ENGLISH CONSONANT MISPRONUNCIATION BY JAKARTA INTERNATIONAL UNIVERSITY'S FINAL YEAR ENGLISH DEPARTMENT STUDENTS

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Abstract

Understanding how to produce and how to use speech sounds are essential for English learners to avoid mispronunciation. However, most of the English learners tend to mispronounce the English consonants that can lead to misunderstanding, miscommunication and even negative expression. The research attempts to identify the mispronounced English consonants by the final year English Department students of Jakarta International University. Qualitative descriptive was used in this research with a pronunciation test as the research instrument. In discovering the data, the researchers listened to the audio recording from the participants and transcribed the pronounced English words containing English consonants into IPA symbol systems. The result of this study shows that there are 12 English consonants mispronounced by 10 students and four of them became the most frequently mispronounced consonants. This study is beneficial for the lecturers and students as a heads-up in being aware of English consonant sounds that tend to be mispronounced even by the final year English Department students. This research is also expected to be a reference for future research to fill in the gaps in the research field of English mispronunciation.

Keywords: *English consonants, mispronunciation, English phonology, phonetics, final year students*

Introduction

The understanding on how to produce speech sounds in English (i.e., phonetics) and on how to use them in a certain language (i.e., phonology) (Fromkin et al., 2018) is an essential knowledge for English learners, especially English Department students, in order to be able to produce correct sounds of English words. Pronouncing English words properly is important because it plays an important role in delivering messages. In order to be understandable, the speech should be delivered with correct pronunciation. According to Dmitriy Petrov in Nurullayevna (2020), negative impression, misunderstanding, and ineffective

communication may happen due to the incorrect pronunciation. The correct pronunciation of English words to English Department students, therefore, becomes essential.

The mastery of English phonetics and phonology knowledge is vital for English Department students; hence, they learn the knowledge of the English symbols of consonants in one of their required courses in their higher education. According to International Phonetic Alphabet (IPA) as cited in Fromkin et al. (2018), there are 25 English consonants which are classified into the place and manner of articulation, they are bilabial stops (/p/, /b/, /m/), palate-alveolar fricatives (/ʒ/, /ʃ/), alveolar stops (/t/, /d/), alveolar nasal (/n/), alveolar lateral (/l/), dental fricatives (/θ/, /ð/), velar stops (/k/, /g/), alveolar fricatives (/s/, /z/), labio-dental fricatives (/f/, /v/), glottal fricative (/h/), palatal affricatives (/tʃ/, /dʒ/), palatal glide (/j/), palate-alveolar glide (/r/), velar nasal (/ŋ/), labio-velar glide (/w/) and labial-velar fricatives (/ʍ/). Of all those English consonants, some exist in Indonesian and some do not. According to the study by Andi-Pallawa & Alam (2013), the ones that can be found in the Indonesian consonant system are /w/, /b/, /l/ /d/, /p/, /ʍ, /t/, /g/, /f/, /s/, /z/, /v/, /h/, /r/, /m/, /n/, /j/, and /k/. In the meantime, seven English consonants /ʒ/, /tʃ/, /ʃ/, /dʒ/, /θ/, /ð/, and /ŋ/ are not found in the Indonesian consonant system.

The difference between English consonant and Indonesian consonant system triggers challenge in how Indonesian English learners produce English consonant sounds correctly. Consequently, pronouncing a few words in English may be difficult for Indonesian. The said phenomenon is depicted in the study of Trisnawati & Mulyani (2020) who discovered 302 English consonant errors produced by fifth semester English Education Department students at Parahikma Indonesia Institut due to the interference of the Indonesian consonant sound system. An issue is also depicted in the study of Andi-Pallawa & Alam (2013) that found seventh semester English Department students from Tadulako University mispronouncing the consonants /ʒ/ as /s/ or /z/ for instance: '*treasure'* [trɛzə] for [treʒə]. The study also found that students had a tendency to produce /θ/ and /ð/ as /t/, /d/, and /s/ for instances: '*think'* as [tiŋ] for [θiŋk], '*that'* as [dət] for [ðət], and 'throat' as [srɔat] for [θrout]. The phenomena above can happen to any Indonesian English learners, considering the gap of consonant sounds between these two

languages. The researchers then feel intrigued to conduct research on English consonant mispronunciation produced by the final year English Department students due to some specific reasons. The English Department final year students are expected to have been learning the fundamentals of English speaking, writing, reading, listening, and even grammar since the beginning of their higher education process. Those students are then expected not to produce too many such pronunciation errors, since they are soon entering the working world (interpreter, diplomat, journalist, and many other jobs requiring English skills) where they should perform accurate English skills, including English pronunciation.

Targeting final year students, furthermore, bring the objectives of exploring their tendency in producing the English consonant sounds incorrectly. In preparing to enter the world of work final year students are expected to grasp the abilities in their field of study to prevent lack of knowledge. On the other hand, the final year students are considered to have acquired the knowledge of English, especially English pronunciation. This is in line with the Decree of English Studies Association in Indonesia (ESAI) (2018) which contain the learning outcomes guideline for the study of English Departments in Indonesia which has referred to the rules of Indonesia Qualification Framework. The Decree stated that Indonesian students from English Departments are required to master and be able to apply the concepts and theories of English linguistics, particularly phonetics and phonology. The mastery of English Phonetics and Phonology of English Department students can be portrayed to their ability to produce correct pronunciation of English phonemes, especially English consonants that becomes the focus of the study, and further to apply the understanding of English Phonology to be able to produce correct English sounds out of any English phoneme combinations.

This research is also essential because the research on English consonant mispronunciation never involved final year students from the English Department. It is shown in the study by Widyaningtyas (2014) that involved second semester students from the English Department. Additionally, a study from Trisnawati & Mulyani (2020) about English consonant pronunciation errors involved fifth semester English Education Department students at Parahikma Indonesia Institut. In addition, another study about pronunciation errors also comes from Anggrarini & Istiqomah, (2019), but it involved English Department students at Wiralodra

University in general. From the research above, it can be seen that involving final year students from the English Department in the research of English consonant mispronunciation filled the gap in this research field. The results of the research, therefore, can provide novelty in the research horizon of English consonant mispronunciation which never explores the English consonant pronunciation inaccuracy produced by final year students from English Department.

Some parties can benefit from the results of the research. First, Indonesian lecturers can use this research to build awareness that there is a tendency from the final year students of the English Department in producing the English consonants incorrectly. To put it another way, the results of this research can be an alert for Indonesian lecturers about the English consonant sounds that have high likeliness to be mispronounced by their final year students, and thus can be a reference to train the final year students, and even the students of previous semesters further on how to produce the English consonants correctly. Second, this research is expected for other researchers to be one of the references for future research in the same field. Lastly, Indonesian English learners may use this research as a heads-up in learning how to pronounce English consonants correctly by realizing the most dominant error pronunciation found in this research and thus find a strategy to prevent the occurrence of the mispronunciation.

The researchers decided to look into "English Consonant Mispronunciation Produced by Final Year English Department Students at Jakarta International University" in light of mentioned problems and the potential benefits that this research may bring about. The researchers then developed the ensuing research questions:

1. What are the mispronounced English Consonants by the final year English Department students at Jakarta International University?
2. What are the most commonly mispronounced English Consonant sounds by the final year English Department students at Jakarta International University?

Method

The descriptive qualitative method was used in this research in order to analyse the phenomenon in mispronunciation of English consonants committed by

students. The descriptive qualitative method is the process of describing, exploring, and understanding the social phenomenon in the term of narrative explanation without a distinctive arithmetic purpose (Creswell, 2015). Hence, the descriptive qualitative method was the suitable method to use in this research for describing the mispronounced English Consonants and the most dominant mispronounced English Consonants. The systematic and scientific steps to answer the research problems in a form of words which are provided descriptively became the reason qualitative descriptive used in this research.

This research contains primary data because the data was first hand gathered by researchers. The students produced English words in the term of transcription of recording audio into IPA symbol systems. The populations of this research were the final year English Department students at Jakarta International University, where the overall number was 10 students, according the data by Academic Affairs of Jakarta International University.

The instruments of this research are shown in Appendix 1 to 5. The first instrument was List of English Words Tested and The Position of the Target Consonants as shown in Appendix 1. This instrument shows the list of words tested to the research participants along with the explanation of the position of target consonants. The second instrument is Test Instrument which was for pronunciation test as shown in Appendix 2. This instrument contains the 70 words that needed to be pronounced by the participants. Of all those words, the 25 words were taken from the ones used by Fromkin et al. (2018) in their explanation of English consonant sounds, meaning that they are provided. Those 25 words contain English consonant sound located in one of the three possible positions (i.e. initial or middle or final position). Meanwhile, the researchers provided the other 45 words by finding English words that contained the same English consonant sounds, but with different position. The researcher acknowledged that some of the tested words were advanced vocabulary and could be words whose meanings were not known by the participants. This issue might then cause a concern about triggering even more mispronunciation produced by the research participants. However, the participants were English department students who had taken English Phonetics and Phonology course where they learned the sounds of every English phoneme as well as how certain combination of phonemes in any different phonetic environment must be

produced. It means that, even though the participants found that the selected words were new to them, they were still expected to know how to produce the sounds by referring to their knowledge about the rule of English phonology learnt way before the research was conducted. The next research instrument is The Pronunciation Test Answer Key used to show the transcription of words and consonants available only for the researchers. This instrument is the answer key for 70 words provided by the researchers. The next research instrument is Participants' Pronunciation Test Results provided as the results of the participants' pronunciation where the data used as finding data. Then, the last instrument is Raters' Validity of the Produced Pronunciation and Cohen's Kappa calculation which is used to validate the data finding before the researchers proceed to the data analysis.

To obtain the data, first, the researchers gave the list of words as shown in Appendix 2 to the research participants and asked them to record their voice when pronouncing words assigned by the researchers. Here the test pronunciation used the technique of pronouncing word by word (Turton & Heaton, 1996). The participants were asked to record their voice using any voice recording app in their mobile phone. After that, they were asked to send the recording audio to the researchers via WhatsApp. The researchers then listened to the recording and transcribed their pronunciation into IPA (International Phonetic Alphabet) symbol system using the instrument shown in Appendix 5 by depending on the Appendix 1 and 3 as the answer key. Before analyzing the data collected, the researchers gave the pronunciation test results to two chosen raters. The two raters were involved in this research to provide validation of data finding to avoid bias in this research. Both of the raters were English lecturers who spent more than five years teaching English in high school even university. The raters were deemed having better awareness of the correct English consonant production due to their background in English education, especially in English pronunciation. Concerning the researchers' finding, the raters gave their justification to the finding using the Raters Validity table as shown in Appendix 4.

Once the researchers collected the raters' validity forms from all the raters, the researchers calculated the agreement between the researchers and first raters, and the researchers and second raters. The calculation of the agreement done by calculating Cohen's Kappa coefficient (κ). This coefficient is a statistic measuring

interrater agreement by taking into account the possibilities of any agreements to occur by chance (Finch & French, 2019). Finch & French (2019) stated that if κ=0 means "no agreement", κ=0.10-0.20 means "slight agreement", κ=0.21-0.40 means "fair agreement", κ=0.41-0.60 means "moderate agreement", κ=0,61-0,80 means "substantial agreement", κ=0,81-0.99 means "near perfect agreement", and κ = 1 means "perfect agreement". The formula below shows how to calculate Cohen's Kappa as cited in Finch & French (2019):

$$\kappa = \frac{p_o - p_e}{1 - p_e}$$

Where,

p_o= Observed the proportion of cases in the sample for which raters agree.

p_e= Expected proportion of cases in the sample for which raters agree due to chance.

According to the data from the Raters' Validation table form by the raters, the total of agreement and disagreement of the judgement of the researchers to the pronunciation of the participants are mention below:

		Rater 2	
		Yes	No
Rater 1	Yes	1381	23
	No	39	19

Po = (Both said YES + Both said NO)/Total Ratings

Po = (1381+19)/(1400)

Po = 1381,013571

P(yes) = ((1381+23)/1400) x ((1381+39)/1400)

P(no) = ((39+19)/1400) x ((23+19)/1400)

Pe = P(yes) + P(no)

Pe = 1907284

$$\kappa = \frac{p_o - p_e}{1 - p_e}$$

$$\boldsymbol{\kappa} = \frac{\mathbf{-1905903}}{\mathbf{-1907283}}$$

$$\boldsymbol{\kappa} = 0{,}9992765$$

From the calculation done involving the data collected in the raters' validity forms, the researchers could conclude that this research was near perfect agreement by both raters as the calculation shows Cohen's Kappa Coefficient of 0.9992765. This indicated that the data obtained by the researchers and the judgement given by the researchers to the research participants' pronunciation accuracy were significantly agreed and validated by the raters. The researchers, therefore, could proceed to the next stage of the research procedures which were data analysis, data description, and the research conclusion with the obtained research data. Creswell (2015) further elaborated that there are some procedures that need carrying out starting from examining and analyzing the data up to drawing conclusions. Firstly, the researchers are going to classify the mispronounced consonants to the types of English consonants (e.g. place and manner of articulation). Lastly, the researchers were concluding the finding to answer the research questions about the mispronounced English consonant sounds and the most dominant mispronounced English consonant sounds. The data was descriptively explained according to the data and the test done. Then, the researchers drew any conclusions based on the results.

Results and Discussions

Listening to the audio recording from the ten participants and referring to the Cambridge Online Dictionary, the researcher, after transcription process, could come up with the following figure:

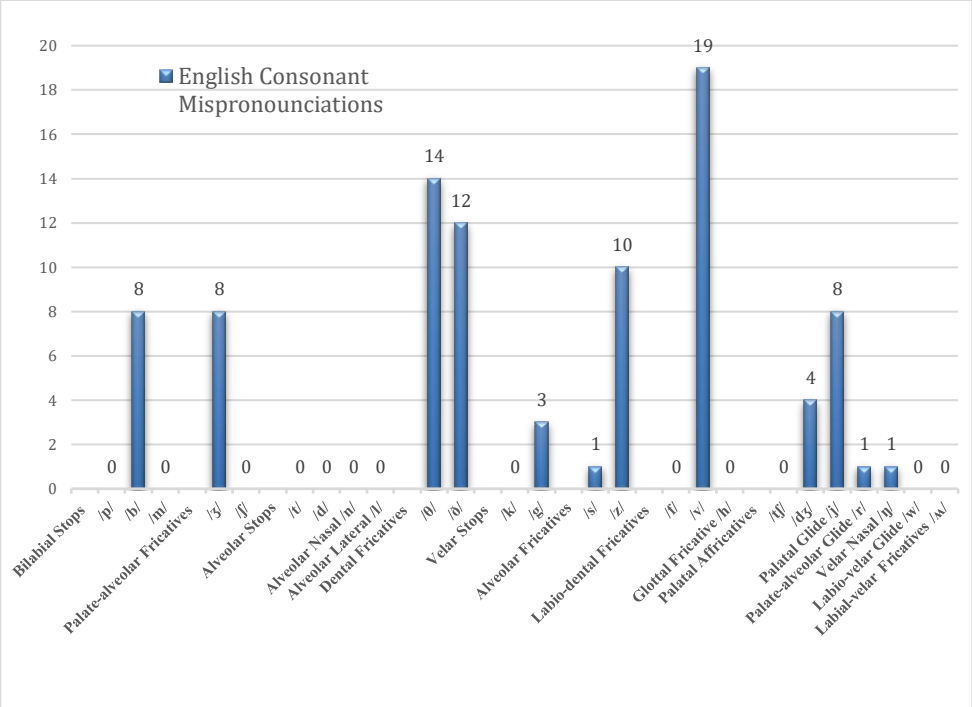

Figure 1 Total of English Consonant word mispronunciations

The figure above shows that out of 25 English consonants from Fromkin et al. (2018), there were 12 English consonants that were mispronounced by the 10 participants from Jakarta International University. Those English consonants are bilabial stop /b/, palate alveolar-fricative /ʒ/, dental fricatives; /θ/ and /ð/, velar stop /g/, alveolar fricatives; /s/ and /z/, labio-dental fricative /v/, palatal affricative /dʒ/, palatal glide /j/, palate-alveolar glide /r/, and velar nasal /ŋ/. In details, of all the mispronounced consonants, the consonants /v/ was the most frequently mispronounced English consonant by the 10 participants as shown by how many times were mispronounced (i.e. 19 times). The English consonant /v/ was found to be incorrectly mispronounced in the following words; *veal*, *move*, and *heavy* by the participants. From those three words, the researchers found that the participants cannot correctly pronounced the consonant even in three different positions (the initial, middle and final position). The consonants /v/ mostly pronounced with /f/ consonant sound by the participants for Indonesian usually pronounced /v/ as /f/ or /p/ e.g. *village* /ˈvɪlɪdʒ/ as /ˈfɪlɪdʒ/ or /ˈpɪlɪdʒ/.

Then, the consonant /θ/ was the second frequently mispronounced English consonants by the 10 participants for 14 times. This consonant was found to be incorrectly mispronounced in the following words: *thigh*, *length*, and *nothing* by

the participants. From those three words, the researchers found that the participants cannot correctly pronounced the consonant even in three different position (initial, middle and final). The consonant /θ/ mostly pronounced with /t/ or /d/ consonant sounds by the participants.

Next, the third most frequently mispronounced English consonants is /ð/. The consonant was found to be incorrectly mispronounced in 2 words: *thy* and *with* (the initial and final position) for 12 times by the participants. The participants were pronounced this consonant with /t/ or / θ/ sounds instead. Then, the next most frequently mispronounced English consonant is /z/. This consonant was found to be incorrectly mispronounced in the following words: *zeal*, *nose*, and *lazy* (initial, middle, and final position) for 10 times by the participants. The participants pronounced it with the /s/ sound instead. Furthermore, the other mispronounced English consonants are /b/, /j/, and /ʒ/ which mispronounced for 8 times each by the participants. The consonant /b/ was incorrectly mispronounced in *lab* and *bill*. The participants were pronouncing the consonant /b/ as /p/ instead in the initial or final position. For consonant /j/ was found to be incorrectly mispronounced in the word *residual*. All the participants produced consonant /d/ instead of /j/. Furthermore, the consonant /ʒ/ was founded to be incorrectly mispronounced in the following words: *measure, prestige* and *genre* in the initial, final, middle position. The participants were pronounced with /z/, /dʒ/ or /tʃ/ sound instead.

Following, the next mispronounced English consonant was /dʒ/ where the consonant mispronounced for 4 times by the participants. The consonant /dʒ/ was founded incorrectly mispronounced in these following words: *gin* and *lodging* by producing /g/ sound instead in the initial and middle position. Then, the next English consonants were mispronounced by the participants is /g/ which was mispronounced for 3 times. Consonant /g/ were founded incorrectly mispronounced in the word *gill* (initial position) which was pronounced with /dʒ/ sound instead. Next, consonants /s/, /r/, and /ŋ/ which were mispronounced for 1 time each. The consonant /s/ incorrectly mispronounced in the word *miss* (the final position) which were pronounced /ʃ/ sound instead. The consonant /r/ were mispronounced in the word *guitar* (the final position), as seen following: /guɪˈtɑ/ instead of /gɪˈtɑːr/. Last, the consonant /ŋ/ mispronounced in the word *finger* (middle position) which was pronounced following: /ˈfɪŋɚ/ instead of /ˈfɪŋ.gɚ/.

That being said, there were 13 English consonants that were pronounced correctly by the participants namely: /p/, /m/, /ʃ/, /t/, /d/, /n/, /l/, /k/, /w/, /ʍ/, /f/, /h/, and /tʃ/.

Conclusion

To sum up, the researchers discovered 12 English consonants that were inaccurately pronounced by 10 final year English Department students at Jakarta International University from the total of 25 English consonants. Those English consonants are bilabial stop /b/, palate alveolar-fricative /ʒ/, dental fricatives; /θ/ and /ð/, velar stop /g/, alveolar fricatives; /s/ and /z/, labio-dental fricative /v/, palatal affricative /dʒ/, palatal glide /j/, palate-alveolar glide /r/, and velar nasal /ŋ/. Of all the mispronounced English consonants, consonants /v/, /θ/, /ð/, and /z/ were found to be the English consonants whose sounds were mostly mispronounced by the students. With this phenomenon, English lecturers must be well-versed in the learning and teaching of pronunciation as a heads-up to students about the English consonant sounds that tend to be mispronounced. Lecturers should use a dictionary to ensure proper pronunciation so that they could be a precise pronunciation role model for their students. What is more, using this research as a previous related study, other researchers are expected to focus more on the big scale of a population. Other than that, other researchers also might seek deeper information about the influencing factors that contribute to the occurrence of English consonant mispronunciations.

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APPENDIX 1:

List of English Words Tested

English Consonant Sounds (Fromkin et al., 2018)	**List of English Words Tested with Different Occurrence in Words**		
	Initial	**Middle**	**Final**
/p/	**p**ill	pa**p**er	cu**p**
	/pɪl/	/ˈpeɪ.pɚ/	/kʌp/
/ŋ/	-	fi**ng**er	ri**ng**
	-	/ˈfɪŋ.gɚ/	/rɪŋ/
/r/	**r**eef	g**r**ate	guita**r**
	/ri:f/	/greɪt/	/gɪˈtɑ:r/
/j/	**y**ou	resi**d**ual	-
	/ju:/	/rɪˈzɪdʒ.ju.əl/	-
/dʒ/	**g**in	lodging	lo**dg**e
	/dʒɪn/	/ˈlɑ:.dʒɪŋ/	/lɑ:dʒ/
/tʃ/	**ch**ill	tea**ch**ing	bea**ch**
	/tʃɪl/	/ˈti:.tʃɪŋ/	/bi:tʃ/
/h/	**h**eal	be**h**ind	-
	/hi:l/	/bɪˈhaɪnd/	-
/z/	**z**eal	la**z**y	no**s**e
	/zi:l/	/ˈleɪ.zi/	/noʊz/
/v/	**v**eal	hea**v**y	mo**v**e
	/vi:l/	/ˈhev.i/	/mu:v/
/f/	**f**eel	ca**f**e	lea**f**
	/fi:l/	/kæfˈeɪ/	/li:f/
/θ/	**th**igh	no**th**ing	leng**th**
	/θaɪ/	/ˈnʌθ.ɪŋ/	/leŋθ/
/s/	**s**eal	le**ss**on	mi**ss**
	/si:l/	/ˈles.ən/	/mɪs/
/g/	**g**ill	wi**gg**le	di**g**
	/gɪl/	/ˈwɪg.əl/	/dɪg/
/k/	**k**ill	s**k**in	chee**k**
	/kɪl/	/skɪn/	/tʃi:k/
/ð/	**th**y	o**th**er	wi**th**
	/ðaɪ/	/ˈʌð.ɚ/	/wɪð/
/b/	**b**ill	sta**b**le	la**b**
	/bɪl/	/ˈsteɪ.bəl/	/læb/
/m/	**m**ill	slu**m**p	broo**m**
	/mɪl/	/slʌmp/	/bru:m/
/ʒ/	**g**enre	mea**s**ure	presti**g**e
	/ˈʒɑ:n.rə/	/ˈmeʒ.ɚ/	/presˈti:ʒ/
/ʃ/	**sh**ill	ma**ch**ine	la**sh**
	/ʃɪl/	/məˈʃi:n/	/læʃ/
/t/	**t**ill	ki**tt**en	pu**t**
	/tɪl/	/ˈkɪt̬.ən/	/pʊt/
/d/	**d**ill	can**d**y	clou**d**
	/dɪl/	/ˈkæn.di/	/klaʊd/
/n/	**n**il	fi**n**ish	fi**n**e

	/nɪl/	/ˈfɪn.ɪʃ/	/faɪn/
/l/	**l**eaf	ba**ll**oon	pu**ll**
	/liːf/	/bəˈluːn/	/pʊl/
/ʍ/	**wh**ich	a**wh**ile	-
	/ʍɪtʃ/	/əˈʍaɪl/	-
/w/	**w**itch	a**w**ay	-
	/wɪtʃ/	/əˈweɪ/	-

Color explanation:
Red : words taken from Fromklin et al. (2018)'s book.
Black : words added by the researchers.

APPPENDIX 2:

INSTRUMENT TEST
(THE PRONUNCIATION TEST)

This pronunciation test is related to English consonants sounds that aims to collect data about English consonants mispronounced by the Final Year English Department students at Jakarta International University and also to collect data about the most dominant mispronounced English consonants. For this reason, the researchers expect you to pronounce the words loudly, slowly, and carefully; therefore, the results of the research can be obtained as objectively as possible. Thank you for your participation.

Instructions:

Please pronounce the following words one by one and record your voice using any voice recording application available to you. Make sure that your voice is clear and free from any background noise. You only need to pronounce each of the following words once. Please pronounce these words in the assigned order. Once finish, please send the recording file to the researchers' WhatsApp number. The words are as follows:

1. pill
2. paper
3. cup
4. finger
5. ring
6. reef
7. grate
8. guitar
9. you
10. residual
11. gin
12. lodging
13. lodge
14. chill
15. teaching
16. beach
17. heal
18. behind
19. zeal
20. lazy
21. nose
22. veal
23. heavy
24. move
25. feel
26. café
27. leaf
28. thigh
29. nothing
30. length
31. seal
32. lesson

33. miss
34. gill
35. wiggle
36. dig
37. kill
38. skin
39. cheek
40. thy
41. other
42. with
43. bill
44. stable
45. lab
46. mill
47. slump
48. broom
49. genre
50. measure
51. prestige
52. shill
53. machine
54. lash
55. till
56. kitten
57. put
58. dill
59. candy
60. cloud
61. nil
62. finish
63. fine
64. leaf
65. balloon
66. pull
67. which
68. awhile
69. witch
70. away

APPENDIX 3:

THE PRONUNCIATION TEST ANSWER KEY

No	Words	Phonetics Transcription
1	pill	/pɪl/
2	paper	/ˈpeɪ.pɚ/
3	cup	/kʌp/
4	finger	/ˈfɪŋ.gɚ/
5	ring	/rɪŋ/
6	reef	/riːf/
7	grate	/ɡreɪt/
8	guitar	/ɡɪˈtɑːr/
9	you	/juː/
10	residual	/rɪˈzɪdʒ.juː.əl/
11	gin	/dʒɪn/
12	lodging	/ˈlɑː.dʒɪŋ/
13	lodge	/lɑːdʒ/
14	chill	/tʃɪl/
15	teaching	/ˈtiː.tʃɪŋ/
16	beach	/biːtʃ/
17	heal	/hiːl/
18	behind	/bɪˈhaɪnd/
19	zeal	/ziːl/
20	lazy	/ˈleɪ.zi/
21	nose	/noʊz/
22	veal	/viːl/
23	heavy	/ˈhev.i/
24	move	/muːv/
25	feel	/fiːl/
26	café	/kæfˈeɪ/
27	leaf	/liːf/
28	thigh	/θaɪ/
29	nothing	/ˈnʌθ.ɪŋ/
30	length	/leŋθ/
31	seal	/siːl/
32	lesson	/ˈles.ən/
33	miss	/mɪs/
34	gill	/ɡɪl/
35	wiggle	/ˈwɪɡ.əl/
36	dig	/dɪɡ/
37	kill	/kɪl/
38	skin	/skɪn/
39	cheek	/tʃiːk/
40	thy	/ðaɪ/
41	other	/ˈʌð.ɚ/
42	with	/wɪð/
43	bill	/bɪl/
44	stable	/ˈsteɪ.bəl/
45	lab	/læb/

46	mill	/mɪl/
47	slump	/slʌmp/
48	broom	/bruːm/
49	genre	/ˈʒɑːn.rə/
50	measure	/ˈmeʒ.ɚ/
51	prestige	/presˈtiːʒ/
52	shill	/ʃɪl/
53	machine	/məˈʃiːn/
54	lash	/læʃ/
55	till	/tɪl/
56	kitten	/ˈkɪt̬.ən/
57	put	/pʊt/
58	dill	/dɪl/
59	candy	/ˈkæn.di/
60	cloud	/klaʊd/
61	nil	/nɪl/
62	finish	/ˈfɪn.ɪʃ/
63	fine	/faɪn/
64	leaf	/liːf/
65	balloon	/bəˈluːn/
66	pull	/pʊl/
67	which	/ʍɪt͡ʃ/
68	awhile	/əˈʍaɪl/
69	witch	/wɪt͡ʃ/
70	away	/əˈweɪ/

APPENDIX 4:

PER PARTICIPANTS' PRONUNCIATION TEST RESULTS

Participant Code: 1

No	Words	Targeted Consonants	Participants' Pronunciation		Status	
			Produced	Correct	Error	No error
1	pill	/p/	/pil/	/pɪl/		✓
2	paper	/p/	/ˈpeɪ.pɚ/	/ˈpeɪ.pɚ/		✓
3	cup	/p/	/kʌp/	/kʌp/		✓
4	finger	/ŋ/	/ˈfɪŋ.gɚ/	/ˈfɪŋ.gɚ/		✓
5	ring	/ŋ/	/rɪŋ/	/rɪŋ/		✓
6	reef	/r/	/riːf/	/riːf/		✓
7	grate	/r/	/greɪt/	/greɪt/		✓
8	guitar	/r/	/gɪˈtɑːr/	/gɪˈtɑːr/		✓
9	you	/j/	/juː/	/juː/		✓
10	residual	/j/	/reɪˈsuɪ.dal/	/rɪˈzɪdʒ.juː.əl/	✓	
11	gin	/dʒ/	/gɪn/	/dʒɪn/	✓	
12	lodging	/dʒ/	/ˈlɑː.dʒɪŋ/	/ˈlɑː.dʒɪŋ/		✓
13	lodge	/dʒ/	/lɑːdʒ/	/lɑːdʒ/		✓
14	chill	/tʃ/	/tʃɪl/	/tʃɪl/		✓
15	teaching	/tʃ/	/ˈtiː.tʃɪŋ/	/ˈtiː.tʃɪŋ/		✓
16	beach	/tʃ/	/biːtʃ/	/biːtʃ/		✓
17	heal	/h/	/hiːl/	/hiːl/		✓
18	behind	/h/	/bɪˈhaɪnd/	/bɪˈhaɪnd/		✓
19	zeal	/z/	/siːl/	/ziːl/	✓	
20	lazy	/z/	/ˈle.zi/	/ˈleɪ.zi/		✓
21	nose	/z/	/noʊs/	/noʊz/	✓	
22	veal	/v/	/fiːl/	/viːl/	✓	
23	heavy	/v/	/ˈhiv.i/	/ˈhev.i/		✓
24	move	/v/	/muːf/	/muːv/	✓	
25	feel	/f/	/fiːl/	/fiːl/		✓
26	café	/f/	/kæfˈeɪ/	/kæfˈeɪ/		✓
27	leaf	/f/	/liːf/	/liːf/		✓
28	thigh	/θ/	/taɪg/	/θaɪ/	✓	
29	nothing	/θ/	/ˈnʌθ.ɪŋ/	/ˈnʌθ.ɪŋ/		✓
30	length	/θ/	/leŋt/	/leŋθ/	✓	
31	seal	/s/	/siːl/	/siːl/		✓
32	lesson	/s/	/ˈles.ən/	/ˈles.ən/		✓
33	miss	/s/	/mɪs/	/mɪs/		✓
34	gill	/g/	/gɪl/	/gɪl/		✓
35	wiggle	/g/	/ˈwɪg.əl/	/ˈwɪg.əl/		✓
36	dig	/g/	/dɪg/	/dɪg/		✓
37	kill	/k/	/kɪl/	/kɪl/		✓

38	skin	/k/	/skɪn/	/skɪn/		✓
39	cheek	/k/	/tʃiːk/	/tʃiːk/		✓
40	thy	/ð/	/taɪ/	/ðaɪ/	✓	
41	other	/ð/	/ˈʌð.ɚ/	/ˈʌð.ɚ/		✓
42	with	/ð/	/wɪð/	/wɪð/	✓	
43	bill	/b/	/pɪl/	/bɪl/	✓	
44	stable	/b/	/ˈsteɪ.bəl/	/ˈsteɪ.bəl/		✓
45	lab	/b/	/læp/	/læb/	✓	
46	mill	/m/	/mɪl/	/mɪl/		✓
47	slump	/m/	/slʌmp/	/slʌmp/		✓
48	broom	/m/	/bruːm/	/bruːm/		✓
49	genre	/ʒ/	/ˈʒɑːn.rə/	/ˈʒɑːn.rə/		✓
50	measure	/ʒ/	/ˈmeʃ.ɚ/	/ˈmeʒ.ɚ/	✓	
51	prestige	/ʒ/	/presˈtiːʒ/	/presˈtiːʒ/		✓
52	shill	/ʃ/	/ʃɪl/	/ʃɪl/		✓
53	machine	/ʃ/	/məˈʃiːn/	/məˈʃiːn/		✓
54	lash	/ʃ/	/læʃ/	/læʃ/		✓
55	till	/t/	/tɪl/	/tɪl/		✓
56	kitten	/ṭ/	/ˈkɪṭ.ən/	/ˈkɪṭ.ən/		✓
57	put	/t/	/pʊt/	/pʊt/		✓
58	dill	/d/	/dɪl/	/dɪl/		✓
59	candy	/d/	/ˈkæn.di/	/ˈkæn.di/		✓
60	cloud	/d/	/klaʊd/	/klaʊd/		✓
61	nil	/n/	/nɪl/	/nɪl/		✓
62	finish	/n/	/ˈfɪn.ɪʃ/	/ˈfɪn.ɪʃ/		✓
63	fine	/n/	/faɪn/	/faɪn/		✓
64	leaf	/l/	/liːf/	/liːf/		✓
65	balloon	/l/	/bəˈluːn/	/bəˈluːn/		✓
66	pull	/l/	/pʊl/	/pʊl/		✓
67	which	/ʍ/	/ʍɪtʃ/	/ʍɪtʃ/		✓
68	awhile	/ʍ/	/əˈʍaɪl/	/əˈʍaɪl/		✓
69	witch	/w/	/wɪtʃ/	/wɪtʃ/		✓
70	away	/w/	/əˈweɪ/	/əˈweɪ/		✓