf, 1998). Next came a tool called the PRAAT program. If a speech after recording is then entered into the PRAAT program, the sound waves can identify the characteristics of the sound image of the speech. PRAAT is a program created by Paul Boersma & David Weenink from the Phonetic Sciences Department of the University of Amsterdam (www.praat.org). With the catchphrase "doing phonetics with computer", PRAAT is a software to perform flexible sound analysis and reconstruction. PRAAT can be used to do many things, from spectrogram analysis to reconstructing the sound itself and creating diagrams or drawings that can be used in scientific work. The PRAAT program is needed by researchers who use acoustic data. Accurate and complete acoustic information can be generated by empowering the PRAAT program.

A recent study on voice analysis by using PRAAT software and classification of user emotional state was conducted by Magdin, Sulka, Tomanova, and Vozar in 2019. The paper deals with the user's emotional state classification based on the voice track analysis, it describes its own solution - the measurement and the selection process of appropriate voice characteristics using Anova

analysis and the use of PRAAT software for many voice aspects analysis and for the implementation of own application to classify the user's emotional state from his/her voice. The results show that the emotions determining from the user's voice is a complex issue and its solution used to be ambiguous and complicated. Different people have different voices and the creation of general rules for emotions determining is not elementary. The best results in this area are achieved by neural networks and the systems that combine the emotions determining from voice, from facial expression and other biometrics.

Moreover, several studies have aimed at exploring the effectiveness of computer software (PRAAT) in helping students to acquire prosodic features of English language. The results also showed that learners that practiced stress and intonation through CALL approach were more successful than the students who were taught through traditional method (Gorjian et.al, 2013). Another study regarding PRAAT analysis have been conducted by Wulandari in 2016. This research has revealed that the second semester students of the study program of English Universitas Brawijaya have typical segmental features which are different from that of native speaker. The typical segmental features were detected through voice spectrogram software namely PRAAT. Other papers have highlighted the implementation of the widely used speech analysis tool PRAAT as a web application with an extended functionality for feature annotation (Hayati, 2005; Dominguez, Latorre, Farrus, and Filba, 2016; Octavia, 2018). In particular, PRAAT on the web addresses some of the central limitations of the original PRAAT tool and provides (i) enhanced visualization of annotations in a dedicated window for feature annotation at interval and point segments, (ii) a dynamic scripting composition exemplified with a modular prosody tagger, and (iii) portability and an operational web interface. Speech annotation tools with such a functionality are key for exploring large corpora and designing modular pipelines. As differences in intonation, stress, and tone of speech of a morpheme in the utterance can bring differences in meaning, therefore, this study aims to investigate the use of PRAAT in learning English debate in Indonesian EFL classroom.

METHOD

The method used in this research is a mixed method. Mixed methods research is a research method that

combines or combines qualitative methods and quantitative methods to be used together in a research activity, so that the data obtained is more comprehensive, valid, reliable and objective (Nunan, 1993; Stake, 2010; Creswell, 2014). The design used is concurrent embedded where the second method strengthens the first method.

The data of this study were taken from the practice of debate in the General English class which is a compulsory course in Universitas Kuningan. A total of 30 students from one class of General English were involved in this study. The method used is a mixed method. Several instruments were used to collect data including observation and documentation for qualitative data, and questionnaires for quantitative data. PRAAT program version 6.0.33 was used to analyze the stress and intonation patterns, while questionnaire was used to determine students' perceptions toward the use of PRAAT in mastering English debate.

In analyzing qualitative data, the first step is transcribing from the recorded sound. Then the transcription data that contains phonetic copies in the form of English spelling along with the tone spoken by the subject is processed into a graphic PRAAT. PRAAT program version 6.0.33 is used to analyze intonation patterns. PRAAT is a program created by Paul Boersma & David Weenink of the University of Amsterdam's Phonetic Sciences Department (www.PRAAT.org). With the slogan 'doing phonetics with computer', PRAAT is a software for flexible sound analysis and reconstruction. PRAAT can be used to do many things, from spectrogram analysis to sound reconstruction itself and making diagrams or drawings that can be used in scientific work. The PRAAT program is highly needed by

researchers who use acoustic data. Accurate and complete acoustic information can be generated by empowering the PRAAT Program. The spelling used is IPA phonetic spelling. As said by Miles & Huberman (1992: 87), that the data scattered across various utterances can be analyzed, the usual method used as a solution is to give a code to the observational field notes. Code numbers, subjects, and types of sentences are written in the data transcription sheet.

While, the questionnaire was used to determine students' perceptions toward the use of PRAAT in mastering English debate. The questionnaire used in this study was adopted from a questionnaire compiled by Davis (2003). The measurement used in this study was a Likert scale with five options, namely strongly disagree (SD), disagree (D), neutral (N), agree (A), and strongly agree (SA). The results of answering descriptive questions on the questionnaire were reported in the form of percentage as supporting data.

RESULTS AND DISCUSSION

Stressing and intonation patterns in English debate

The display settings in PRAAT can be set as expected (by adding / removing handles) via *the View-sub-menu - Show Analysis -* from the second *sub-menu* display. The researcher can remove the handles in the *Show Spectrogram*, and add the checkpoints to the other three options, namely *Show Pitch* (blue line), *Show Intensity* (green line), and *Show Formants* (red dots). The display is as shown in the following PRAAT figure which is equipped with pitch (blue line), intensity (green line), and formant (red line).

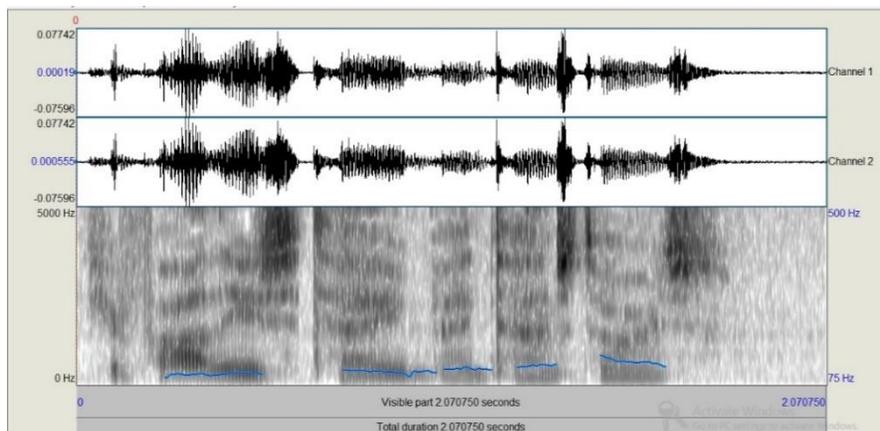


Figure 1. PRAAT analysis of stressing pattern

In the PRAAT analysis figure above, we can see a stressing pattern which is marked by black wave lines in the form of density and stretch. Stressing in English speech serves to distinguish meanings at the sentence level (syntax) as well as to distinguish meaning at the word level (lexis). At the sentence level, not all words are stressed the same (Roach, 2002). Only words that are emphasized or considered important get stress (accent). Therefore, listeners must know the meaning behind the meaning of the

speech they hear. At the word level, the stress on syllables or syllables affects the differentiation of meaning. For example, the word "import" when pronounced with stress on the first syllabic ['im] means different from when pronounced with stress on the second syllabic ['port]. The stress at the beginning of the syllabic means belonging to the class of nouns, while the stress in the second syllabic means a verb. Thus it can be stated that the stress on the syllable in English is phonemic.

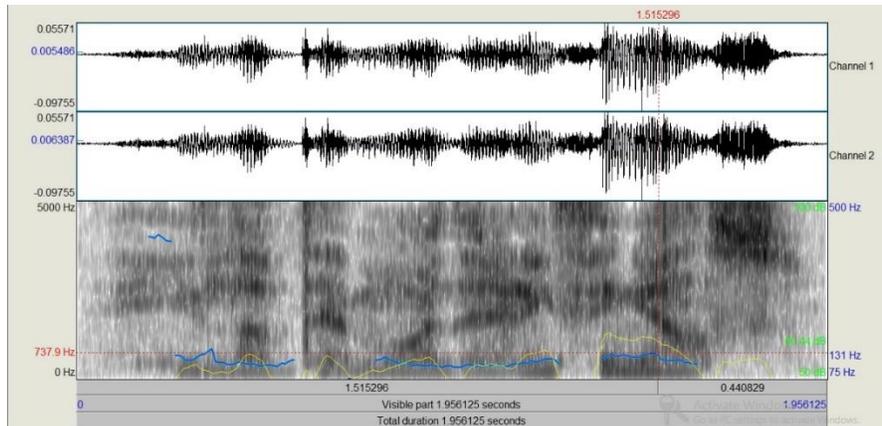


Figure 2. PRAAT analysis of intonation pattern

Meanwhile, the figure above shows the image of the consonant and vowel segmental elements. The lower part of the figure 2 shows the image of the suprasegmental element in the form of tone, intonation, formant (is a collection of sound energy around a certain frequency on a sound wave). Formant is an acoustic phonetic term which has the meaning of a classification of the characteristics of the transitional vowel sound and the sound between these vowel connectors. We can add words to the PRAAT image using the MS Word program. After editing is complete, the data is saved in the Sound Recording Graphics folder (which is set up in the task bar) and give it a name, for example Sound Recording Graphics K1. Then a similar operation continues for the rest of the sentence (K2 and so on). The red longitudinal line is the indication of the length of time of the speech, the display line that appears initially will be in the center of the image, representing half of the complete time of the utterance, as shown in Figure 2.

The result is coherence with Wulandari et.al (2016) who reveals that due to the lack of how to disambiguate the correct pronunciation of vowel sounds within the given words, the participants tend

to produce inaccurate pronunciation. Which are reflected by the result of the spectrum score range: F1 and F2. Some proposed techniques of teaching segmental were drilling, teaching minimal pairs, chanting with jazz chant and rhyming with tongue twisters, to modify learners segmental features (Joaquin, 2009). Automatic annotation of speech often involves dealing with linguistic and acoustic information that needs to be conveniently organized at different levels of segmentation (i.e., phonemes, syllables, words, phrases, sentences, etc.) (Christodoulides, 2014). Even though laboratory experiments on speech are controlled to a certain extent (e.g., minimal word pairs, short sentences, read speech) and are usually annotated manually, the increasing trend to analyze spontaneous speech, especially in human-machine interaction, requires tools to facilitate semi-automatic annotation tasks with a compact visualization for manual revision, presentation of results and versatile scripting capabilities (Dominguez, 2016).

After displaying the PRAAT image, a contrastive analysis can be carried out to compare the shape of the tonal motion expressed with the blue line in the PRAAT figure. To see in more detail about the shape

of the tone lines of each word, researcher can cut the sound waves of a sentence into words per word with *Goldwave*, then enter it into the PRAAT program and display the image shape like the PRAAT figure above. In this study, the utterances in English debate were examined. Debate is a process of oral communication expressed in language to defend opinions. Each team in the debate will state an argument, give reasons in a certain way in order to convince the audience so that the opposite team is arguing or listening. Differences of intonation, stressing, or the tone of a morpheme in the text can bring different meanings if those are spoken in different ways. Therefore, phonological speech is

strongly influenced by the context of speech, in this case the context of discourse.

Students' perceptions toward the use of PRAAT

The questionnaire was used to determine students' perceptions toward the use of PRAAT in mastering English debate. It was adopted from a questionnaire compiled by Davis (2003). The measurement used in this study was a Likert scale with five options, namely strongly disagree (SD), disagree (D), neutral (N), agree (A), and strongly agree (SA). The following is data from the distribution of questionnaires regarding the use of PRAAT in learning English debate.

Table 1. *Students' perception toward the use of PRAAT*

No.	Statements	SD	D	N	A	SA
1	Using Praat application helps me to know the appropriate intonation in English utterance			10%	83,3%	6,7%
2	Using Praat application helps me to know the appropriate stressing in English utterance			10%	83,3%	6,7%
3	Praat application enables me to control my speech tempo			46,7%	46,7%	6,7%
4	Praat application supports my ability in speaking English			53,3%	33,3%	13,3%
5	Using Praat application increases my English pronunciation	3,3%		43,3%	43,3%	10%
6	Using Praat application increases my productivity in speaking English			63,3%	26,7%	10%
7	Praat application improves my motivation to learn English debate			56,7%	36,7%	6,7%
8	Using Praat application helps me to know the speakers' emotion in English debate			43,3%	50%	6,7%
9	Using Praat application helps me to know the sentence types in English debate	3,3%		20%	66,7%	10%
10	Overall, I find Praat application useful in my learning			16,7%	73,3%	10%

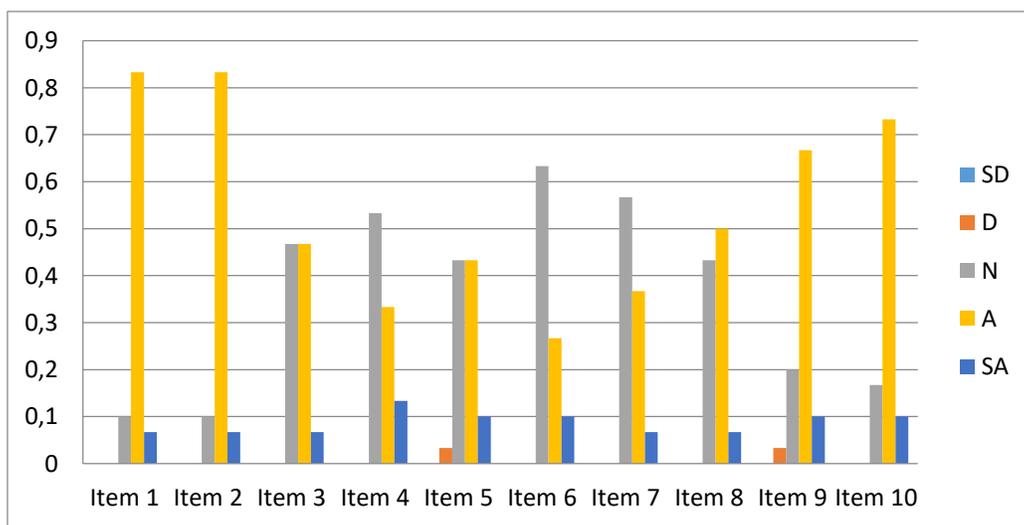


Figure 3. *Students' perception toward the use of PRAAT*

For item 1, which is related to the statement "Using PRAAT application helps me to know the appropriate intonation in English utterance" it is known that the majority of students, namely 83.3% agree that the PRAAT application helps to understand the correct intonation in English. The difference in the concept of intonation that English and Indonesian have makes there are several difficulties faced by students in learning English as a foreign language (Alwi et.al, 2003). With the help of the PRAAT application which displays different color graphics for intonation markers, it makes it easy for students to understand appropriate intonation of English.

For item 2, which is related to the statement "Using PRAAT application helps me to know the appropriate stressing in English utterance" it also shows the same percentage of student perceptions, as many as 83.3% agree that the PRAAT application helps in understanding pressure in English speech. Students can understand the concept of phonemic English stress with PRAAT's help because each different stress in English can give a different meaning to a word. It is consistent with Ladefoged (2005) who stated that a term that stresses two ideas at the same time, namely that you change things by grabbing them or typing, and that these changes are effective without confirmation.

For item 3, which is related to the statement "PRAAT application enables me to control my speech tempo" shows that there are 46.7% of students agree that the PRAAT application helps control the tempo of speech in English. However, it was also found that 46.7% of students were unsure about the concept that PRAAT helps in mastering the tempo or duration of speaking English. This is based on the fact that the tempo or duration of speaking is complex because the tempo depends on the speaker's emotion, context, situation and cultural background (Hart, 1990).

For item 4, which is related to the statement "PRAAT application supports my ability in speaking English", it is known that 53.3% of students are unsure whether the PRAAT application supports their ability in speaking English. Meanwhile, 33.3% of students agree and 13.3% strongly agree that PRAAT helps in speaking English skills. This is because speaking ability is a verbal ability which not only includes expertise in producing sound, but also the ability to convey messages that are meaningful and can be understood

by listeners. So that vocabulary mastery in English orally holds a larger portion compared to phonetic studies that were explored through the PRAAT application.

For item 5, which is related to the statement "Using PRAAT application increases my English pronunciation", it is known that 43.3% of students agree that the PRAAT application can improve English pronunciation skills. Meanwhile, the same number, namely 43.3% of students, also expressed doubts about improving English pronunciation skills because of PRAAT's assistance. This means that students' pronunciation skills of consonants and vowels can be helped by PRAAT. However, it cannot be denied that some students still have difficulty pronouncing complex syllables or syllables even with the help of the PRAAT application. It is relevant with Mathew (2005) in his study about errors in pronunciation by learners of English as foreign language whose first language are Indonesia. He stated that the Indonesian sound system affects to some extent for Indonesian student who learn the English language.

For item 6, which is related to the statement "Using PRAAT application increases my productivity in speaking English" as many as 63.3% of students have the opinion that they doubt that the PRAAT application can increase productivity in speaking English. This cannot be denied because productivity in speaking should be supported by a strong language environment so that the help of tools is not enough. Meanwhile, 26.7% of students agree that the PRAAT application helps in increasing their productivity in English. These results indicate that students feel more confident in speaking English because of the understanding of intonation and stress which they get through PRAAT.

For item 7, which is related to the statement "PRAAT application improves my motivation to learn English debate" it is known that 56.7% of students doubt that the PRAAT application can motivate them to learn English debate. It cannot be denied that debate requires complex abilities. The English debate requires students not only to be able to express ideas in English, but also to be able to master global knowledge, analyze, make judgments, and convince the public. Therefore, the help of tools alone is not sufficient to master English debate. Meanwhile, 36.7% of students agreed that the PRAAT application could motivate them to

learn debate. This means that students feel more confident in arguing in English after knowing the right pressure and intonation through the PRAAT application.

For item 8, which is related to the statement "Using PRAAT application helps me to know the speakers' emotion in English debate" that as many as 50% of students agree that the PRAAT application helps them to find out the emotions of speakers in the debate. This is because PRAAT shows the stress and intonation patterns of the speaker in an interactive way. Differences in intonation, stress, or tone of speech of a morpheme in the text shown by PRAAT can bring about differences in meaning if it is spoken in different ways so that phonological utterance is strongly influenced by the context of speech, in this case the context of discourse (Davletcharova et al., 2015; Truesdale and Pell, 2018).

For item 9, which is related to the statement "Using PRAAT application helps me to know the sentence types in English debate", it is known that 66.7% of students agree that the PRAAT application helps them differentiate the types of sentences spoken in English debates. This is because the results of PRAAT's analysis clearly show that based on the study of intonation patterns there are several types of sentences, namely news sentences (declarative), interrogative sentences (interrogative), and command sentences (imperative).

For the last item, which is related to the statement "Overall, I find PRAAT application useful in my learning" it is known that 73.3% agree, 16.7% doubt, and 10% strongly agree with the statement. This means that the majority agree that the PRAAT application is useful for student learning. With advances in technology, especially the creation of computers today is very helpful at all in the process of progress in education (Van et.al, 2001). Moreover, there is the PRAAT program that can change sound waves that previously could only be heard, now become visible to the human eye. In addition, the PRAAT program is equipped with a device to see the tone movement, the amount of pause, the length of the utterance all of which are needed to determine the inaccuracy of an utterance or the error of the utterance.

CONCLUSION

The results of this study showed that the use of intonation and stress can affect the meaning of speech, especially in debate. Furthermore, students gave a positive response to the use of the PRAAT application in understanding the correct intonation patterns and pressure in speaking English. The difference in the concept of intonation in English and Indonesian triggers several difficulties faced by students in learning English as a foreign language. With the help of the PRAAT application which displays different color graphics for intonation markers, it becomes easier for students to understand appropriate stressing and intonation of English.

It is hoped that the results of this study can enrich the literature on suprasegmental elements of phonological studies which still have little attention in the context of Indonesian EFL. Practically, this study provides information related to improving communication skills and expressing arguments especially for students. Professionally, through the results of this research, it is hoped that teachers and lecturers can develop debate strategies that combine suprasegmental element analysis to support student success in mastering English as a foreign language.

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