CHAPTER III

RESEARCH METHOD

In this part, the researcher described the method that was used in this research. The researcher explained the general process in collecting and analyzing the data. It consisted of research design, research instrument, subject of the research, data and data source, technique of data collecting, and technique of data analysis.

3.1 Research Design

This study concerned with the acoustics phonetic on the vowel quality sound and showed the most difficult vowel produced by three different group students of English Department at State Islamic University (UIN) of Sunan Ampel Surabaya. The writer made data analysis in their pronunciation. Thus, the writer conducted this research with descriptive quantitative method.

3.2 Research Instrument

The main instrument of this research was the writer. In this research instrument had been the writer herself as the main research instrument through recording, collecting the data, identifying, comparing and counting. The data got from elicitation. The secondary instrument was praat software. It is computer software that is used for analyzing physical properties of the phonetics. It is used as a tool to identify the formant frequency of data sources in this research.

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Figure 1 Praat icon

3.3 Subject of the Research

The subject of this research was the English Learners especially 20 students of second, fourth and sixth semester of English Department at State Islamic University of Sunan Ampel Surabaya and 15 people that came from America. The writer met them in some activities when they were in Surabaya. They came to Surabaya because of learning of Muslim religion and holiday. Then, the writer asked them to help about this research and to pronounce vowel sounds. It was focused on English students' at UIN Sunan Ampel Surabaya ability of pronounce English vowels.

3.4 Data and Data Sources

In this research, the primary data was recording of words that contained of vowels /ɪ/, /æ/, /ʌ/, /ɔ:/, /ʊ/, /ɜ:/. The secondary was a list of average native English formants. Those vowels were chosen because those vowels did not consist in Indonesian.

data were words which were taken from phonetics words that chosen by the writer. Those words were shown in the appendix that was derived by 60 people in three different group students of English Literature at State Islamic University of Sunan Ampel Surabaya. The writer chose them

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randomly. Besides the writer also asked America to pronounce them. Those were my friends from America. After getting the data from the Americans, the writer compared with the data from the English students. It was chosen because the researcher wanted to know the most difficult vowel and measured the vowel quality of /ɪ/, /æ/, /ʌ/, /ɔ:/, /ʊ/, /ɜ:/ of university student. The writer also considers that 60 people from English students and 15 people from America were made accurate and they wanted to be the subject of the research.

3.5 Technique of Data Collection

The data collected through some steps:

1. The writer made a list of words that be used in recording. Those were shown in the appendixes.
2. The writer asked the participant from the Americas to read or pronounce the words that have been determined by the writer and record them.
3. The writer looked for the participant from three different groups of students who come from English Literature class randomly. Then the researcher asked to mention those words and record them.
4. Before recording English students' vowel sounds, the writer asked them about whether they were closed to American or others in their speaking English, because she only recorded for American accent.
5. The writer looked for quiet place to record the words because she wanted to get the data clearly to be easy to analyze.

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6. The writer asked the participants to mention those words clearly and record them.
7. The writer saved the recordings to the mobile phone and moved the data from mobile phone to the laptop and renamed file with a number.
8. The writer measured the recording already saved in the laptop.
9. After measuring the recording, the writer analyzed all of the data.

3.6 Technique of Data Analysis

Some steps were taken in analyzing the acoustic characteristic to know the most difficult vowel and the vowel quality:

1. The writer downloaded praat software from www.praat.org and saved it in the software in the local disk (D).

Figure 1 Praat icon

2. The writer renamed the folder.
3. Putting all of the data recorded into the laptop.
4. Changing the data recording to the form of spectrogram and gave the spectrogram using number.
5. Praat started from two windows: praat object and praat picture. And for analyzing sound chose the blue one was praat object.

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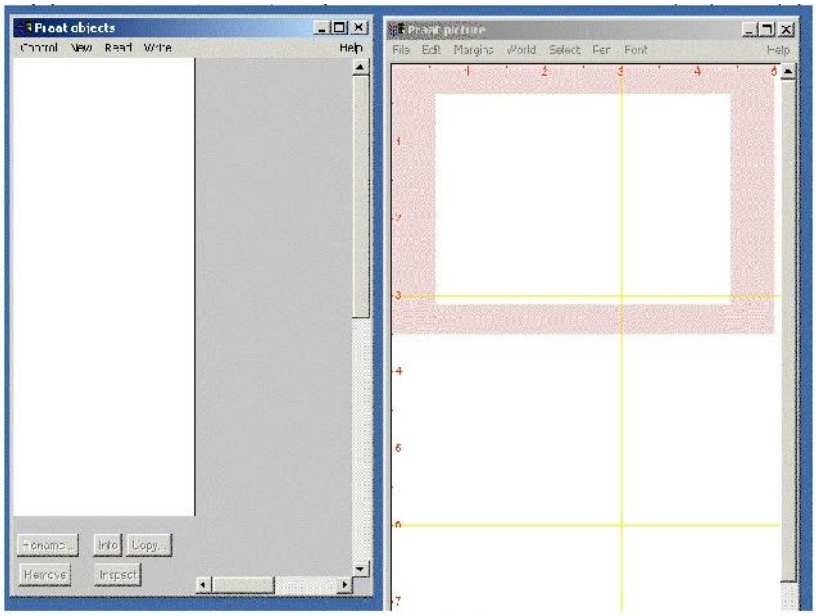

Figure 2 Praat windows at start

6. Click “Menu ‘Read’ > Read from file… > Choose file ’spectrogram 1’…> Ok.

7. After that click ‘Edit’ > process editing with choosing the important words > saved it.

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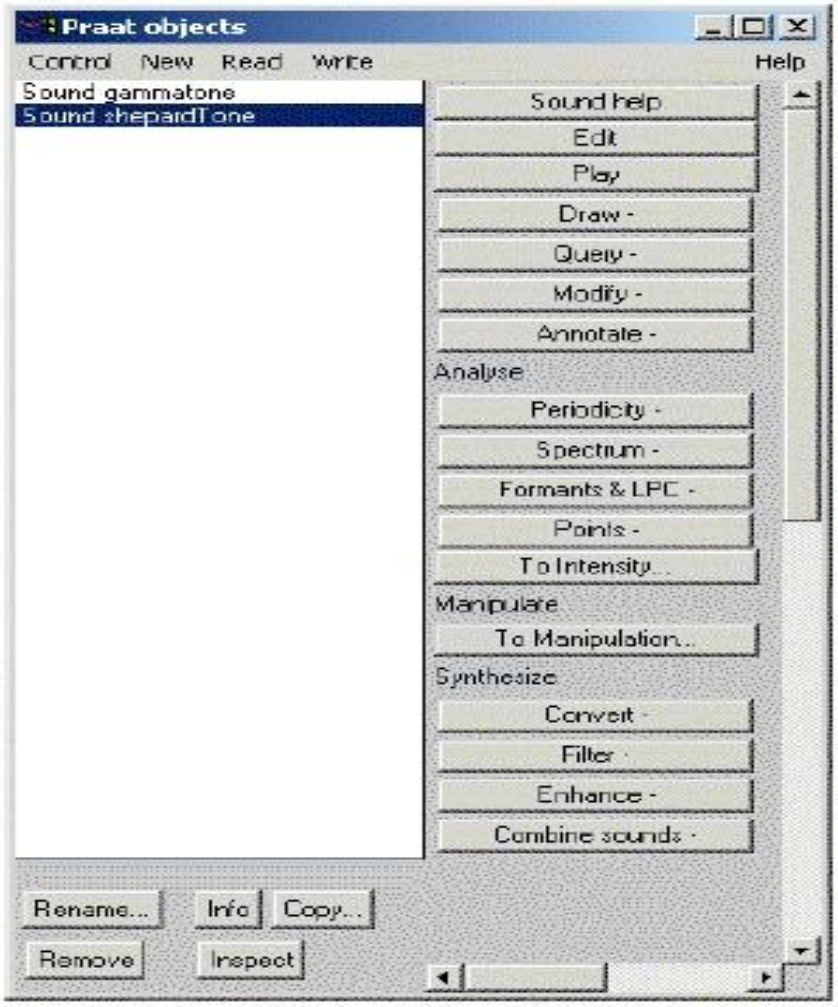

Figure 3 "Praat objects" window with "Sound" objects

8. Then click “Annotate > changed name to “Words”> Ok.

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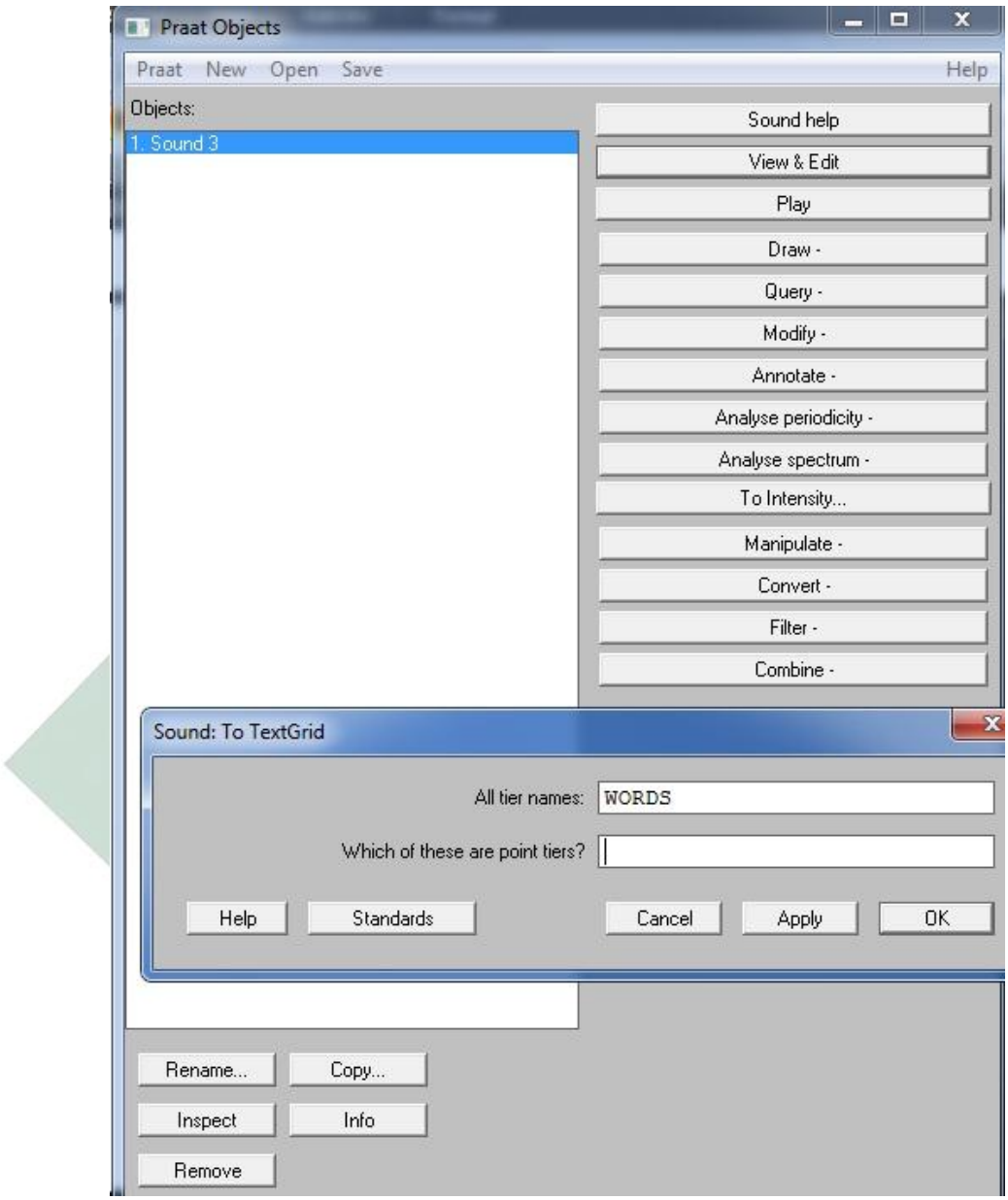

9. ‘Block and then ‘click View & Edit Alone. It would be shown like this picture above.

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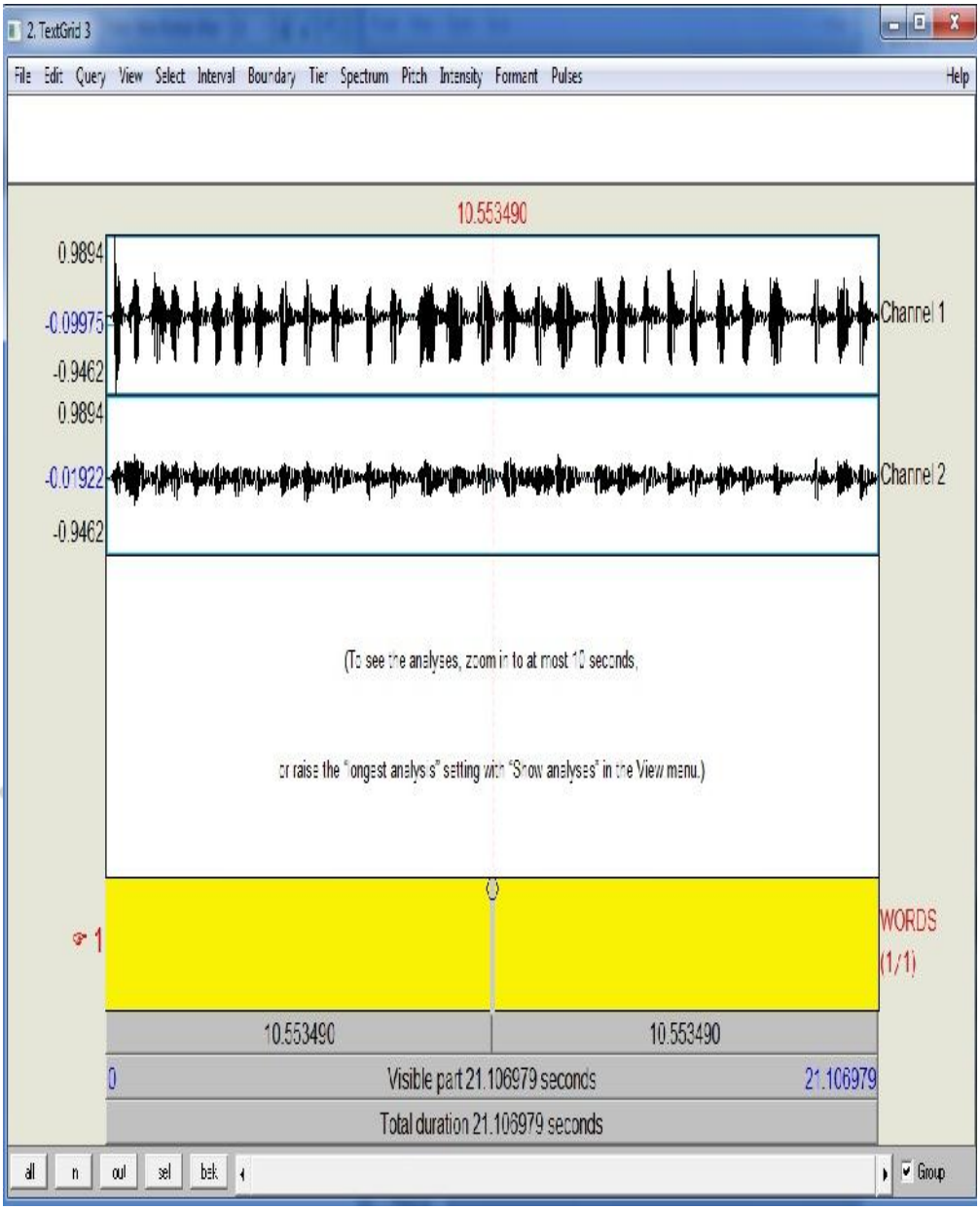

10. Cut and focused on the important words.

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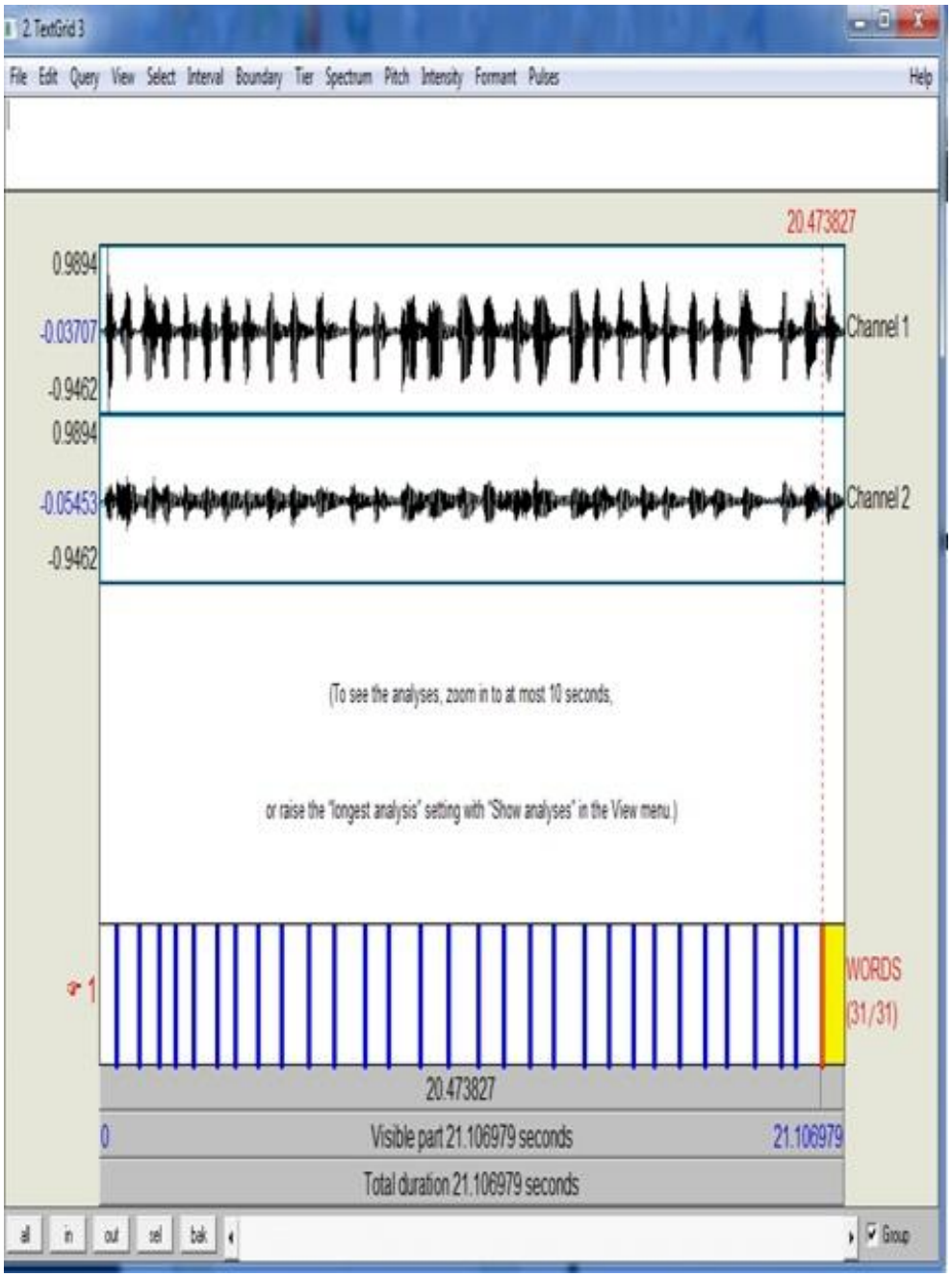

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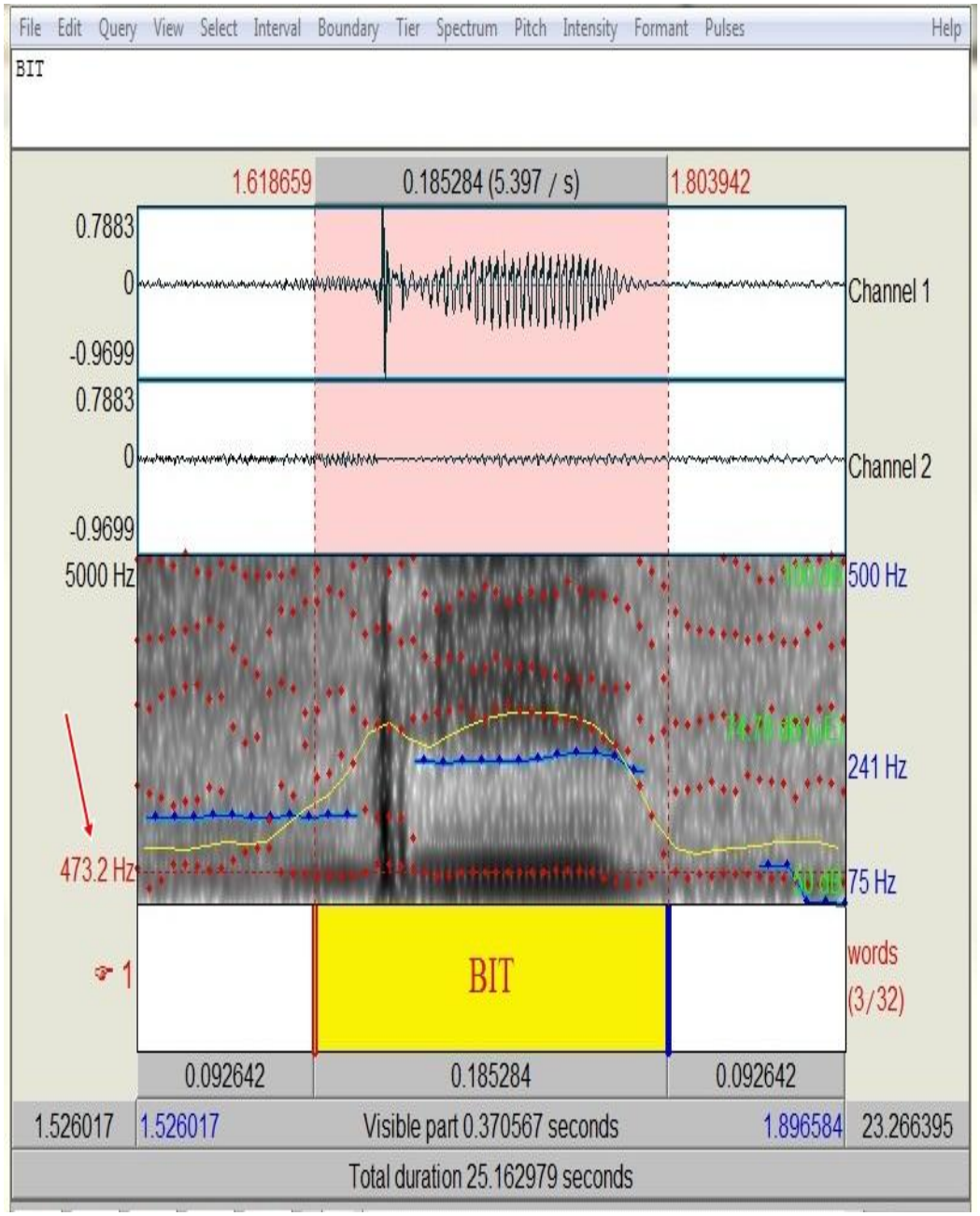
11. For the last click < sel and out > it would be shown picture above.



12. Looking for the frequency of their formant from the sound.

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13. After knowing all the frequency, firstly the writer made the table of all the frequency of Native.

Table 4.1

THE FREQUENCY DATA OF NATIVE

WORDS	1	2	3	4	5	6	7	8	9	10
BIT										
SIT										
QUIZ										
LICK										
TICK										
HAT										
GAD										
GAG										
CAB										
CAT										
MUD										
CUP										
TUSK										
TUSSLE										
TUNNEL										
CALL										
GAIL										
BOARD										
SAW										
FALL										
WOOD										
PUT										
OUT										
LUCK										
COULD										
WORD										
FUR										
QUIRK										
TURN										
LEARN										

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14. The second, the writer made table of Native to be the standard research for comparing with the three different groups of students.

The Average of vowel quality of Native American

Table 4.2

VOWEL	WORDS	AVERAGE
/ɪ/	BIT	
	SIT	
	QUIZ	
	LICK	
	TICK	
/æ/	HAT	
	GAD	
	GAG	
	CAB	
	CAT	
/ʌ/	MUD	
	CUP	
	TUSK	
	TUSSLE	
	TUNNEL	
/ɔː/	CALL	
	GAIL	
	BOARD	
	SAW	
	FALL	
/ʊ/	WOOD	
	PUT	
	OUT	
	LUCK	
	COULD	
/ɜː/	WORD	
	FUR	
	QUIRK	
	TURN	
	LEARN	

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15. Then the writer made table for making easy to know all the percentage of every data in the three different groups.
16. The writer made the table for second, fourth and six semester

WORDS	1	2	3	4	5	6	7	8	9	10
BIT										
SIT										
QUIZ										
LICK										
TICK										
HAT										
GAD										
GAG										
CAB										
CAT										
MUD										
CUP										
TUSK										
TUSSLE										
TUNNEL										
CALL										
GAIL										
BOARD										
SAW										
FALL										
WOOD										
PUT										
OUT										
LUCK										
COULD										
WORD										
FUR										
QUIRK										
TURN										
LEARN										

17. Then the writer made the table of the data value and to know the percentage of incorrect vowel quality through using formula:

The total of incorrect vowel quality

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$$\frac{\qquad\qquad}{50} \times 100 =$$

THE VALUE DATA OF SECOND SEMESTER

Table 4.4

VOWEL	The total of Incorrect vowel quality	The percentage of incorrect vowel quality
/ɪ/		
/æ/		
/ʌ/		
/ɔː/		
/ʊ/		
/ɜː/		
total		

18. After making the table and wrote all of the value frequency between sound native speaker and sound subject, the writer compared both of them.

19. The writer was made by circle of the incorrect vowel words.

20. The writer counted all of the lower percentage every participant's vowel, and then found the most difficult vowel.

21. The writer made table for knowing the low percentage of vowel quality and the most difficult vowels that produced by three different groups of semester and to know the percentage of incorrect vowel quality through using formula:

The total of incorrect vowel quality

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$$\frac{\qquad\qquad}{264} \times 100 =$$

THE DATA FREQUENCY

OF THREE DIFFERENT LEVELS GROUP

Table 4.9

VOWEL	The total of Incorrect vowel quality	The percentage of incorrect vowel quality
/ɪ/		
/æ/		
/ʌ/		
/ɔːɹ/		
/ʊ/		
/ɜːɹ/		
Total		

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