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Judul artikel : Fossilization Analysis on Segmental and Suprasegmental Features on EFL Learners  
(Javanese-English): A Comparative Study

Seminar : The 5th International Conference on Education and Social Science Research (ICESRE)

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4.	Bukti konfirmasi LoA dan LoI	1 Oktober 2022
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1. Authors	: <Sukma Nur Ardini, Sunarya, Andi Priyolistiyanto>
2. Corresponding Email	: <Sukma Nur Ardini>
3. Affiliation	: <Universitas PGRI Semarang>
4. Introduction	: <EFL learners (Javanese-English) have the same background which has Javanese mother tongue. In fact, although students of English Education Study Program have experienced English learning for years, they also still experience fossilization in their pronunciation. However, there are still differences between fossilization from students of English Education and Javanese Education Study Program>
5. Purpose	: <The aim is to analyze the comparison of fossilization on students of English Education Study Program and students of Javanese Education Study Program in Universitas PGRI Semarang on segmental and suprasegmental features>
6. Method	: <Qualitative descriptive method was used as methodology. The data were collected by a test of pronouncing academic vocabularies. The typical segmental features were detected through voice spectrogram software namely PRAAT>
7. Main Finding	: <The comparison of fossilization results between students of English Education Study Program (PBI) and students of Javanese Education Study Program (PBSD) is obtained in vowel 7.49%, diphthong 24.55%, consonant 22.3%. Furthermore, EFL learners have typical segmental features in pitch and intensity which are different from native speaker. The results present pitch of native speaker is 201.5 Hz, PBI 208.5 Hz, and PBSD 220.3 Hz. Meanwhile, the intensity shows that the native speaker's intensity obtained 74,35714286, PBI

66,35714286, and PBSD 66,71428571. The results concludes that PBSD has higher level of fossilization compared to PBI on segmental and suprasegmental features>

8. Implication : <This study can be used theoretically and practically. Theoretically, it will contribute to enrich the theory of EFL learners (Javanese-English) fossilization related to segmental and suprasegmental features. In practically, it will give an information about how to discontinue the fossilization by EFL learners (Javanese-English)>
9. Keywords : <fossilization; segmental; suprasegmental; EFL; javanese-english>

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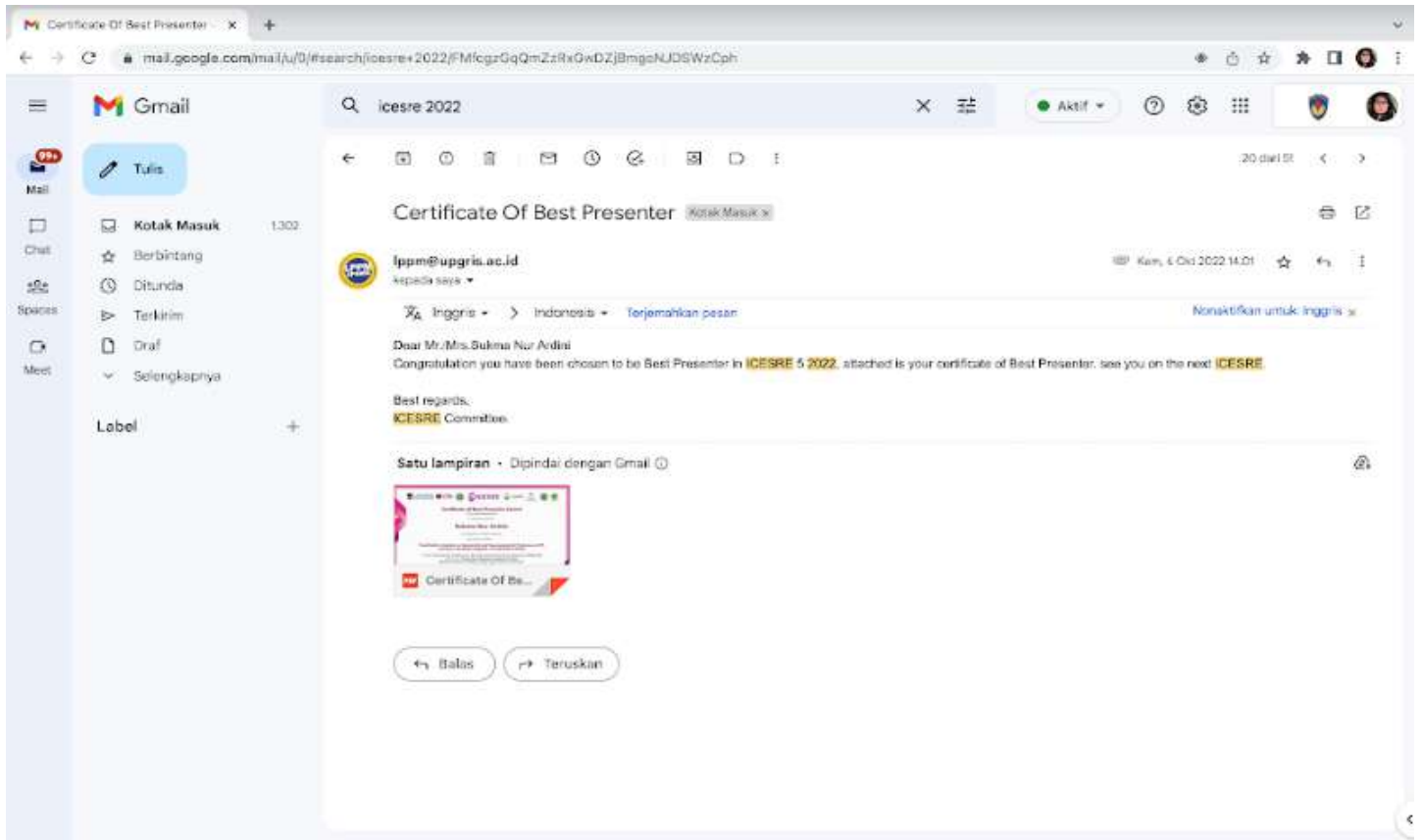
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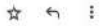
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**(27 November 2022)**

# Fossilization Analysis on Segmental and Suprasegmental Features on EFL Learners (Javanese-English): A Comparative Study

Sukma Nur Ardini<sup>1\*</sup>, Sunarya<sup>2</sup>, Andi Priyolistiyanto<sup>3</sup>, Vo Hung Cuong<sup>4</sup>

<sup>1</sup>English Education Department, Universitas PGRI Semarang, Indonesia

<sup>2</sup>Javanese Education Department, Universitas PGRI Semarang, Indonesia

<sup>3</sup>Informatics Engineering Education Department, Universitas PGRI Semarang, Indonesia

<sup>4</sup>Vietnam Korea University of Information and Communication Technology - The University of Danang, Viet Nam

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Corresponding author's ORCID ID: [0000-0001-9746-9005](https://orcid.org/0000-0001-9746-9005)

## Abstract.

EFL learners (Javanese-English) have the same background of Javanese mother tongue. Although students of the English Education Study Program (hereafter PBI) have experienced English learning for years, in fact, their pronunciation remains matters. The aims of the study were 1) to compare the fossilization of the students majoring English Education Study Program and Javanese Education Study Program (hereafter PBSD) in Universitas PGRI Semarang, Central Java, Indonesia, focusing on segmental and suprasegmental features, 2) to describe their perception about fossilization. Descriptive qualitative method was employed with percentage to show clearly the comparison. The data from 57 (fifty seven) respondents were collected using a test of pronouncing academic vocabularies and questionnaire. The vowels, diphthongs, consonants were categorized as Segmental Features data, while the pitch and intensity of typical suprasegmental features were detected through voice spectrogram software named PRAAT. The first finding was obtained that PBSD students have higher fossilization than PBI with the percentage of vowels (73.88% > 46.86%), diphthongs (73.71% > 42.55%), and consonants (87.86% > 39.87%). Meanwhile, EFL learners have typical segmental features in pitch and intensity which are different from native speakers. The pitch of native speakers is 201.5 Hz, PBI 208.5 Hz, and PBSD 220.3 Hz. Besides, the intensity showed that the native speaker's intensity obtained 74,35714286, PBI 66,35714286, and PBSD 66,71428571. The second finding defined that PBSD students have more difficulty when pronouncing the test. Therefore, it can be concluded that PBSD has higher level of fossilization compared to PBI on segmental and suprasegmental features, even though they got the same mother tongue background, since PBI students have been learning English for years and they have already familiar with the words but actually both got the same issue. The findings of the current study will be proceeded by the researchers to design a concept of Javanese fossilization.

Keywords: fossilization; segmental; suprasegmental; EFL; Javanese-English.

## 1. Introduction

English is known as a language that needs to be mastered in order to be able to compete at the world level. Known as a foreign language, English has become the most crucial subject which is taught at every educational level in Indonesia. Learning English means the learners must be able to understand several aspects. Pronunciation has the same

important role as other skills to be learned, such as listening, speaking, reading, and writing. Fraser (1999) stated that pronunciation is the most important role in learning a language. There found problems with EFL learners' pronunciation, particularly Javanese English learners which have Javanese mother tongue. Besides that, English is one of the languages that have the most difficult pronunciation in the world, especially for English as Foreign Language (EFL) learners (Gilakjani, 2016). Since Javanese learners need to acquire English in their educational level, Siqoyah (2020) claimed that the first language (L1) will interfere with foreign language (FL) or second language (L2) in the process of language acquisition. Senowarsito & Ardini (2019) also stated that learners' cognitive skills in their first language will interfere with their pronunciation of the foreign language in the form of words or phrases. This problem causes meaning making not functioning in the right way. As a result, EFL learners have language acquisition error or as known as fossilization. Therefore, pronunciation is very important to be learned so as not to experience the wrong meaning in English conversation (Ahmad 2018).

The previous studies presented the results of the types and error analysis of phonological interference in English pronunciation uttered by EFL learners (Javanese-English). The language interference can be understood as a process when one language has an impact on another language and when the individual is experiencing language transfer (Archvadze 2012). Siqoyah (2010) described the analysis of segmental aspects of assimilation of vowel, diphthong, and consonant, insertion of vowel and diphthong and consonant; and deletion of the consonant. The study explained 99 errors in segmental and suprasegmental aspects. The error of students' fossilization on segmental and suprasegmental features were fully discussed in the study. Meanwhile, the suprasegmental aspects were analyzed by using manual analysis by the researcher. Furthermore, another study came from Kayyis & Sari (2017) which defined Javanese students committed errors in long vowel, voiced consonants, stressing words at the first, middle, and last, and falling and rising intonation. The study only focused on the analysis of students' segmental features of vowels and consonants.

Moreover, Senowarsito & Ardini (2019) presented that the fossilization analysis of Javanese students commonly occurred in continuous speech rather than isolated words when they pronounced vowels, diphthongs, and consonants. The study did not discuss the suprasegmental aspects which is also important in analyzing students' pronunciation considering that suprasegmental aspects are also included in pronunciation components.

The previous researches showed that there is students' fossilization on segmental and suprasegmental features done by Javanese students. On the other hand, those studies implied that the researchers only focused on discussing the segmental features without presenting the suprasegmental features as pronunciation components. As stated by Sahulata (1988) that suprasegmental is an element of the sound system that gives a characteristic language quality. Furthermore, those studies only used the students of English Education Study Program to know students' fossilization in their foreign language. In this current research, the researchers employed the comparison analysis of students of English Education Study Program (PBI) and students of Javanese Education Study Program (PBSD) on segmental and suprasegmental features. The results then are analyzed to know which students have higher fossilization.

Related to the issues that have been outlined earlier, this current research aims in analyzing the fossilization comparison of students of English Education Study Program (PBI)

and students of Javanese Education Study Program (PBSD) on segmental and suprasegmental features.

## 2. Method

This research employed descriptive qualitative design to analyze the data. This paper concerns a comparative study of fossilization analysis on segmental and suprasegmental features done by EFL learners (Javanese-English). The participants came from the sixth semester students of English Education Study Program (PBI) and Javanese Education Study Program (PBSD) in Universitas PGRI Semarang. The population is the students of English Education Study Program (PBI) and Javanese Education Study Program (PBSD). The total numbers of participants were 57 participants which were divided into 33 PBI participants and 24 PBSD participants. This research was done by collecting a test of pronouncing academic vocabularies and students' questionnaires. The questionnaire was used to get more detailed information about students' perception about fossilization. All of the data were recorded and analyzed by the researchers descriptively. Furthermore, the data analysis focused on the words which were produced in single words and sentences. Single words were to analyze the students' fossilization on segmental features on vowels, diphthongs, and consonants. Meanwhile, the sentences were used to analyze students' fossilization on suprasegmental features on pitch and intensity. The typical segmental features were detected through voice spectrogram software namely PRAAT.

## 3. Result and Discussion

### 3.1 Segmental Features Analysis

Segmental features consist of vowels, diphthongs, and consonants. Those are analyzed to know the fossilization uttered by EFL learners particularly on students of English Education (PBI) and students of Javanese Education Study Program (PBSD). Furthermore, after obtaining the result of segmental features fossilization between PBI and PBSD, the results are compared to know the comparison of fossilization between PBI and PBSD students.

The result presents the EFL learners (Javanese-English) fossilization on vowels commonly occurred in /ə/, /æ/, /i:/, and /ε/ sounds. The results described as follows:

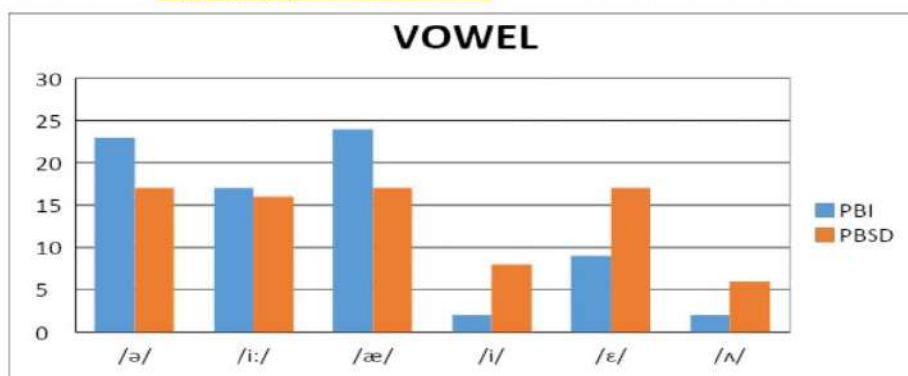


Figure 1. Students' Fossilization on Vowels

The result outlines that PBI students have high fossilization on /ə/ and /æ/ sounds which were done by 23 and 24 respondents. It presented that PBI students pronounced /'mɛθ əd/ to /'mɛθ ɒd/, and /'æf ɛkt/ to /'af ɛkt/. Meanwhile, PBSD students have error in /ə/, /i:/, /æ/, dan /ɛ/ sounds. It presented that that PBSD students pronounced /ə'vɔɪd/ to /a'vɔɪd/, /'li:gəl/ to /'legəl/, /'æn l,aɪz/ to /'an l,aɪz/, /'mɛʒə/ to /'miʒə/.

To make the EFL learners' pronunciation value in percentage, the researcher decided the higher the percentage, the more students make errors. Here is the percentage of PBI students' fossilization on vowels: (/ə/ 85.1%), (/i:/ 59.2%), (/æ/ 88.8%), (/i/ 7.4%), (/ɛ/ 33.3%), and (/ʌ/ 7.4%). Mean of PBI students' fossilization on vowel obtains 46.86%. On the other hand, the fossilization results of PBSD students are: (/ə/ 94.4%), (/i:/ 94.4%), (/æ/ 94.4%), (/i/ 44.4%), (/ɛ/ 94.4%), and (/ʌ/ 33.3%). Furthermore, the mean result of PBSD students' fossilization on vowel achieves 73.88%. Comparing from those results, it can be seen that students of PBSD has higher percentage than PBI students. It can be implied that students of Javanese Education Study Program (PBSD) has higher fossilization of vowels than PBI.

Furthermore, the result of diphthong fossilization on PBI and PBSD students commonly occurred in /aɪ/, /eə/, /ʊə/ and /aʊ/. The results outline as follows:

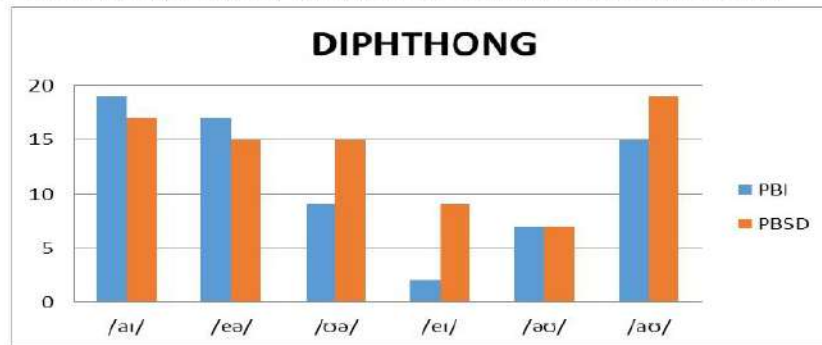


Figure 2. Students' Fossilization on Diphthongs

Figure 2 shows that PBI students have commonly error in /aɪ/, /eə/, dan /aʊ/ sounds. It presented that PBI students pronounced /aɪ'dɛntɪfaɪ/ to /ɪ'dɛntɪfaɪ/, /'eəriə/ to /'aɪriə/, /daʊn/ to /don/. Whereas, PBSD students have a lot of error in /aɪ/, /eə/, /ʊə/, dan /aʊ/. Those showed that PBSD students pronounced /ə'sam/ to /ə'sɪn/, /'eəriə/ to /'aɪriə/, /mə'njuə/ to /mə'nju/, /daʊn/ to /don/.

To make the EFL learners' pronunciation value in percentage, the researcher decided the higher the percentage, the more students made errors. The percentage result presents that PBI students' fossilization on diphthongs are: (/aɪ/ 70.3%), (/eə/ 62.9%), (/ʊə/ 33.3%), (/eɪ/ 7.4%), (/əʊ/ 35.9%), and (/aʊ/ 55.5%). The mean gained 42.55%. On the other hand, the percentage of PBSD students on diphthongs fossilization is: (/aɪ/ 94.4%), (/eə/ 83.3%), (/ʊə/ 83.3%), (/eɪ/ 50%), (/əʊ/ 30.8%), and (/aʊ/ 100%). Mean of PBI students fossilization on diphthongs achieves 73.71%. The results show that PBSD students have higher mean percentage than PBI students which means that PBSD students have higher fossilization on diphthongs than PBI students.

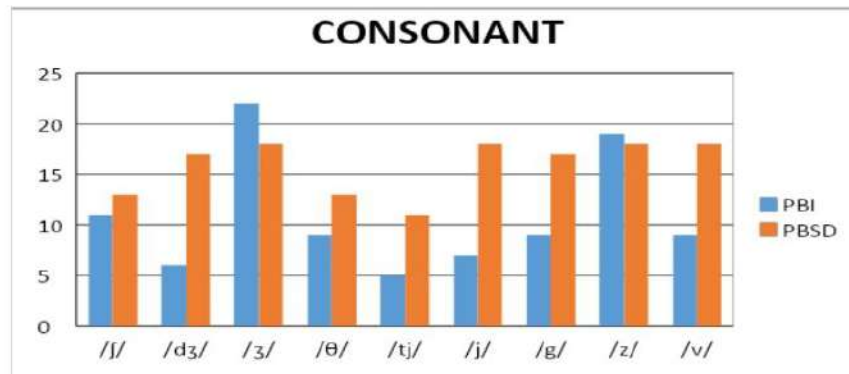


Figure 3. Students' Fossilization on Consonants

Figure 3 presents PBI students' fossilization on consonant commonly occurred in /ʒ/ and /z/ sounds which were done by 22 and 19 PBI students. Those presented that PBI students pronounced /'mɛʒə/ to /'mɛʃə/ and /'æŋ l.aɪz/ to /'æŋ l.aɪs/. Moreover, PBSD students have a lot of error on /dʒ/, /ʒ/, /j/, /g/, /z/, and /v/ which were done by the most of PBSD students. PBSD students pronounced /æŋ'nu:l ɪdʒ/ to /æŋ'nu:l ɪd/, /'mɛʒə/ to /'mɛʃə/, /mə'njuə/ to /mə'noə/, /'sɪŋjələ/ to /'sɪnjələ/, /'æŋ l.aɪz/ to /'æŋ l.aɪs/, /ə'vɔɪd/ to /ə'fɔɪd/.

To make the EFL learners' pronunciation value in percentage, the researcher decided that the higher the percentage, the more students make errors. The percentage of PBI students shows: (/j/ 40.7%), (/dʒ/ 22.2%), (/ʒ/ 81.4%), (/θ/ 33.3%), (/tj/ 18.5%), (/j/ 25.9%), (/g/ 33.3%), (/z/ 70.3%), and (/v/ 33.3%). From those percentages, mean of the percentage is 39.87%. On the other hand, PBSD students percentage gains: (/j/ 72.2%), (/dʒ/ 94.4%), (/ʒ/ 94.4%), (/θ/ 72.2%), (/tj/ 61.1%), (/j/ 100%), (/g/ 94.4%), (/z/ 100%), and (/v/ 100%). Mean of the percentage is 87.86%. According to those results, it can be concluded that PBSD students have higher percentage than PBI students. It means PBSD students have higher fossilization on consonants than PBI students.

### 3.2 Suprasegmental Features Analysis

The analysis results of suprasegmental features done by EFL learners (Javanese-English) were analyzed by using the software application namely PRAAT. This software synthesizes the students' pronunciation in sound waves and it comes along with the value. This value was then extracted in charts and compared with the native speaker's pronunciation value. The researchers analyzed suprasegmental features on pitch and intensity.



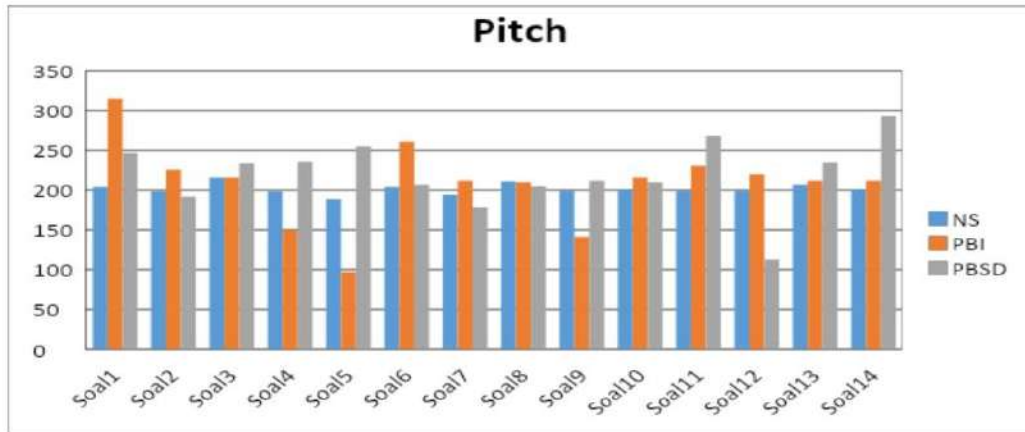


Figure 4. Pitch of Native Speaker, PBI, and PBSD

Figure 4 presents the pitch gained of each question number which is number 1 to 14 of native speaker, PBI students, and PBSD students. The questions consisted of sentences which had to be pronounced by PBI and PBSD students. The result gained from the comparison of mean pitch.

The comparison of the results on the pitch shows that the native speaker's sound has mean of 201.5 Hz. Furthermore, PBI students indicate that the mean pitch obtained is 208.5 Hz. Meanwhile, PBSD students have mean pitch of 220.3 Hz. From the results of the mean pitch of native speaker, PBI students, and PBSD students, it can be implied that PBI students have a pitch level that is closer to the pitch of the native speaker. On the other hand, PBSD students tend to have a pitch that exceeds the mean native speaker.

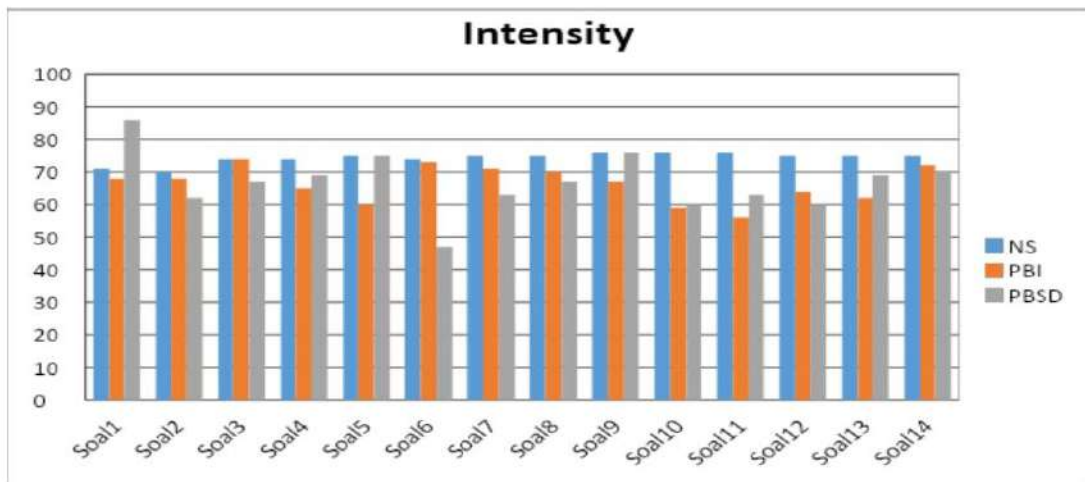


Figure 5. Intensity of Native Speaker, PBI, and PBSD

The results of the intensity between the sounds of native speaker, PBI students, and PBS D students shows the mean intensity of native speaker is 74,35714286. The mean intensity obtained by PBI students is 66.35714286. Meanwhile, the mean intensity of the PBS D students is 66,71428571. From these results, it can be concluded that the mean intensity of PBI and PBS D students is close to the same result. Meanwhile, the mean intensity of native speaker is higher than PBI students and PBS D students. This shows that PBI and PBS D respondents obtained the same results in the mean intensity which is lower in value when it is compared to the mean intensity of the native speakers.

According to the analysis result of segmental and suprasegmental features of native speaker, PBI students, and PBS D students, it shows that there are no EFL learners (Javanese-English) pronounced English phonemes and suprasegmental features correctly as native speaker. It presents the fossilization of vowels, diphthongs, and consonants which significantly happened in particular. It was caused by students' unintentionally in pronouncing words or sentences which produced certain sounds as the way of their first language (Javanese). This can be considered as one of the fossilization factors that occurred in EFL learners (Javanese-English).

The comparison result of English Education Study Program (PBI) and Javanese Education Study Program (PBS D) students' fossilization presents that PBS D students have higher fossilization than PBI students. It can be seen from the result of their pronunciation in words and sentences. PBS D students have higher percentage of vowels (73.88% > 46.86%), diphthongs (73.71% > 42.55%), and consonants (87.86% > 39.87%) than PBI which means the most PBS D students pronounced the words incorrectly. This fossilization comparison result shows that PBI students who have been learning English for years more intensively than PBS D students. It makes the PBI students' fossilization less than PBS D students.

Fossilization perception questionnaire indicates some results. Both PBI students and PBS D students have understood the concept of fossilization which disadvantages their foreign language acquisition. The level of difficulty experienced by respondents regarding the pronunciation test is PBI students have difficulty at level 2. Meanwhile, PBS D students have difficulty in pronunciation at level 3. The levels provided are 1-5 levels. Number 1 is the lowest level, and number 5 is the highest level of pronunciation difficulty experienced by respondents. PBS D students have a level of difficulty which is higher than PBI students. Furthermore, their fossilization in learning English as foreign language is caused by the environment which is Javanese ethnic. They lack practice using English, and they have a very thick Javanese language in their daily lives. They also think that English pronunciation is different in writing form which makes them think that English is a difficult language to learn as foreign language.

#### **4. Conclusion**

This research aimed at investigating the comparison of fossilization of EFL learners (Javanese-English) on segmental and suprasegmental features. In deciding the results, the researcher compared the sounds of native speaker and students. The results gained from the total error of students in each aspect divided by the number of students. The results presented the fossilization of English Education Study Program (PBI) students obtained in vowels 46.86%, diphthongs 42.55%, and consonants 39.87%. Those results are compared to students of Javanese Education Study Program (PBS D) results which obtained fossilization on vowels 73.88%, diphthongs 73.71%, and consonants 87.86%. The results present that the fossilization of PBS D students is higher than PBI students. According to the questionnaire

which was given to PBI and PBSB students, it stated that PBSB students have more difficulties when pronouncing the test. It is because PBSB students rarely get English material, and they are not familiar with the English words. Meanwhile, PBI students have been learning English for years. It caused PBI students to get a little error when pronouncing the words.

## 5. Acknowledgements

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## Fossilization Analysis on Segmental and Suprasegmental Features of EFL Learners (Javanese-English): A Comparative Study

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### Abstract

EFL learners ( Javanese-English) have the same background in that their mother tongue is Javanese. Although students of the English Education Study Program (hereafter PBI) have experienced English learning for years, their pronunciation remains suboptimal. The aims of the study were to compare the fossilization of the students majoring English Education Study Program and Javanese Education Study Program (hereafter PBSB) in Universitas PGRI Semarang, focusing on segmental and suprasegmental