Lingua Cultura, 17(2), December 2023, 243-252
DOI: 10.21512/lc.v17i2.9584
P-ISSN: 1978-8118
E-ISSN: 2460-710X

THE PROFILE OF SHORT VOWEL 'A' IN JAPANESE LANGUAGE THAT DETERMINES THE MEANING AS PRONOUNCED BY UNIVERSITY STUDENTS IN INDONESIA

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Received: 28th February 2023/**Revised:** 15th December 2023/**Accepted:** 22nd December 2023

How to Cite: Febriyanti, R. (2023). The profile of short vowel 'a' in Japanese language that determines the meaning as pronounced by university students in Indonesia. *Lingua Cultura, 17*(2), 243-252. https://doi.org/10.21512/lc.v17i2.9584

ABSTRACT

The research discussed that certain sounds, like the short vowel 'a', which was entirely different from the long vowel 'a', were specific to Japanese and had distinct meanings from those of Indonesian. As a result, 60 students majoring in Japanese language instruction from six Indonesian universities were interviewed face-to-face and recorded. Native speakers of the Japanese language were requested to record their voices using the short vowel 'a' as the students' sound reference. After that, the students were asked to identify and produce the short vowel 'a'. PRAAT was then used to analyze the students' recordings. Additionally, the students' sounds were contrasted with those of Japanese native speakers. The spectrogram analysis clearly shows that students are still having trouble telling the difference between the long vowel 'a' (OBASAN) and the short vowel 'a' (OBASAN) because they produce significantly longer short vowels 'a' that are almost as long as double vowel 'a'. This is highly likely to occur since Japanese language learners are not taught to deliberately recognize the distinct sounds, such as the long and short vowels 'a', that distinguish the language's meanings. In addition, their low frequency and energy density of pronunciation of the short vowel 'a' suggest they are less confident in their pronunciation.

Keywords: *short vowel, mora, Japanese language teaching, Japanese phonology*

INTRODUCTION

Japanese vowel length is distinctive; as a result, a word's meaning might alter depending on the length of a vowel. For instance, in the Japanese language, *toori*, which has a long vowel in the middle, means 'street', while the term *tori*, which has a short vowel, means 'bird'. Disparities between vowel and consonant lengths in Japanese are widely known. According to Hayashi and Takahashi (2020), the Japanese language explicitly defines mora as the phonological distance amount from beginning to end. For example, short vowels bring one mora, long vowels bring two, single consonants bring one mora, and geminate consonants bring two moras. The comparative length might be similar in their condition of the length difference in phonetic segments. This finding will lead to the conclusion that the 'long' segment's articulatory configuration is preserved or has a lengthier period than the 'short' section (Lawrence, 2020).

In the majority of the languages that distinguish between different vowel lengths, vowel duration is the most obvious indicator. Numerous languages have had their vowel duration studied. The majority of more recent Japanese research supports the conclusions of the groundbreaking study on the Japanese language by Han (1962), as mentioned by Liu and Takeda (2021), which finds that the proportion of short vowel to long vowel period is roughly 1: 2,5. Accordingly, the ratio of vowels I to I is 1:2,0, [bo] to [bo:] is 1:2,5, and [se] to [se:] is 1:3. The current research focuses on the difference in vowel length between Japanese short and long vowels. Long vowels are estimated to be 2,4 times lengthier than short vowels, and long vowels contain a

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pitch fall within a word, while short vowels do not (Lin et al., 2021). These previous studies also find that short and long vowels differ in terms of duration and pitch fall. The majority of studies support the distinctions between short and long vowels when accented.

The link between the length of Japanese vowels and their pitch accent has been the subject of some studies. Prosodic characteristics of Japanese vowels include duration and pitch accent (Coretta, 2019). Long vowels last longer than short vowels, phonetically speaking. Long vowels carry two moras, while short vowels carry one mora when measuring phonological vowel length (Kitikanan, 2022). In standard Japanese, as shown in Figure 1, the pitch accent is represented as a high pitch (H) and a subsequent low pitch (L). The meaning of a word may vary when the pitch contour is altered (1); an unaccented word does not have this high-low pitch sequence (2).

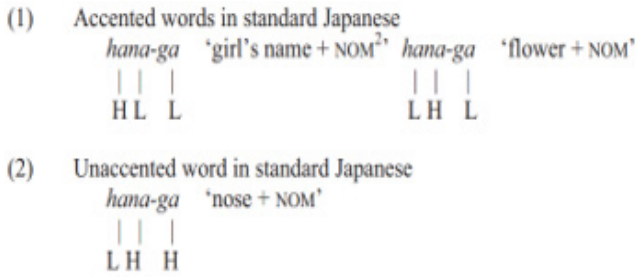

Figure 1 Example of Short and Long Vowel Differences (Hui & Arai, 2020)

Since only the first mora of a long vowel receives a high pitch when accented, the high low-pitch contour must occur within the long vowel (Lin et al., 2021). However, the pitch contour of a long vowel must be either high-high or low-high, followed by a high pitch, as demonstrated in Figure 2.

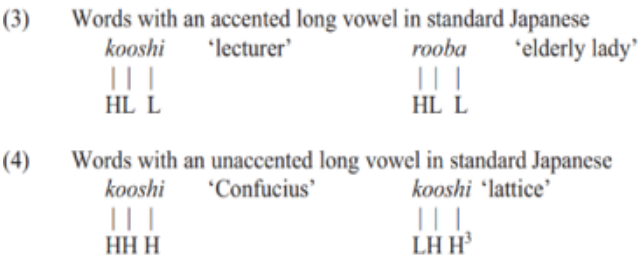

Figure 2 Pitch Contour Example Short and Long Vowel Differences (Hui & Arai, 2020)

Understanding the phonological structure of the target language is necessary to comprehend auditory input. The phonology of the human language, however, is not generally applicable. Languages with syllable systems, like Indonesian, where it takes roughly the same amount of time to pronounce each syllable, and languages with mora-timed systems, like Japanese, where it takes roughly the same amount of time to pronounce each mora, are phonologically distinct from English. As a result, shared supra segmental, like those in Indonesian, are frequently absent from syllable- and mora-timed languages (Peter et al., 2022). The various linguistic backgrounds of Japanese language learners in Indonesia are what the researcher wishes to draw attention to here. Indonesia is reportedly one of the nations with the greatest linguistic diversity. The dominant language in Indonesia is Indonesian, also referred to as bahasa Indonesia. On the surface, more than 94% of Indonesians speak bahasa Indonesia as their national language, which must be taught starting from kindergarten to university level (Ridwan, 2018). Only 20% of the 94% use bahasa Indonesia as their main and daily language (Djafri & Wahidati, 2020). More than 30% of people speak Javanese (Javanese), which makes it the most widespread main language.

It is known that adult speakers' pronunciation tends to have an accent when they learn to speak a foreign or second language (Archibald, 2021). The basis for a foreign accent is mispronunciations that lead to the perception of a segmental sound substitution (Fujimoto, Shinohara, & Mochihashi, 2021). However, this does not necessarily mean that the perception of a foreign accent is based on easily detectable mispronunciations of vowels and consonants. Abdelrahim (2020) has stated that native speakers are more likely to base a judgment of a foreign accent on some combination of segmental, subsegmental, and suprasegmental disparities between a native speaker's speech and that of a non-native speaker. Studies on foreign accentedness usually employ the perceptions of native speakers.

As it is known, the element that may create a foreign accent is the influence of first-language patterns on second-language or foreign-language production. Generally, it can be defined 'transfer' as a psychological process whereby prior learning is carried over into a new learning situation. The main claim about the transfer is that the learning of task A will affect the subsequent learning of task B (Al-Sobhi & Preece, 2018). Non-native speakers sometimes perform many types and forms of foreign accent traits because of several inflicting causes such as when the speaker learn their second language for the first time, how long they stay in a second-language speaking country, the language education they get, and lastly, motivation (Devi & Das, 2021). This matter is almost identical to the case stated by Febriyanti and Husna (2020a) and Febriyanti and Husna (2020b) in Indonesia, Alsubaie and Alabbad (2020) in Saudi Arabia and in Vietnam as stated by Giang (2020).

Many researches regarding foreign accents and transfers have focused on and investigated segmental production (Cebrian, Gorba, & Gavaldà, 2021). Stress, intonation, and rhythm are examples of prosodic qualities that receive less research attention than segmental features, even though prosodic features have been proven to contribute more to how clear they are understood and considered to be how different and strange their intonation as detailed (Widya &

Agustiana, 2020). In contrast, transfer at the segmental level is 'self-limiting'; transfer at the suprasegmental level is more critical because it is 'cumulative'.

Transfer (also referred to as 'interference' or 'influence') refers to the process whereby a multilingual individual consciously or unconsciously applies knowledge from one of their languages during the process of learning or using another one of their languages. There are numerous ways in which language can be mixed. A bilingual, for instance, may involve cases where one's experience in having learned a second language (L2) affects one's use of a first language (L1) (Loewen & Sato, 2018). Conversely, the crosslinguistic influence can occur in the other direction, with one's L1 affecting (or 'slipping into') performance in an L2. People who speak multi languages demonstrate a greater variety of transferable skills (Baltazani et al., 2016).

Transfer can be beneficial, so it can be said to be positive. Once more than one language is somewhat similar to another, being able to draw upon one's prior understanding of the first language might expedite learning the second. Other times, broadly applying knowledge from the other language can be harmful, or it can be said to be a negative transfer. When someone speaks two different languages at the same time, one structure of a language will create significant disruption in the structure of another language and vice versa. One language will transfer a certain structure to another and vice versa. This may be especially common if two languages are superficially similar and only different in the finer details (Mennen et al., 2022).

Vowel duration is frequently cited as the primary acoustic correlate of the phonemic short and long vowel distinction, even though minor differences in the vowel profile of short and long vowels have been found. Loewen and Sato (2018) have studied the intriguing phenomenon of the differences and the variety of the short and long vowels produced by Japanese native speakers from different areas in Japan. She gives other instances of minimum pairings, including I for 'stomach' and I for 'good', [e] for 'photo' and [e:] for 'yes', [obA:s] for 'aunt' and [ob:s] for 'grandmother', [ojis] for 'uncle' and [oji:s] for 'grandfather', and [soshiki] for 'system' and 'funeral'. Her findings reveal that the ratio of short to long vowels is 1: 2,0 for [i] and [i:], 1: 2,5 for [o] and [o:] in [bo] and [bo:], and 1: 3,0 for [e] and [e:] in [se]. The author has noted that she also considers vowel quality but finds no notable variations.

Yazawa et al. (2023) have stated the durational discrepancies between the Japanese language's short and long vowels phenomenon. Examples of minimum pairings that she gives are I 'stomach' and I 'good', [e] 'photo' and [e:] 'yes', [obAsan] 'aunt' and [obA:san] 'grandmother', and [ojisan] 'uncle'. Saji et al. (2019) have conducted research on three Japanese speakers in Tokyo by asking them to create fictitious test words featuring the vowel /. The words that have become the object of investigation are pronounced in the complete sentence *'Mo: Nikki _____ to itte kudasai'* 'Please say _____ once more'. The mean duration of short /A/ is 80 ms, and that of long /A:/ is 199 ms. Research has concluded that the comparison between the length of short vowels and the length of long vowels is at about 1: 2,5.

The link between the length of Japanese vowels and their pitch accent has been the subject of some studies. Prosodic characteristics of Japanese vowels include length and pitch, which means that long vowels last longer than short vowels phonetically speaking (Saji et al., 2019). Therefore, when measuring the phonological vowel length, short vowels are categorized as one mora, while long vowels are categorized as two moras in terms of moras (Lawrence, 2020).

Ota, Yamane, and Mazuka (2018) have stated that pitch accent is defining prosodic part of the Japanese language and that its presence is not only unique but also brings significant meaning alternation in its words. It is believed that words are accented when they have a high (H) and low (L) pitch sequence (HL). Given that the word does not contain an HL sequence, (1a) and (1b) are unaccented. If there is not an L after (1a), it is regarded as unaccented. Pitch accent can be contrastive in Japanese, as seen in (1c). It demonstrates that a long vowel is regarded as accented if an HL sequence is present within it. As a benchmark or test value for the sounds made by students in this research, the researcher uses reference sounds from native speakers.

The research can help comprehend how non-native speakers, especially those attending universities in Indonesia, pronounce short vowels in Japanese as it can shed light on the difficulties they encounter when learning the unique sounds in the Japanese language, especially for students in different and remote regions in Indonesia. For Japanese language teachers this research should help to create instructional strategies and resources that effectively address particular pronunciation issues faced by students who have possessed various languages (national and ethnic language) before studying the Japanese language as their third or fourth language. Pronunciation errors can affect comprehension as language is a vital component of communication. Studying the pronunciation of short vowels in Japanese by Indonesian university students can assist in closing any potential communication barriers between speakers of different languages and cultures. Phonetics and phonology are used to research short vowels, yielding important information about pronunciation's acoustic and articulatory characteristics. The comprehension of the phonetic features of the Japanese language as spoken by Indonesian students is improved by this information. Most of the research about the students' pronunciation of unique Japanese sounds covers a small scope, such as a group of students, Febriyanti and Virdaus (2022), in a certain location at a certain level (Aritonang, Aibonotika, & Budiani, 2023), while this research hits 60 students from six different universities in six provinces in Indonesia. Besides, several researchers,

such as Rustandi (2019), have evaluated the students' identification and production skills at this research's identification level. There is other research about Japanese word identification with a similar title to this research. Each has its own importance, but word and vowel recognition studies are vital research fields in linguistics and speech science. An essential component of speech perception and processing is vowel recognition. Understanding the perceptual processes involved in decoding spoken language is aided by the comprehension of how people identify and differentiate vowel sounds. Vowel identification is crucial for those learning a second language, particularly one with a different vowel system. Effective teaching methods and resources for second language learning can be developed with an understanding of how learners perceive and create vowels (Woore, 2022). The research explores vowel acoustic characteristics like length and formants. It aids in the better understanding of vowel sounds' physical properties and their role in speech patterns by linguists and researchers.

Learners of languages, educators, and researchers may find it important to comprehend how the short vowel 'a' is pronounced differently in Japanese compared to Indonesian. Acknowledging that Japanese has a distinct short vowel (a) aids Indonesian language learners in developing phonemic awareness of the differences in the language. It takes awareness of this to communicate effectively and pronounce words correctly. The Indonesian vowel sounds and the Japanese short vowel 'a' may have different articulatory traits. Knowing these variations can help students modify where they place their tongue (Mora et al., 2022; Vihman et al., 2022). Finding minimum pairs of words with a single phoneme difference can be a useful learning technique (Marpaung, Sipayung, & Lubis, 2023). Acquiring the ability to differentiate between the Japanese short vowel 'a' and its equivalent sounds in Indonesian can aid language learners in improving pronunciation accuracy and preventing mispronunciations. Gaining knowledge of the distinct short vowel 'a' in Japanese helps with listening comprehension.

Learners from Indonesia are more adept at identifying and comprehending spoken Japanese, especially when native speakers employ words that depend on pronouncing a particular vowel correctly. For Indonesian students to sound less accented and more local, they must learn how to pronounce the Japanese short vowel 'a' correctly. When learning a language, learners can concentrate on particular parts of pronunciation when they are aware of this linguistic distinction. Teachers of languages can create focused drills and educational resources that specifically target the difficulties Indonesian students encounter pronouncing the Japanese short vowel 'a'. Tailor-made instructional techniques can increase student outcomes and hasten the process of improving speech. It facilitates cross-cultural communication to be aware of these pronunciation variations. Japanese native speakers could find it admirable that Indonesian students are making an attempt to replicate the unique short vowel 'a', facilitating better communication and cross-cultural interchange. Researchers and linguists might look at how speakers of various languages perceive and generate sounds that are particular to their language. This research has the potential to make significant contributions to the fields of phonetics and second language learning. To summarise, understanding and correcting the variations in how the short vowel 'a' is pronounced in Japanese compared to Indonesian is essential for successful language acquisition, instruction, and intercultural communication. For Japanese language learners, it improves linguistic correctness and helps with a more genuine and natural pronunciation.

METHODS

The research methodology prescribed by Gnevsheva (2022) is both used and modified in the research. Only a small number of student objects studied undergo modifications. The students' profiles examined in the research are more diverse in terms of their ethnic origin and mother language background despite the lower numbers. Aside from that, the students have greater language proficiency, both in national and ethnic tongues.

To analyze phonological data, PRAAT offers a wide range of tools that can be used as one of the foundations of this research. PRAAT uses spectrograms and waveforms to view and interpret speech sounds that are produced by the students. Understanding speech's acoustic characteristics, such as pitch, intensity, and formant frequencies, requires knowledge of this software (Tanner, 2023). Resonant frequencies in the vocal tract called formants influence the quality of vowels. Formant analysis, which is crucial for researching vowel formation and determining the categories of vowels in various languages, is made easier by PRAAT.

The initial target before conducting the research is to get data from at least 60 students from six universities in Indonesia that run the Japanese Literature Department of the Japanese Language Education Department all over Indonesia. Due to time and fund limitations, only two universities at Sumatera, one at West Java, one at Central Java, one at East Java, and one at Bali are visited successfully. Seventy-eight students are recorded, but 18 students' records are omitted because the quality of the records is unclear and cannot be analyzed using PRAAT. This happens due to sound intrusion from the surrounding situation (traffic, street sellers, and musical instruments).

The participants in the research are either in their second year of study or between the ages of 18 and 21. The students at that age have already spent at least a year being exposed to the distinctive sounds of Japanese. If any of them go to high school and major in languages, then they have at least four years of exposure to Japanese.

Because the distance between universities is very far, with limited research funds and time, preliminary studies are not carried out intensively. Apart from that, the initial aim of this significant research is to map the abilities of Indonesian students from various ethnic groups and regional languages when pronouncing unique sounds in Japanese. Therefore, the profile of the students will take part in the research is not limited by certain criteria. Apart from that, the research was conducted during 2022, the second year of the COVID-19 pandemic, so it is extremely difficult to find a specific time to collect the data. Each student's university has its own policies for face-to-face and online classes. With all its weaknesses, the research has attempted to present big data for the progress of Japanese language education in Indonesia. Unlike other researchers in Indonesia with established research methods with predictable results, the research comes to every student at every university with an open attitude to further exploration of the various possibilities that may exist.

Two expert native Japanese speakers provide sound references in the form of an MP3 file to the students who comprise the study's sample group. The native speakers' speaking pace is normal, and their voices is audible organically in the classroom (using only laptops and loudspeakers) without the use of a language lab or headphones, allowing students to learn in a natural environment that is not artificially made to be fully soundproof. To reduce noise from the native speakers' breath, wind, and other unpleasant sounds, the voices of two professional native speakers are clarified using Audacity after being captured in mp3 format. The native speaker's voice is then adjusted for loudness so that it can continue to be loud without degrading the sound quality.

The text spoken by the native speaker is:

(略)叔母(おば)さんが指定(してい)してくれた場所(ばしょ)に7時ごろには行(い)けると思(おも)います。突然(とつぜん)のメールですみませんが、至急(しきゅう)ご返事(へんじ)ください。

obasan ga shitei shite kureta basho ni shichiji goro niha ikeru to omoimasu. totsuzen no meeru de sumimasen ga, shikyuu go henji kudasai.

(I believed I could visit the location auntie showed me at around 7 o'clock. I'm sorry for the hurried email; kindly respond right away.)

The students are instructed to complete blank phrases with words that contain the Korean letters *sokuon* and *chouon* at the beginning, middle, and end of syllables while listening to the sound reference. The researcher waits for five seconds after each blank that students fill in. The researcher also pauses for 10 to 15 seconds at the end of the sentence before moving on to the next question.

The outcomes of the gap-filling will subsequently be examined by the students individually. The PRAAT, as suggested by Osatananda and Thinchan (2021), will then be used to examine the recording results from each student to determine the profile of the second short vowel 'a' in the word *oba-san*. Each student's results will be displayed graphically.

After getting the length of each student's short vowel, the researcher does a normality test to find out whether all of the short vowel length data were normally distributed or not. If the significance value is less than 0,05, the data is normally distributed. If the significance value is more than 0,05, the data is not normally distributed. The H0 that the researcher establishes for this research is that short vowels generated by students in sound reference are the same length as short vowels produced by native speakers. In the meantime, the H1 set shows that in sound reference, students' short vowel lengths differed from native speakers' short vowel lengths. Three processes serve as the foundation for decision-making in this research, namely: (1) compare the significance value to 0,05 in, (2) compare the t count and t table, and (3) compare the t count results to t tables and curves.

The significance level (often represented by alpha, α) in statistical hypothesis testing is the likelihood of rejecting the null hypothesis in the event that it is true. A typical value for alpha is 0,05, which indicates that if the null hypothesis is correct, there is a 5% chance of seeing the results or something even more severe. This cutoff point is used by researchers to assess whether the findings are statistically significant. If the null hypothesis is correct, the p-value represents the likelihood of receiving outcomes that are as extreme as or more extreme than the observed results. In the event that the p-value is less than or equal to the selected significance threshold (0,05 in this instance), the alternative hypothesis may be accepted and the null hypothesis rejected.

Researchers may conclude that how Indonesian university students pronounce short vowels affects the meaning statistically significantly if the p-value is less than 0,05. If the p-value exceeds 0,05, there might not be sufficient evidence to refute the null hypothesis, implying that the observed results might have happened by accident. In conclusion, the research's selection of a significance level of 0,05 implies that results with a probability of occurrence of less than 5% are regarded as statistically significant by the researchers. This threshold is widely employed in scientific research to determine the viability of ideas through data collection. Given that Indonesian students have not been exposed to or trained in the distinctive phonics of the Japanese language and that the sound structures of Indonesian and Japanese are not similar, it is predicted that the short vowel 'a' that these students identify and produce will be substantially longer than those that are typically produced by native Japanese speakers.

Lastly, to maintain the confidentiality of every student, lecturer, and university where the researcher has collected data, the researchers will change each

into certain codes.

RESULTS AND DISCUSSIONS

The fact that the students who participated in the research are from various ethnic backgrounds and speak a wide range of mother tongues is something that stands out in the raw data above. Each student speaks a dialect that is highly distinct and simple to tell apart; therefore, it is almost impossible to identify any particular pattern or trend in the association between ethnic background and mother language and the length and frequency of short vowels before writing this research article.

The beginning of these findings starts from the data collection efforts before performing statistical analyses on the length and frequency data of the short vowel 'a'. In the beginning, two students do not complete the identification process by failing to fill in blanks and failing to say OBASAN at all. Eight students have problems in their writing because they could not identify the term OBASAN in the sound reference; therefore, they spell it in different ways. Fifteen students mistakenly think that OBASAN, which uses the short vowel 'a' and means 'aunt', is the same as OBAASAN, which uses the long vowel a and means 'grandmother'. Because there are high and low dynamics while pronouncing the long vowel 'a', and because they write OBAASAN in gap-filling sentences, so they can be marked as pronouncing OBASAN as OBAASAN. The rest of the students pronounce OBASAN correctly without high and low dynamics.

A normality test on the students' data on the length and frequency of short vowels 'a' infer that the data is normally distributed because the significance level for the data in the figure is 0,200, which is greater than 0,05. Due to one student not responding at all and another responding haltingly and for a considerable amount of time, normally distributed data can be made only after eliminating two outliers that result in extreme figures. The descriptive statistical analysis of the long short vowel 'a' data as follows shows that the average length of the short vowel 'a' is 0,1399 seconds. The shortest number here is 0,011 seconds, while the longest number is 0,20 seconds. For the record, this figure does not account for students who remain silent or students who stammer when saying the word OBASAN.

A one-tailed t-test calculation is conducted to determine whether the length of the short vowel 'a' from the students is the same as or different from the length of the short vowel 'a' from the reference sound generated by native speakers. The one-tailed t-test yields a significant outcome level of 0. Given that this value is less than 0,05, there is sufficient evidence to conclude that the length of the short vowel 'a' generated by the students differs considerably from the short vowel 'a' in the reference sound produced by native speakers.

Next, a normality test is conducted on the students' voice frequencies when pronouncing the short vowel 'a' after completing an analysis of the length of the short vowel 'a'. The data are normally distributed because the significance level hits 0,07, which is more than 0,05. The frequency of the students will then be determined using the following descriptive statistics method. The average frequency of the students, as seen in the following graph, is 766 Hz. Here, 14,33 Hz is the lowest frequency, and 2813 Hz is the highest frequency.

To assess if the frequency of the short vowel 'a' from the students is the same or different from the frequency of the short vowel 'a' from the reference sound produced by native speakers, the one-tailed t-test discussed earlier results in a significant outcome level of 0. There is enough data to determine that the frequency of the short vowel 'a' produced by the students differs significantly from the frequency of the short vowel 'a' in the reference sound made by native speakers because this value is less than 0,05.

Along with calculating the length and frequency of the short vowel 'a' statistically, PRAAT is used to evaluate voice recording data, producing 60 spectrograms that will be displayed in the frames of each university. Figures 3, 4, 5, 6, 7, and 8 show the spectrograms of 10 students' short vowel 'a' from the first data collection session to the sixth session.

The students' ethnic backgrounds in Figure 3 are Javanese, Dayak, and East Nusa Tenggara. Their mother tongues are mostly Javanese, Malay, and Sasak. Based on observations there, it may be inferred that students generate a short vowel 'a' that is significantly longer than that of native Japanese speakers. The short 'a' they pronounce has a very flat, lifeless sound. Additionally, the energy density audible on the spectrogram is so low as to be imperceptible.

In contrast to the prior student profile (Figure 3), the students in Figure 4 are more homogeneous. The Malay ethnic origin of this group of students with a variety of regional dialects, including the Pasaman dialect, Agam-Tanah Datar dialect, Lima Puluh Kota dialect, Koto Baru dialect, and Pancung Soal dialect; their mother tongues are primarily Malay. It can be deduced from those observations that students produce a short vowel 'a' that is substantially longer than native Japanese speakers. They pronounce the short 'a' with a very flat, lifeless tone. Furthermore, the auditory energy density on the spectrogram is so low as to be undetectable.

The ethnic backgrounds of the students in Figure 5 are Malay, Batak, Javanese, Flores, Ambonese, and Jakarta, in contrast to the previous student profile (Figure 4). This is because the university is situated in the third-largest city in Indonesia, and the student body is more diverse. Most of them are Malay, Batak, Javanese, Flores, Ambonese, and Indonesian in their mother tongues. It can be deduced from those observations that students produce a short vowel 'a' that is substantially longer than native Japanese speakers. They pronounce the short 'a' with a very flat,

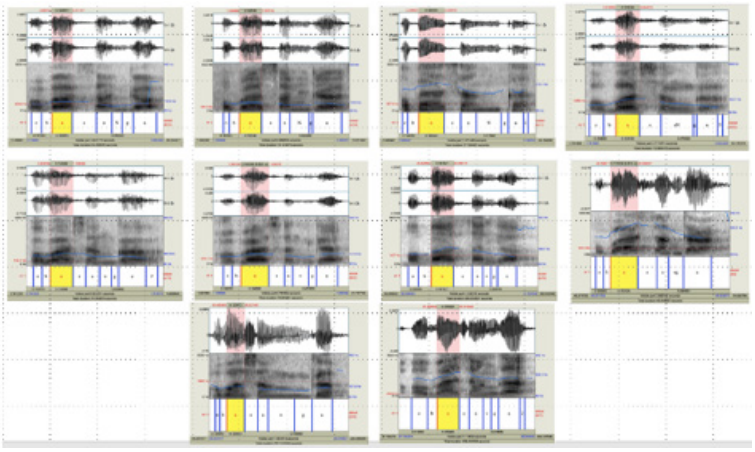

Figure 3 Spectrograms of Ten Students Short Vowel ‘a’ in the First Data Collection Session at East Java

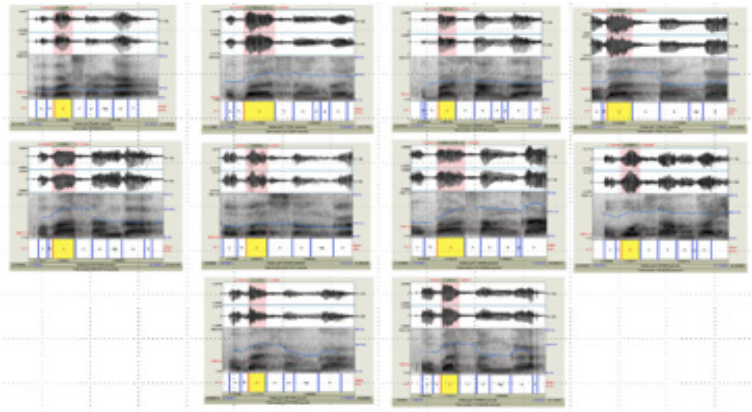

Figure 4 Spectrograms of Ten Students Short Vowel ‘a’ in the Second Data Collection Session at West Sumatera

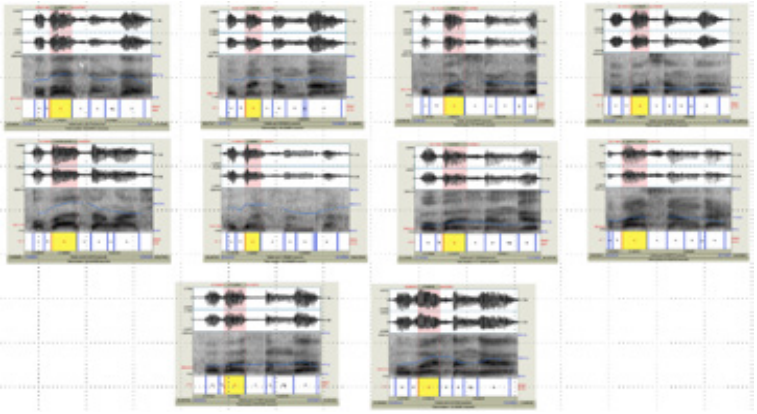

Figure 5 Spectrograms of Ten Students Short Vowel ‘a’ in the Third Data Collection Session at North Sumatera

lifeless tone. Furthermore, the auditory energy density on the spectrogram is so low as to be undetectable.

Similar to the students in West Sumatra (Figure 4), the students’ ethnic backgrounds in Figure 6 are homogeneous compared to the prior student profile (Figure 5). Their mother tongues are Ngapak, Central Javanese, and Coastal Javanese, among other dialects of Javanese. It can be deduced from those observations that students produce a short vowel ‘a’ that is substantially longer than native Japanese speakers. They pronounce the short ‘a’ with a very flat, lifeless tone. Furthermore, the auditory energy density on the spectrogram is so low as to be undetectable.

The students’ ethnic backgrounds in Figure 7 are homogeneous, similar to those at West Sumatra and Central Java compared to the prior student profile (Figure 6). Their mother tongue is Balinese, with different dialects such as Karangasem, Singaraja, and Denpasar. It can be deduced from those observations that students produce a short vowel ‘a’ that is

substantially longer than native Japanese speakers. They pronounce the short ‘a’ with a very flat, lifeless tone. Furthermore, the auditory energy density on the spectrogram is so low as to be undetectable.

The students’ mother tongues in Figure 8 are Sundanese and Indonesian, with several dialects in South Sundanese, Bandung, and Cirebon. Since they are in their seventh semester, these students have more experience learning Japanese than other students who have studied previously. It can be deduced from those observations that students produce a short vowel ‘a’ that is substantially longer than native Japanese speakers. They pronounce the short ‘a’ with a very flat, lifeless tone. Furthermore, the auditory energy density on the spectrogram is so low as to be undetectable.

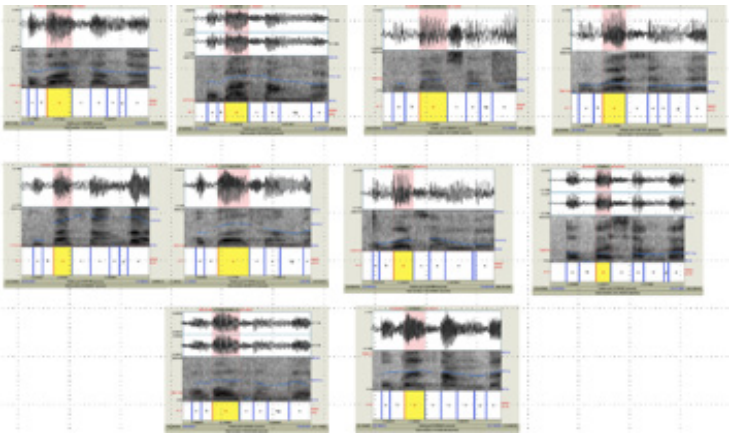

Figure 6 Spectrograms of Ten Students Short Vowel ‘a’ in the Fourth Data Collection Session at Central Java

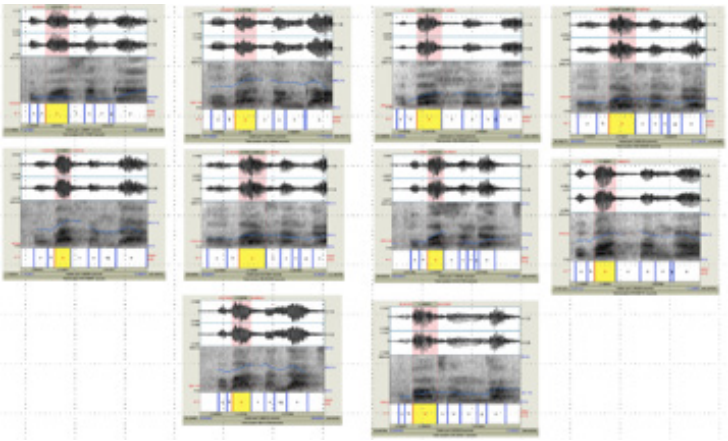

Figure 7 Spectrograms of Ten Students Short Vowel ‘a’ in the Fifth Data Collection Session at Bali

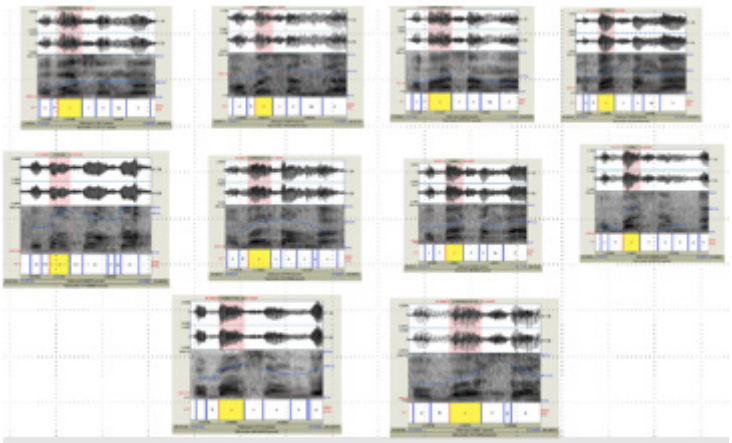

Figure 8 Spectrograms of Ten Students Short Vowel ‘a’ in the Sixth Data Collection Session at West Java

CONCLUSIONS

The short vowel 'a' generated by Indonesian students is much longer than that produced by native Japanese speakers and captured in sound reference. Because the length difference has not reached 200 to 300 percent of the length of the short vowel 'a' produced by native speakers, even if the short vowel 'a' produced by students is longer, it has not developed into a long vowel as produced by the native speakers. Additionally, unlike the Japanese long vowel, the students' short vowel 'a' lacks high and low dynamics.

The students produce a longer short vowel 'a', which is proof of the difference between Japanese and Indonesian as well as regional languages in Indonesia in terms of vowel length. In Indonesian, there is no known difference between short and long vowels that differentiate the meaning of the words that contain them. Phonetically speaking, the length of the short vowel 'a' produced by the students here results from a compromise between the sound systems of the Indonesian and Japanese languages. The first does not recognize the difference between short and long vowels, as it can be found without difficulty in Japanese. The students practically use the Japanese language only in a classroom environment that shapes the length of the short vowel 'a', which is longer and weaker than the vowel produced by native Japanese speakers. This condition leads to the conclusion that learning a foreign language will be the language in the classroom when the language is not applied comprehensively in the students' daily lives.

The short vowel 'a' frequency produced by students is significantly different from the short vowel 'a' frequency produced by native speakers and recorded in the sound reference, so when native speakers speak loudly and clearly, students speak quietly and tend to be unclear. In contrast to native speakers who speak with high energy density, students speak with a weak energy density. The weak frequency and low energy density indicate that Indonesian students are not accustomed to speaking loudly and clearly when speaking in everyday life in Japanese, as is the attitude of native Japanese speakers.

The researchers suspect that it is very possible that the inability of Indonesian students to identify and produce the short vowel 'a', apart from the absence of the same phonetic system in Indonesian and their ethnic language with the phonetic system in the Japanese language, is more due to the lack of sufficient time and practice for them to understand and practice producing the short vowel 'a'. This research opens a huge opportunity for any linguist to investigate the influence of hundreds of ethnic native languages in Indonesia on the process of unique sounds in Japanese language acquisition.

ACKNOWLEDGEMENT

I would like to extend my sincere gratitude to The Sumitomo Foundation for their funding and unconditional support in enabling the completion of this research. I would like to appreciate all the professors, teachers, students, and universities who gave us the best

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