The Effectiveness of Using Minimal Pairs towards Students' Pronunciation Mastery

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Abstract

Pronunciation is essential in communication It can avoid misunderstandings. However, many students have difficulty pronouncing English words. Students in the eleventh grade of SMA Nur El Falah had problems with pronunciation. This research aimed to determine whether minimal pairs is effective towards students' pronunciation mastery at the eleventh grade of SMA Nur El Falah. This research was located at SMA Nur El in Kubang, Serang District. This research's sample comprised forty-four eleventh-grade students. This research employed a quantitative method using a quasi-experimental with a non-equivalent (Pre-test and Post-test) control group design. The data collecting technique used testing (pre- and post-test), recording, and documenting. The data analysis technique used was statistical calculation analysis using IBM SPSS 25. The findings revealed that minimal pairs was effective towards students' pronunciation mastery at the eleventh grade of SMA Nur El Falah. It was demonstrated by the value of the Man Whitney-U test that showed 0.000 < 0.05 means alternative hypothesis was accepted. Therefore, this indicated that minimal pairs was effective towards students' pronunciation mastery at the eleventh grade of SMA Nur El Falah**.**

Keywords: pronunciation mastery, minimal pairs

Introduction

Pronunciation has a crucial role in communication.; it allows people to express ideas or feeling to one another (Prashant, 2018). It is essential to know how varied pronunciations of a speaker's primary language might impact the pronunciation of other languages, and mispronunciation of other languages due to differing pronunciations of the initial language results in distinctive pronunciation (Arianto & Ambalegin, 2018). There are many different English pronunciations. One of them is Received Pronunciation. According to Kosasih (2021), received pronunciation could avoid misunderstandings due to mispronouncing English words, which could affect the meaning and understanding of the listeners. Afterwards, Nurullayevna (2020) mentioned that knowing extensive vocabulary is pointless if speakers cannot properly pronounce the words. Nobody understands the language people are trying to use. It means mastering pronunciation is essential, and teaching pronunciation is necessary, especially in Indonesia, where English has different phonemes. By having received pronunciation, students would be assisted in improving their speaking and listening skills (Minh, 2021).

Furthermore, in the 2013 curriculum for one of the basic competencies at the eleventh-grade level of high school, namely KD 4.1, students are expected to be able to

construct transactional interaction texts, both spoken and written, brief and simple, involving the act of offering and asking for information connected to suggestions and offers, while considering social functions, text structures and language features that are correct in the context in which the pronunciation is present (Permendikbud, 2018). As a result, learning and teaching pronunciation is fundamental for students. Nonetheless, many students have problems in learning and mastering pronunciation.

The researcher discovered several problems while conducting a Pre-service Teaching program for eleventh-grade students of SMA Nur El Falah. First, students tend to pronounce English words as written. When the researcher asked students to read the English text, for instance, for the word "about," they read it /abot/, which should be pronounced /əˈbaʊt/. Second, students do not practice pronunciation well in class. They lack to practice pronouncing English words because the teacher emphasizes grammar and vocabulary more. Third, because teaching time is restricted, the teacher does not have many times to teach pronunciation. In consequence, pronunciation is hard to be mastered.

In dealing with these issues, teachers should have a good strategy to help student master pronunciation. Using minimal pairs can be an effective way to teach students about pronunciation. According to Uktir and Sherali (2021), Minimal pairs are two sets of words that differ only by one sound and may mislead learners about how to pronounce or interpret them in context. Yule (2012) added that minimal pairs could assist students in acquiring the capacity to perceive the meaning of contrast based on the minimal sound contrast. Practicing pronunciation through minimal pairs can develop students' pronunciation, listening, and vocabulary skills. Wahyuni and Indraswari (2022) also stated that minimal pairs could enhance the ability to distinguish Japanese sounds. In addition, minimal pairs would make students produce language correctly and fluently.

Some researches were also conducted on teaching English using minimal pairs. Isnani et al. (2016) focused on teaching pronunciation, particularly in similar sounds. Suparman (2019) focused on improving students' vocabulary using minimal pairs. Putra and Rochsantiningsih (2018) focused on improving students' pronunciation, particularly in fricative sounds. Nur and Rahman (2018) concentrated on similar sounds of consonant words, and Hamzah and Bawodood (2019) focused on five consonant sounds. In this research, the researcher focused on teaching the pronunciation of consonants, vowels, and diphthong sounds using the minimal pair technique at the eleventh grade of SMA Nur El Falah. Since the students have a problem with English pronunciation, this minimal pair technique can help them master pronunciation.

In this research, the minimal pair training provided focused on all aspects of pronunciation, particularly segmental aspects such as vowels, consonants, and diphthongs, and also introduced phonetic symbols. This is done in response to prior research recommendations, i.e., Arifudin (2019); Isnani et al. (2016); Wahyuni and Indraswari (2022), which included expanding the list of minimal pairs and continuing to introduce phonetic symbols to increase students' comprehension of phonemic sound differences.

Theoretical Review

Pronunciation

There are many definitions of pronunciation. Some linguists have different ways of describing pronunciation. However, the goal is the same as Lasi (2020) stated by enouncing speech organs like the lips, teeth, vocal cords, lungs, and tongues, and pronunciation creates audible sounds that can be understood. She described how we pronounce words by driving the air from our lungs into our mouths, through our tongues, and between our teeth and lips. Then, Gilakjani (2016) stated that pronunciation produces sounds to convey meaning.

The study by Rahman et al. (2020) mentioned that pronunciation refers to how humans pronounce words in segmental and supra-segmental sounds that the listener comprehends or commonly accepts. Then, pronunciation is considered a component of

the communication process that concerns how to rectify sounds to communicate meaning in various circumstances (Phuong & Nguyen, 2020). As a result, pronunciation is how words are spoken through the speech organs and makes the listener understand. Pronunciation broadly consists of suprasegmental and segmental features (Lasi, 2020). Although each of these several pronunciation components is taught separately here, it is crucial to consider that they all connect when we speak, making spoken language an integral part of which to acquire them.

Segmental features are related to phonemes, such as consonants, vowels, and diphthongs. It describes how those phonemes are produced and explains their characteristics (Kelly, 2001). To master pronunciation, the student must first understand these consonants, vowels, and diphthongs.

Consonant is a sound made by lots of contingency in the mouth, causing air from the lungs to be squeezed (Arianto & Ambalegin, 2018). According to Yule (2012), English consonant sounds may be classified into three dimensions, i.e. voiced and voiceless, place of articulation, and manner of articulation.

Vowel sounds are articulated by letting air move relatively freely (Yule, 2012). According to Kelly (2001), vowel sounds are classified into three types depending on their articulation, i.e. close vowels such as /i:/, /ɪ/,

/ʊ/, & /u:/, mid vowels such as /e/, /ə/, /ɜ:/, & /ɔ:/, and open vowels such as /æ/, /ʌ/, /ɑ:/ & /ɒ/.

Diphthongs are sounds produced by merging or combining two vowels, particularly when they begin with one vowel sound and progress to another. Eight diphthongs in English can be categorized into two groups (Kelly, 2001), i.e. centering diphthongs such as /ɪə/, /eə/ & /ʊə/ and closing diphthongs such as /eɪ/, /aɪ/, /ɔɪ/, /aʊ/, & /əʊ/.

According to the description above, pronunciation features such as vowels, consonants, and diphthongs are complicated. Students would know this segmental feature since the written form and pronunciation differences. Minimal pairs would help students master pronunciation and learn how to pronounce words correctly.

Minimal Pairs

There are a lot of methods of teaching pronunciation. One of them is minimal pairs. According to Purwanto (2019), Minimal pairs are an audio-lingual strategy that uses spoken practice and listening distinction to assist students to discern between similar and difficult sounds in the target language. Nur and Rahman (2018) mentioned that minimal pair is a pair of words that vary only in one sound. Hewings (2004) also stated that minimal pairs are a pair of words with various meanings when just one sound is modified. As a result, minimal pair is a technique in which two pairs of words have one distinct sound. As a result, minimal pair is a technique in which two pairs of words have one distinct sound, e.g./p,/ and /d/ for peach and beach, and /i:/ and /i/ for beat and bit.

The use of minimal pairs as a teaching approach has benefits in the teaching-learning process. According to Yule (2012), minimal pairs can assist students in acquiring the capacity to perceive the meaning of contrast based on the minimal sound contrast. Uktir and Sherali (2021) also added that there are some advantages of using minimal pairs to teach English pronunciation in the English classroom. The minimal pair strategy is used to assist students in overcoming pronunciation difficulties, primarily for English sounds. Aside from that, students should be able to differentiate similar sounds in English words to improve their fluency and accuracy in daily oral activities. It increases phonological awareness; after being taught, students would understand that specific words with similar sounds might be two unique words. When kids hear two identical words, they strive to separate them as soon as possible by applying past patterns learned in their pronouncing training. It improves articulation abilities; the teacher can ask students to record their voices and recreate their sounds while teaching minimal pairs in a pronunciation lesson. Imitating one's sound and help students improve their pronunciation. The pronunciation rules become more adherent when there are fewer

pairings; that sound pattern will be remembered once the student understands the pronunciation guideline compared to the other words. Students may learn or discover new terms that were previously unknown to them. It increases student participation in English pronunciation classes; Students can participate in activities with greater interest and activity through minimal pairs. They would feel comfortable and enjoy the lesson.

Then, Tuan (2010) also conveyed that minimal pairs increased students' knowledge of English discrete sound pronunciation's roles in oral communication. Therefore, in this research, using a minimal pair help students' pronunciation problem, make students comprehend different sound of English, and increase their phonological awareness so that their English pronunciation will get better.

Teaching Pronunciation Using Minimal Pairs

Using minimal pairs can be an effective and exciting way to teach pronunciation in the classroom. This aligns with Khalil and Eke (2020). English language teachers would not depend on one teaching technique. Instead, teachers must keep current and get training in order to be versatile in engaging a variety of effective teaching pedagogies that correspond to the wishes and needs of their students. Besides, the teacher-as-researcher actions have the most potential for connecting learning and teaching in significant ways for teachers

(Amirrachman, 2006). Hence, minimal pairs can teach pronunciation, specifically in eleventh grade at SMA Nur El Falah, with the advantages and ease of minimal pairs that do not need many instruments since the students have pronunciation problems and the condition of the classroom do not facilitate the usage of applications and forbid mobile phones in class.

When teaching a language, the teacher must be able to use a suitable strategy. As Handayani et al. (2022) stated, for those stages of speaking competency, the instructor or lecturer serves as a facilitator, monitoring their learning process as they master speaking talent. Herawati et al. (2022) also added that students require the proper strategies and resources to comprehend their studies. Then, Miranty and Rachmawati (2016) mentioned that the teacher would give interested exercises to keep pupils' attention on what they are learning. As a result, teachers can use some activities to teach pronunciation using minimal pairs as facilitators who manage the class and create materials that can make students focus on their studies.

Suparman (2019), when teaching vocabulary in class, she employed minimal pairs exercise. The followings are the steps used in the experimental class, i.e. a) the teacher greets, gives apperception, and motivates students to study; b) the teacher gives texts or sentences consisting of minimal pairs. The teacher then pronounces

it, and the students repeat it; c) each student is asked to read the minimal pairs; d) the teacher gives students a list of minimal pairs; they need to find the other minimal pairs; e) the teacher gives the oral and written test, f) reviewing, and g) asking for the student's understanding and responses regarding the learning process.

Method

This research was conducted in the eleventh grade of Nur El High School in the academic year 2022/2023 and was carried out through three meetings in each class where the researcher was the subject of the research accompanied by the English teacher. It used a quantitative approach, namely a quasi-experimental with a non-equivalent (pre-test and post-test) control-group design. It contained two groups: experimental where students were given treatment with minimal pairs and control class without treatment. The participants of this research were students of class XI, namely class XI IPA as the experimental class and XI IPS as the control class, using a purposive sampling technique, which the number of samples analyzed was determined by specific factors based on the intended criteria. It was chosen because of the research problem findings, namely this student's difficulty pronouncing English, was discovered in this location. Then, the students of XI.IPA was selected for the experimental class since they had pronunciation issues. The students of XI.IPS was chosen as the control class since they had the same characteristic, i.e., they were at the same level and had the same English material. The population of this research was fifty-six (56) students, where there were thirty (30) students in class XI IPA and XI IPS were twenty-six (26) students. However, when conducting the research, some students were not present. Thus the sample used was forty-four (44) students for the XI IPS class, twenty-six (26) students, and XI IPS were eighteen (18) students. The instrument used in this research was a test consisting of a pre-test and a post-test.

As a data collection, this research employed an oral test instrument, recording, and documentation. The tests used in this study are pre-test and post-test. It was distributed to both the experimental and control groups. The pre-test and post-test contained thirty-eight (38) items from a list of minimal pairs in which students were asked to pronounce the words through a voice recording where the recording was given to the teacher for assessment. Before conducting the pre-test and post-test, the research asked the English teacher to evaluate the validity of the research instruments and whether it was valid or not.

To examine the test, used a grading rubric adapted from the Pearson Test of English Academic (2022) to test students' pronunciation. The following is an explanation of the pronunciation rubric:

Table 1. Pronunciation Rubric

Criteria	Rating Score	Description
Consonants	5	All consonants are produced correctly, like a native speaker.
	4	Consonants are produced clearly unobstructed manner. Few minor consonant distortions do not affect intelligibility. All words are easily understood.
	3	Most consonants are pronounced correctly. Some persistent mistakes may cause a few words to be unclear.
	2	Some consonants are consistently mispronounced in non-native speakers. At least 2/3 of the speech is understandable, but listeners may need to adjust to the accent.
	1	Many consonants are pronounced incorrectly. About 1/3 of the words may be difficult for the listeners to understand.
Vowels	5	All vowels are produced correctly, like a native speaker.
	4	Vowels are produced clearly, unobstructed manner. A few minor vowels distortions do not affect intelligibility. All words are easily understood.
	3	Most vowels are pronounced correctly. Some persistent mistakes may cause a few words to be unclear.
	2	Some vowels are consistently mispronounced in non-native speakers. At least 2/3 of the speech is understandable, but listeners may need to adjust to the accent.
	1	Many vowels are pronounced incorrectly. About 1/3 of the words may be difficult for the listeners to understand.
Diphthongs	5	All diphthongs are produced correctly, like a native speaker.
	4	Diphthongs are produced clearly, unobstructed manner. A few minor diphthongs distortions do not affect intelligibility. All words are easily understood.
	3	Most diphthongs are pronounced correctly. Some persistent mistakes may cause a few words to be unclear.
	2	Some diphthongs are consistently pronounced incorrectly in non-native speakers. At least 2/3 of the speech is understandable, but listeners may need to adjust to the accent.
	1	Many diphthongs are pronounced incorrectly. About one-third of the words may be difficult for the listeners to understand.

To verify test validity, the researchers assessed the test's content using content validity. Rubio et al. (2003) mentioned that a measure's content validity relates to how accurately the topic was sampled or how effectively the questions on the measure evaluate the same issue. He also added that experts must assess the items to be measured. As a result, the English teacher verified the test instrument using the content covered in class.

To measure accuracy in this study, this research used inter-rater reliability. The similarity between various examiners are referred to as inter-rater reliability: Can two or more examiners assign an equal grade to the same group of lines without interfering with one another (Wang, 2009). Therefore, this research had two examiners, i.e., the researchers and the English teacher. After that, the test result was examined using Cohen's Kappa with the software SPSS 25 to evaluate the raters' consistency or agreement. To interpret the Kappa result, it used the level of agreement by Mchugh (2012).

To determine whether or not using minimal pairs is effective towards students' pronunciation mastery. Thus the data were statistically examined using the Mann-Whitney U test using SPSS 25. It is used to test the hypothesis:

(Ha): Using minimal pairs enhances students' pronunciation mastery at the eleventh grade of SMA Nur El Falah.

(Ho): Using minimal pairs does not enhance students' pronunciation mastery at the eleventh grade of SMA Nur El Falah.

Result

This research aimed to determine whether using minimal pairs is effective towards students' pronunciation mastery at the eleventh grade of SMA Nur El Falah. This research was conducted in the eleventh grade of SMA Nur El of the 2022/2023 academic year and was carried out through three meetings from 8th April 2023 to 14th May 2023 in each class.

Before conducting the research on the students, the researcher asked the English teacher to examine the researcher's research instruments to determine their validity. As a result, a trial and statistical analysis were not required to determine the validity. To measure the consistency of research instruments, this research used inter-rater reliability.

Table 2. Result of Inter-rate Reliability of Pre-test

Pre-Test		Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Measure of Agreement	Kappa	,638	,075	17,218	,000
N of Valid Cases		44			

According to the calculation findings above, the Cohen kappa test or the p-value for the pre-test is 0.638. This indicated hat the pre-test kappa value is 0.638 > 0.60, meaning the agreement level is substantial. Therefore, it may be concluded that the two raters have a similar perspective while measuring the test.

Table 3. Result of Inter-rate Reliability of Post-test

Post-Test		Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
Measure of Agreement	Kappa	,577	,075	21,240	,000
N of Valid Cases		44			

Then, the Cohen kappa test or the p-value for the post-test is 0.577. This indicates that the post-test kappa value is $0.577 > 0.40$, which means the agreement level is fair. Therefore, it may be concluded that the two raters agree with the test while measuring it. After the instruments were found valid and reliable, the data was examined for normality and homogeneity.

Table 4. Normality Result

Class	Test	Shapiro-Wilk		
		Statistic	df	Sig.
Experiment	Pre-test	,895	26	,012
	Post-test	,987	26	,981
Control	Pre-test	,827	18	,004
	Post-test	,919	18	,125

According to the table above, it can be concluded that the data is not normally distributed because there is data less than 0.05.

Table 5. Homogeneity Result

Result	Levene Statistic	df1	df2	Sig.
Based on Mean	,153	3	84	,927
Based on Median	,333	3	84	,801
Based on Median and with adjusted df	,333	3	83,632	,801
Based on trimmed mean	,164	3	84	,920

The mean data is 0.927, indicating that the homogeneity value is more than 0.05. It

can be concluded that all data is homogenous.

To determine whether or not using minimal pairs is effective for students' pronunciation mastery, a hypothesis test using the Mann-Whitney U test with SPSS 25 was used. According to Suyanto and Gio (2017), the Mann-Whitney U test is a nonparametric test used to determine whether there is a difference between two mutually independent groups. When the assumption of group normality is not fulfilled, the Mann-Whitney U test is used instead of the t-test for two independent groups. There are two hypotheses in this research, and the hypothesis testing criteria are:

If the value of sig. (2-tailed) > 0.05, then Ho is accepted, and Ha is rejected.

If the value of sig. (2-tailed) < 0.05, then Ho is rejected, and Ha is accepted.

Table 6. Man-Whitney U Result

Data (N)	Mann-Whitney U	Z	Asymp. Sig. (2-tailed)	Interpretation
44	26,500	-4,956	,000	Ha is accepted

According to the table, the value of sig. (2-tailed) is 0.000. It indicates that the value of sig. (2-tailed) 0.000 < 0.05 means Ho is rejected, and Ha is accepted. Therefore, it can be inferred that using minimal pairs is effective towards students' pronunciation mastery at SMA Nur El Falah.

Based on the data analysis explanation presented above, it shows that there is an effectiveness of using minimal pairs towards students' pronunciation mastery at the eleventh grade of SMA Nur El Falah, especially in segmental sounds, i.e., consonants, vowels, and diphthongs. This is shown by the pre-test results, in which students in the experimental class received a score of 49.08, and the post-test received a score of 70.35. It indicates that students have difficulty pronouncing English words, but their pronunciation skill improves after being given minimal pairs. It implies that minimal pair is proven can improve pronunciation skills. This aligns with prior research by Hamzah and Bawodood (2019) concluded that minimal pairs are a successful teaching strategy for improving the pronunciation of the English consonants /p/, /v/, /ʒ/, /tʃ/, and /ŋ/.

Besides that, minimal pairs can encourage learning, particularly pronunciation learning, in which minimal pairs help students distinguish the sounds of certain words and increase their phonological awareness. As seen in the students of the experimental class practice minimal pairs. When given a list of unfamiliar words, they can recognize how words are written with different sounds. They do not pronounce the words based on their writing again. Whereas, when students in the control class learn pronunciation, they are hard to pronounce the words. This finding is similar to Lubis et al. (2023) found that minimal pair can assist pupils in improving their ability to detect and appropriately create various vowel sounds.

At the same time, student motivation also grows. The students in the experimental class seem to be more excited about learning than students in the control class. They eagerly replied to the researcher's questions, participated effectively in the pronunciation activities, and appeared curiosity about English pronunciation with similar words. They also do the tasks that have been assigned to them. Meanwhile, the students in the control class seem uninterested in learning. They do not complete the assigned tasks. This is the same as Marpaung et al. (2023), revealed that students are pleased with minimal pairs since it does not boring them and encourages them to practice their pronunciation. They might also collaborate to investigate the theme's mispronunciation.

Furthermore, minimal pairs can also assist students and teachers in teaching vocabulary. The rule of minimal pairs helps them recognize similar words. It aligns with Suparman (2019), students' vocabulary mastery can be improved by using minimal pairs. In addition, minimal pairs assist the teacher in teaching pronunciation, especially for sounds that cannot be found in Indonesian such as ð and Θ. In the pre-test, students seemed to have difficulty pronouncing those sounds, but after being given minimal pairs, they can pronounce the word correctly.

Although the minimal pair technique is helpful, especially in teaching pronunciation, there are some sounds still difficult for students to grasp properly, namely vowels and diphthongs, i.e.,/aʊ/, /əʊ/, /eə/, and /æ/. They tend to pronounce the sounds in Indonesian and still have difficulty distinguishing between diphthongs and vowels. It is in line with Wahyuni and Indraswari (2022), despite the minimal pair being beneficial, some sounds, such as the tsu consonant sound at the beginning of the word, remain difficult for students to grasp. Therefore, more intense exercise is needed, such as increasing the length of the exercise of minimal pairs.

Based on these findings, it can be concluded that minimal pairs effectively or significantly affect students' pronunciation mastery at the eleventh grade of SMA Nur El Falah. Minimal pairs can be used as an English learning technique, especially pronunciation, in the segmental parts, i.e., consonants, vowels, and diphthongs.

Conclusion

After evaluating the data, the researchers employed the pre-test and post-test to decide on the research problem formulation: "Is using minimal pairs effective for students' pronunciation mastery at the eleventh grade of SMA Nur El Falah?" The Man Whitney-U test hypothesis results showed that the value $0.000 < 0.05$ means the alternative hypothesis is accepted. This indicates that minimal pairs is effective towards students' pronunciation mastery at the eleventh grade of SMA Nur El Falah. The degree of efficacy then displays 2.36, which

falls into the large-level group. Therefore, minimal pair have an effect on students' pronunciation mastery in the eleventh grade of SMA Nur El Falah, especially in the segmental part, i.e., consonants, vowels, and diphthongs. Minimal pairs also can increase students' participation in learning pronunciation, as seen in the learning activity when given the treatment.

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