

The Significant Effect of Using Phonetic-Based Materials in Teaching Pronunciation Skills in Grade XI of SMAN 1 Mataram

Andre Hidayat¹, Arifuddin², Arafiq³, Kamaluddin⁴

^{1,2,3,4} English Education Program, Faculty of Teacher Training and Education, University of Mataram, NTB, Indonesia

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Corresponding Author

Andre Hidayat

andrehidayat64@gmail.com

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Abstract

This research investigates the significant effect of using phonetic-based materials, particularly the International Phonetic Alphabet (IPA), in teaching pronunciation skills to eleventh-grade students at SMAN 1 Mataram. Employing a quasi-experimental design with a one-group pre-test and post-test model, the study involved 32 students from class XIF MIPA-6. Data were collected through pronunciation assessments using the Elsa Speak application, which analyzed students' performance before and after treatment. The treatment consisted of structured lessons integrating phonetic symbols and guided practice across four meetings. The statistical analysis using a paired sample t-test showed a significant difference between pre-test and post-test scores ($t = 2.275 > t\text{-table} = 2.040$, $\alpha = 0.05$), indicating that phonetic-based materials positively affected students' pronunciation skills. Despite the modest increase in mean scores (from 75.8 to 76.5), the improvement was statistically significant. The study concludes that the integration of phonetic-based materials is an effective approach to enhance English pronunciation among EFL students.

Keywords

phonetic-based materials, pronunciation skills, International Phonetic Alphabet (IPA), Experimental study, EFL

INTRODUCTION

Pronunciation is one of the crucial elements in English, along with grammar and vocabulary. Having good pronunciation makes us get understood easily in conveying messages and also avoid mispronunciation, especially for ESL/EFL students, since English is not their first language (Royani, 2023). Additionally, Pollard (2008) stated that pronunciation is a crucial part of learning to speak a foreign language. In general, pronunciation can be described as the production of significant sounds in two ways. First, the sound is significant because it is part of the coding of a specific language. Second, the sound is significant because it is employed to convey meaning in the context of use. (Dalton & Seidlhofer, 1994)

However, it is still challenging for students to acquire good pronunciation. Some factors may occur in learning pronunciation. Dalton and Seidlhofer point out that, first, students usually pronounce a sound that is new and unfamiliar to them in comparison to the close sounds they are already familiar with; second, Indonesian students are accustomed to pronouncing words in the manner in which they are written; and third, students rarely check their dictionary for correct pronunciation. These cases also occur at SMAN 1 Mataram, where some still pronounce words the way they are written, rarely check in the dictionary, and pronounce words to the closest sounds they already know. This creates a gap where second grade high school students should be able to pronounce words quite well. Adeline (2020) mentioned that pronouncing English words is quite challenging for Indonesian students since they speak their mother tongue in various ways. As stated by Suprayogi & Pranoto (2020), students may be struggling to pronounce English words. It is because the feature of English phonology is different from

Indonesian phonology. Some students with poor pronunciation tend to pronounce words exactly the way they are spelled. The difference between the Indonesian and English sound systems might be a common problem in learning English pronunciation. Indonesian and English have different consonants. All Indonesian consonants should be pronounced clearly, while English is not. In English, some words are pronounced silently, called a silent letter. For example, climb, doubt, comb, etc. These words are silent b, whereas the b sound is not pronounced.

Pronunciation challenges in English often stem from the influence of learners' native phonological systems. For instance, Arafiq et al. (2023) identified significant difficulties faced by Sasaknese learners in pronouncing labiodental fricative sounds like /f/ and /v/, largely due to differences between Sasaknese and English phonologies. Such findings underscore the need for targeted strategies, such as phonetic-based materials, to address these issues effectively.

According to Ahmadi et al. (2023), learners from Sasak, Sumbawan, and Bimanese linguistic backgrounds encounter specific pronunciation issues that hinder their ability to speak standard English fluently. Mastering good pronunciation is a must nowadays in order to avoid misunderstanding. The goal of learning pronunciation is not to acquire a complete mimicry of a native accent but to make learners pronounce words correctly to be understandable (Gilakjani & Sabouri, 2016). Harmer (2001) stated that pronunciation is the first thing native speakers notice during conversation. However, Kobilova (2022) said that there are still some people who disregard it and undervalue it. They believe that we can speak in English without even looking at its pronunciation. However, the truth is that pronunciation matters. A lot of communication misunderstandings were

brought on by incorrect word pronunciation and which leads to different meanings. For instance, some students might mispronounce 'tree' and 'three', especially foreign learners. Furthermore, mastering proper pronunciation can benefit students who do so. It must become a top priority to devote the same amount of time and focus to pronunciation as to grammar and vocabulary when it comes to studying English.

Hence, an alternative solution is needed to solve that problem. Phonetic-based materials allow students to better understand how words sound, in this case, the International Phonetic Alphabet (IPA). According to Chuazimah et al. (2021), the International Phonetic Alphabet defines the standard sound representation for oral language. Brown (2012) also stated that the International Phonetic Alphabet (IPA) is a set of symbols used to represent speech sounds in numerous languages around the world. The International Phonetic Alphabet (IPA) is regarded as the linguistic standard. Phonetic symbols, particularly the IPA, are used to represent the sounds that make up the human language. Linguistics uses IPA instead of language alphabets, syllabaries, or other writing systems because phonetic symbols better represent the real characters and distinctions found in human speech. According to Lubis (2023), these benefits improve learners' capacity to speak effectively and confidently in English.

Nowadays, people are seeking an effective way of learning, especially students (Ruihua et al., 2025). Using IPA as a learning resource helps students better learn pronunciation because they can learn how the words are produced. Students keep asking the same question of why it is different to pronounce the words in their spelling. It is because they have never been taught how actual words in English are produced. By using this method, students will be able to understand how words are produced and understood easily. Phonetic symbols also give students some insight into two similar words but with different meanings, that is, minimal pairs. Setiyono (2019) found that employing IPA in conjunction with various instructional approaches could assist students learn pronunciation.

Even though studies address the challenges of learning IPA symbols, memorizing and pronouncing symbols, for example, as mentioned in Chuzaimah et al. (2021) and Suryaleksana et al. (2022), few delve into effective long-term retention strategies that make learning more sustainable and engaging for students. Many studies rely on traditional teaching methods such as drills, charts, or games, as stated by Setiyono (2019). There is room to explore how interactive technologies, such as mobile apps or virtual reality, could make IPA learning more accessible and immersive.

Based on the explanation above, the researcher conducted research titled "The Significant Effect of Using Phonetic-Based Materials in Teaching Pronunciation in Grade XI of SMAN 1 Mataram" to determine the major effect of using phonetic-based materials, such as the International Phonetic Alphabet (IPA), in teaching pronunciation.

RESEARCH METHOD

This research utilized a quasi-experimental one-group pre-test and post-test design. The study involved 32 students from class XIF MIPA-6 at SMAN 1 Mataram, selected through purposive sampling. The research instrument

consisted of pronunciation tests administered before and after the treatment using the ELSA Speak application.

In this research, the treatment was focused on improving students' pronunciation skills using phonetic-based materials, specifically the International Phonetic Alphabet (IPA), in combination with the ELSA Speak application. The treatment was delivered in four classroom sessions over four weeks, during students' regular English classes. Each session followed a systematic structure.

In the first meeting, students took a pre-test using the ELSA Speak app, which included 20 items: 10 words (e.g., three, think, climb, doubt, vegetable, photo, through, father, measure, enough), 5 phrases (e.g., through the valley, climb the tree, a photo of her, very thin friend, doubt and fear), and 5 sentences (e.g., She climbed the mountain., I doubt he knows the answer., They think it's enough., The photo was blurry., Three friends went through the forest).

In the second meeting, students received direct instruction on IPA symbols and practiced, with a focus on unfamiliar sounds such as /θ/ and /ð/ (as in think and this), /ʒ/ and /dʒ/, silent letters like /b/ in climb, and the schwa sound /ə/ in unstressed syllables. Students also practiced transcribing words using IPA and pronouncing them with the corrections.

The third meeting involved applying this knowledge through a Hortatory Exposition text. Students first rearranged jumbled sentences from the text, then matched them with their corresponding phonetic transcriptions. They practiced reading the sentences aloud using the IPA as a guide.

Finally, in the fourth meeting, students took a post-test using the same 20 items but different content from pre-test, and their pronunciation scores were measured using the Elsa Speak to assess improvement. Data were analyzed using a paired sample t-test to determine whether there is a statistically significant improvement in students' pronunciation skills (Figure 1).

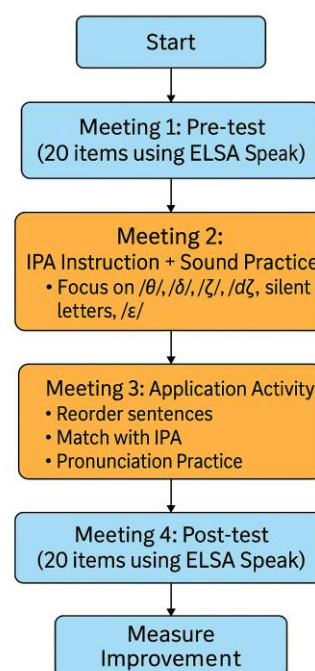


Figure 1. Implementation Process

RESULT AND DISCUSSION

Result

The results of the pre-test and post-test showed a measurable improvement in students' pronunciation scores. The mean score of the pre-test was 75.8, while the post-test mean score increased to 76.5. Although the numerical analysis tells a different story.

Table 1. Pre-test and Post-test scores

No	Students Name	Pre-Test	Post-Test
1	AHK	76	76
2	AGA	85	85
3	AKN	63	63
4	ADK	53	53
5	AME	82	82
6	BAFE	92	95
7	BNAW	47	47
8	CRA	55	55
9	DMR	86	93
10	DN	82	82
11	FAA	78	78
12	GEP	86	91
13	GGAP	86	86
14	IGAPAP	72	72
15	IAAA	60	60
16	KK	92	92
17	KRPHH	69	69
18	LAYK	87	87
19	LAM	90	90
20	LMNZ	80	80
21	MFM	78	78
22	NPS	80	81
23	NL	80	80
24	NAS	80	80
25	NKLH	72	72
26	NMEPWG	72	72
27	NBP	96	96
28	PNGM	90	90
29	RPBR	45	45
30	RAS	73	73
31	TSB	54	58
32	ZAY	87	87
Total Score		2428	2448
Mean Score		75.875	76.5

A paired sample t-test was conducted to determine whether the difference in means was statistically significant. Before testing, the test of normality must be employed. The normality test determines if the data from the classes is normally distributed. In this study, the researcher employed SPSS with Kolmogorov-Smirnov to test normality. The findings are as follows:

Table 2. Normality Test

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Kolmogorov-Smirnova		Shapiro-Wilk				
	Statistic	df	Sig.	Statistic	df	Sig.
Pre-Test	.082	32	.200*	.974	32	.605
Post-Test	.088	32	.200*	.983	32	.872

* This is a lower bound of the true significance.

a. Lilliefors Significance Correction

The table shows that all the data in the Kolmogorov-Smirnov and Shapiro-Wilk tests have a significance level of $\alpha > 0.05$. It can be concluded that the data is normally distributed.

Following the normality test, the Paired Sample Test or t-test was performed using the SPSS program. This test was used to compare the average pre-test and post-test scores and evaluate whether there is a significant difference. The results of this test are detailed in the table below

Table 3. Paired Samples Test

Mean	N	Std. Deviation	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-Test	4.1925	32	1.62182	.28670
	Post-Test	4.0448	32	1.75489	.31022

Table 4. Paired Samples Correlations

Table 4: Paired Samples Correlations					
			Significance		
		N	Correlation	One-Sided p	Two-sided p
Pair 1	Pre-Test & Post Test	32	.979	<.001	<.001

Table 5. Paired Samples Test

Paired Differences									Significance	
					95% Confidence Interval of the Difference					
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	One-Sided p	Two-sided p
Pair 1	Pre-Test & Post Test	.14769	.36718	.06491	.01530	.28007	2.275	31	.015	.030

Based on the results of the paired test:

- Mean Difference: 0.14769, indicating an increase in the average score from pre-test to post-test.
- Standard Deviation: 0.36718, showing the variability in the differences between pre-test and post-test among students.
- Standard Error Mean: 0.06491, which is the estimated standard error of this mean difference.
- Confidence Interval 95%: Range from 0.01530 to 0.28007, meaning we are 95% confident that the true mean difference lies within this range.

Based on the criteria outlined, it can be concluded that the t-test value (2.275) surpasses the t-table value (2.040), which leads to the acceptance of the Alternative Hypothesis (H_1), stating that "There is a significant effect of phonetic-based materials in teaching pronunciation in grade XI of SMAN 1 Mataram". Conversely, the null hypothesis (H_0), asserting that "There is no significant effect of phonetic-based materials in teaching pronunciation in grade XI of SMAN 1 Mataram", is rejected.

Discussion

The objective of this research is to examine whether the use of phonetic-based materials significantly affects students' pronunciation skills in Class XIF-MIPA 6 at SMAN 1 Mataram. Based on the results, it is found that there is a statistically significant improvement in the students' pronunciation performance after the implementation of phonetic-based materials.

The paired sample t-test reveals a t-value of 2.275, which is higher than the t-table value of 2.040 at a significance level of 0.05 with $df = 31$. This confirms that the alternative hypothesis is accepted, meaning that phonetic-based materials do have a significant effect on students' pronunciation skills. The statistical significance is further supported by the sig. (2-tailed) value being below 0.05, and the 95% confidence interval ranging from 0.01530 to 0.28007, indicating a positive and reliable effect.

The mean score of the class increases from 75.875 (Pre-Test) to 76.5 (Post-Test). While this increase may seem simple in numerical terms, its statistical significance shows that even small improvements can be meaningful when using effective teaching strategies like phonetic-based materials. This suggests that phonetic materials help students become more aware of how English sounds are produced, especially when they are guided with clear articulation patterns and consistent phoneme practice.

These findings are in line with previous studies. For example, Setiyono (2019) found that students enjoyed learning pronunciation through IPA symbols and games, which helped them understand the difference between spelling and pronunciation. Similarly, Chuzaimah et al. (2021) showed that high school students gave positive feedback on learning pronunciation with IPA and felt more confident using it. Suryaleksana et al. (2022) also explained that learning IPA helped students pronounce difficult English sounds better. Gottlieb (2006) highlights that teaching pronunciation effectively requires focusing on three key aspects: perception, production, and prediction.

The strength of this study lies in its use of quantitative analysis through pre- and post-test data, which offers objective and measurable evidence. These findings not only support the results of previous qualitative research but also provide new quantitative evidence to strengthen the argument that phonetic-based materials, particularly the IPA, are effective in improving pronunciation skills.

The findings also highlight that most students maintained or slightly improved their scores, which may suggest a solidifying of pronunciation patterns rather than dramatic improvement in a short period. Since the treatment lasted only four meetings, the changes observed might reflect the early impact of phonetic materials, with the potential for greater improvements if applied over a longer period.

However, it is also important to consider that the pre-test and post-test results of several students do not change significantly. This could be due to varying motivation levels, prior exposure to pronunciation materials, or different learning styles.

CONCLUSION

According to the findings of this study, the usage of phonetic-based materials has a substantial impact on the pronunciation skills of students in Class XIF-MIPA 6 at SMAN 1 Mataram. The paired sample t-test analysis revealed that the resultant t-value (2.275) was bigger than the t-table value (2.040) at a significance level of 0.05 and 31 degrees of freedom. This statistical data leads to the rejection of the null hypothesis and acceptance of the alternative hypothesis, which claims that phonetic-based materials work well for teaching

pronunciation. The mean score of students increased from 75.875 (pre-test) to 76.5 (post-test). Although the increase is relatively small, it is statistically significant, demonstrating that phonetic-based instruction can positively influence students' pronunciation accuracy in a short period. The results suggest that integrating phonetic symbols helps students produce English sounds more clearly. In conclusion, the application of phonetic-based materials proved to be an effective method for improving pronunciation in an EFL context and should be considered as a valuable tool in English language instruction. To further enhance learning outcomes, future research could explore combining phonetic-based materials with interactive speaking activities to reinforce pronunciation practice in more communicative settings.

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