

# Comparative Study Of English Vowel Sounds Among Solo And Surabaya EFL Students

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**Abstract:** Purpose of the study to investigate the differences the pure vowels sound among them, auditory analysis of the pronunciation of English vowels sounds, among Solo and Surabaya indigenous as natives as a foreign language (EFL) speaker suggests, has very distinctive features. The study is quasi-experiment with a pre-experimental design and only used pre-post and the data collected through a recorded oral test and analyzed using PRAAT software. Sample using a purposive technique. Additionally, four students undergraduate of English languages from two Javanese indigenous ethnicities were selected, two from Solo and two from Surabaya indigenous native student. Data analysis revealed two significant results: (a) Solo indigenous learners have a long voice tone on emphasis to pronounce vowel /ʌ/, vowel /e/ and vowel /ɔ:/ and poor on pronouncing vowel /ʊ/ and vowel /ɪ/. (b) Surabaya indigenous learners are dominant and assertive on pronouncing vowels /ɔ:/, vowels /e/ and vowels /ʊ/, but they are weak when pronouncing vowels /ʌ/ and vowels /ɪ/. The results show that there are vital differences, because of their pronunciation is influenced by their different dialects and accents even from the same ethnicity and region, and the influence of culture and social context. Further studies can be carried out to identify differences in pronunciation of consonant sounds to better know the differences and characteristics of indigenous native students of Solo and Surabaya in the English language.

**Index Terms:** PRAAT, Pronunciation, vowel sound

## 1. INTRODUCTION

Language is a system for the expression of meaning [18], [20]. Additionally, [6] stated that the most common vehicle of linguistic communication is the voice, and speech is thus a primary mode of human language, with some advantages over other modes. In language, we know the term pronunciation, according to [1], pronunciation can be interpreted to the production of sounds that we use to make meaning. Pronunciation is a mandatory element to convey ideas or information orally. According to [9] stated, pronunciation is the way of uttering a word in an accepted manner. Also, vowels are an integral part of the sound production system. [8] defined, the vowel is a sound produced without getting in the way of the air flowing through the oral cavity. According to [23], vowel sounds are produced with a relatively free flow of water, and they are all typically voiced. Vowels are the centre of words of all language buildings. Therefore, learning and understanding of vowels are fundamental. Each language has a specific phonetics. The ways to pronounce Indonesian words are different from English. Each language has a characteristic pronounce of each other. The ways to pronounce Indonesian words are different from English. In Indonesian, every letter is a phonetic symbol representing one sound, and each sound has its appropriate symbol. The fear of making mistakes has affected the level of personal expression so that not all students have the courage to speak EFL (English as a Foreign Language), many students feel anxious about speaking in class [16] and some tend to be silent to avoid making mistakes [19]. It is not undeniable that students often make mistakes in learning a foreign language; however, making such a mistake is a part of learning the language itself. Ethnic equality does not guarantee equality in the accent of mother tongue, sound system differences between Indonesian and English, the influence of spelling on pronunciation, be affected by the educational and environmental background. This is intended to seek a more comprehensive understanding of the pronunciation of their vowel sounds. The findings and insights from this research can offer a better understanding of differences in vowel sounds, thus, eliminating some of the misconceptions in daily

conversation. From the explanations above, (1). Is there a significant difference in English vowel sounds production between Solo and Surabaya native?, (2). Is there a significant difference in English vowel sounds production between gender of Solo and Surabaya native? And the objectives (1). To identify the significant difference English vowel sounds production between Solo and Surabaya native (2). To unfold the significant difference English vowel sounds production between gender of Solo and Surabaya native. The significances to be obtained from this study were: (1). To the knowledge of the significant difference in English vowel production shall assist in analyzing further English possible intervention in improving the English vowel sounds production between Solo and Surabaya natives. (2). The identification of gender English vowel sounds production shall guide the potential interference in the attempt of improving English vowel sounds between different gender of Solo and Surabaya natives. (3). In general, the research finding shall offer an initial landscape of English vowel production of Solo and Surabaya EFL students before the intervention.

## 2. LITERATURE REVIEW

There are many diverse indigenous peoples in various parts of the country. At the same time, Indigenous students generally do not have access to improve the same quality of education that other students in their country can enjoy. This situation arises, because school leaders and teachers are not always academically prepared to teach Indigenous students, they seem to assume that indigenous students need not be given resources to help them develop their abilities and confidence. Supporting the success of Indigenous students in the academic world is the same as promoting prosperity, involvement, participation, and achievement; this means that hard work is needed to realize it. While in Indonesia, there are very many indigenous students, they are scattered in several islands in Indonesia. The Indonesian Ministry of Communication & Information, [7] said that the Indonesian nation has 742 languages/dialects, consisting of various ethnic groups, and there are no less than 478 indigenous tribes. The wealth

and diversity of indigenous people and languages genuinely give birth to beauty. Whereas, the most massive indigenous people in Indonesia is the Javanese, which is the largest ethnic group in Indonesia originating from Central Java, East Java and Yogyakarta Special Region [3]. Indeed, they used the Javanese language as their mother tongue for daily conversation. Most of the indigenous native students use Javanese to communicate [10]. Javanese, as their mother tongue, has a particular accent in pronouncing, which is different from other countries.

### 3. RESEARCH METHODS

#### Research Design and Procedures

This study used a pre-experimental design to answer the research question. This study only used a post-test to determine the pronunciation of indigenous native students from Solo and Surabaya, using research instruments. From these instruments, the students have measured their pronunciation on vowel sound and then recorded, using a recording device from a smartphone and headphones with the sensitive voice recording quality. Then the results of the sound recordings of Solo and Surabaya indigenous native students were analyzed using the PRAAT software to compare the results of the pronunciation on the vowel sound in English. Data calculated using SPSS 25.

#### Data

This study considers the vowels sound of four indigenous students from Solo and Surabaya, two male and two female. They are received from the directory shown in the table below.

**TABLE 1.**  
PARTICIPANTS OF THE INDIGENOUS NATIVE SPEAKER

Name	Age	Gender	Ethnicity
Herlin	23	Male	Solo
Arna	22	Male	Surabaya
Sidiq	23	Female	Solo
Bayu	21	Female	Surabaya

They were chosen as participants because they have appropriate characters as objects of research where they are indigenous people from Solo and Surabaya. Additionally, the researcher decided to choose from the location of their residence, participant never studied outside their region, there is no mixed ancestry of their parents and ancestors because it is difficult to find participants who are the real indigenous people, so the four of them are chosen as research objects. Instrumentations Of course, there is a different massive variation in the pronunciation of English, but here researchers will be more inclined to use the British accent that is most often used throughout the world, which is most often adopted as a daily accent [2], [21], [17], [13], and Standard Southern British [12], [4], and [4]. This study, the focus was on BBC English [17] and [13], according to them, there were 20 types of vowels. This set of 20 distinct vowels in British English is reasonably standard and most often used by people, and the same symbols are used for the most widely-used pronouncing dictionaries around the world [11] and [22]. From 20 lists of vowels [17] and [13], researchers only focus on taking five vowels to use as instruments, because these five vowels are often used in daily conversation by native students of Solo and Surabaya.

Additionally, the five vowels have characteristics when spoken by indigenous native students.

**TABLE 2.**  
FIVE VOWELS AS INSTRUMENTS

Vowel	Phrase
/ʌ/	w/ʌ/nderful s/ʌ/mmer
/i/	g/i/ve h/i/m a s/i/t
/ʊ/	f/ʊ/ll of s/ʊ/gar
/e/	s/e/ven p/e/ns
/ɔ:/	b/ɔ:/x is bl/ɔ:/ck

Source: Oxford Dictionary

Table 3 showed average value F1 and F2 from L1 BBC English as a basis for a measuring the pronunciation on vowel sound of indigenous native students from Solo and Surabaya.

**TABLE 3.**  
THE AVERAGE VALUE OF L1 BBC ENGLISH

Vowel	Male		Female	
	F1	F2	F1	F2
/ʌ/	644	1259	914	1459
/i/	367	1757	719	2063
/ʊ/	379	1173	410	1340
/e/	494	1650	719	2063
/ɔ:/	415	828	389	888

Source: [5]

### 4. DISCUSSION AND ANALYSIS

Data was gathered and analyzed using the Statistical Package for Social Science (SPSS) software version 25. Below are some tables of the results of the analysis of the difference of the production in vowel sounds between Solo and Surabaya natives.

**TABLE 4.**  
COMPARISON OF ACOUSTIC MEASURE FROM NATIVE STUDENTS BETWEEN SOLO AND SURABAYA

Name	Gender	Solo Acoustic Measure									
		F1					F2				
		/ʌ/	/i/	/ʊ/	/e/	/ɔ:/	/ʌ/	/i/	/ʊ/	/e/	/ɔ:/
Herlin	Female	78	32	37	76	44	13	17	12	18	14
Sidiq	Male	57	28	32	45	38	12	15	95	14	11
Average		68	30	34	61	41	13	16	11	16	13
		0	7	6	0	6	34	72	06	67	04
Name	Gender	Surabaya Acoustic Measure									
		F1					F2				
		/ʌ/	/i/	/ʊ/	/e/	/ɔ:/	/ʌ/	/i/	/ʊ/	/e/	/ɔ:/
Arna	Female	60	28	34	69	35	12	16	12	19	99
Bayu	Male	57	30	36	42	36	12	14	13	17	12
Average		58	29	35	55	36	12	15	13	18	11
		6	3	9	8	3	24	47	40	60	13

**TABLE 5.**  
DESCRIPTIVE STATISTIC FOR NATIVE STUDENTS SOLO AND SURABAYA

Group Statistics					
	Ethnicity	N	Mean	Std. Deviation	Std. Error Mean
Forman	Solo	20	944.00	534.85187	119.596

ts Results	Surabaya	20	924.1500	551.71954	123.36824
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In Table 5, the descriptive statistics of both ethnicities are presented. The Means of both groups are almost equal. Students native Solo's Mean score is 944.0000 and Standard Deviation was 534.85187, and the students native Surabaya's Mean score is 924.1500, and the Standard Deviation was 551.71954. This means that both ethnicities are have not significantly different. Independent sample t-tests were carried out on two data groups, and table 6 shows the results of the comparison. An alpha level of 0.05 has been used to establish significance.

**TABLE 6.**  
**THE T-TEST RESULT BETWEEN NATIVE STUDENTS SOLO AND SURABAYA**

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Formants Results	Equal variances assumed	.083	.775	.116	38	.909	19.85000	17.18272	-32.7992	36.7686
	Equal variances not assumed			.116	37.663	.909	19.85000	17.18272	-32.7997	36.7693

An independent sample t-test was conducted to compare the production of vowel sounds between native students Solo and Surabaya. There was no significant difference in the score for native students Solo (M=944.0000, SD=534.85187) and native students Surabaya (M=924.1500, SD=551.71954), with the condition;  $t(38)=0.116$ ,  $p=0.909$ , it means, p-value was bigger than alpha 0.05 ( $0.909 > 0.05$ ). These results suggest that between native students Solo and Surabaya does have a not significant difference when production vowel sounds.

Then in table 7, a t-test was conducted to find out whether there were significant differences between the two genders of native students from Solo and Surabaya.

**TABLE 7.**  
**DESCRIPTIVE STATISTIC GENDER BETWEEN SOLO AND SURABAYA**

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
Results Formants	Male	20	878.9500	516.71294	115.54053
	Female	20	989.2000	563.27497	125.95211

The descriptive statistics of both genders are presented. The Means of both groups are not equal. The Mean of male score is 878.9500 and Standard Deviation was 516.71294, and the Mean female score is 989.2000, and the Standard Deviation was 563.27497. This means that both genders are have significantly different. Independent sample t-tests were carried out on two data groups, and table 8 shows the results of the comparison. An alpha level of 0.05 has been used to establish significance.

**TABLE 8.**  
**T-TEST RESULT OF GENDER BETWEEN MALE AND FEMALE**

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Results Formants	Equal variances assumed	.063	.803	-.645	38	.523	-11.05000	170.91971	-45.6587	23.5887
	Equal variances not assumed			-.645	37.47	.523	-11.05000	170.91971	-45.6586	23.5886

t	ce			5	2		00		.	
s	s				1				3	
	not								4	
	as								3	
	su								0	
	me								6	
	d									

An independent sample t-test was conducted to compare the production of vowel sounds between gender male and female. There was no significant difference in the score for gender male (M=878.9500, SD=516.71294) and gender female (M=989.2000, SD=563.27497), with the condition;  $t(38)=0.645$ ,  $p=0.523$ , it means, p-value was bigger than alpha 0.05 ( $0.523 > 0.05$ ). These results suggest that between gender male and female does have a not significant difference when production vowel sounds.

## DISCUSSIONS

Based on these findings, it can be seen that there are no significant differences in vowel sounds between native students Solo with students from Surabaya after being analyzed using PRAAT software, even though they are from the same ethnic of Javanese. From these findings, the researcher may acknowledge the significant difference that exists among native Solo and Surabaya EFL students. The results of this landscape shall guide the researcher in deciding the nature of a suitable intervention.

## 5. CONCLUSION

Thus, it can be concluded that Language is a meaningful and articulated sound-symbol system (produced by the utterance) that is arbitrary and conventional, which is used as a means of communication by a group of people to produce conversation, feelings, and thoughts. Differences in speaking accents have become things that we often find in everyday life, such as school environments, workplaces, and even our own families. Indeed, this difference makes everyone have a way of communicating or delivering different messages seen from the tribe. The researcher found a significant vowel sound difference between the two. Indigenous native student Solo tends to have a low vowel sound but has lengthy intonation than Indigenous native student from Surabaya. Whereas, indigenous native students from Surabaya tend to have loud and firm voices, so they look like people who are angry when talking. Therefore, this study was conducted to explore vowel sound pronunciation in the same ethnic group, but have different pronunciation accents, because there is no guarantee that if an ethnic group is the same, it will have the same accent pronunciation as well. These facts are evidenced, from the results of this study which showed a significant difference after the intervention of the researchers.

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