# CHAPTER III

# RESEARCH METHODOLOGY

This chapter provides methodological aspects of the research. The chapter covers research design, data collection and data analysis.

## 3.1 Research Design

This research employs a descriptive qualitative approach since the research focuses on analysing and describing the pitch range of Sundanese speakers and Javanese learners of Sundanese. According to Parkinson and Drislane (2011), qualitative research uses case studies or participant(s) observation to get narrative, descriptive or practical result. Descriptive research consists of a set of data, which is not only numerical data but also words or images (Sandelowski, 2000). The goal of descriptive qualitative is to gather rich description of the experience depicted in easily understood language (Sullivan-Bolyai, Bova & Harper, 2005). Since the research attempts to explain, analyse and interpret the data, it suits the natural settings of the qualitative data.

The form of case study that is employed in this research is a descriptive case study. The intention of such study is to explain phenomena and obtain rich information of the data (Lambert & Lambert, 2012). Moreover, Denzin and Lincoln (in Creswell & Clark, 2007) state that descriptive case study showed a phenomenon's interpretation of meanings people bring to them. For that reason, this design fits the aim of this research, which is to investigate the pitch realisation by Sundanese speakers and Javanese learners of Sundanese when reading Sundanese texts.

## 3.2 Data Collection

### 3.2.1 Research Site and Participants

Bandung is chosen as the setting of the research since Bandung is one of the metropolitan cities in Indonesia where many ethnic groups meet and many languages are used. Sundanese language is the official local language in West Java. In Bandung, along with Indonesian, Sundanese is also one of the most frequently spoken languages. Newcomers, who come to Bandung, are also influenced by Sundanese language in daily communication.

The participants of the research are six Sundanese speakers and six Javanese learners of Sundanese who came from Central Java and have stayed in Bandung for more than twenty years. The age of the Javanese learners of Sundanese when they moved to Bandung is around twenties, in median. They have been learning Sundanese through adaptation and by having daily conversation with Sundanese speakers.

**Tabel 3.1. Profile of the Participants**

| No | Code | Gender | Age | Ethnicity | Language |
|----|------|--------|-----|-----------|----------|
| 1. | P1 | M | 41 | Sundanese | Indonesian, Sundanese |
| 2. | P2 | M | 52 | Sundanese | Indonesian, Sundanese |
| 3. | P3 | M | 44 | Sundanese | Indonesian, Sundanese |
| 4. | P4 | F | 66 | Sundanese | Indonesian, Sundanese |
| 5. | P5 | F | 46 | Sundanese | Indonesian, Sundanese |
| 6. | P6 | F | 58 | Sundanese | Indonesian, Sundanese |
| 7. | P7 | M | 57 | Javanese | Indonesian, Sundanese, Javanese |
| 8. | P8 | M | 66 | Javanese | Indonesian, Sundanese, Javanese |
| 9. | P9 | M | 46 | Javanese | Indonesian, Sundanese, Javanese |

| 10. | P10 | F | 45 | Javanese | Indonesian, Sundanese, Javanese |
|---|---|---|---|---|---|
| 11. | P11 | F | 57 | Javanese | Indonesian, Sundanese, Javanese |
| 12. | P12 | F | 66 | Javanese | Indonesian, Sundanese, Javanese |

Participants P1 to P6 are Sundanese speakers, while P7 until P12 are Javanese learners of Sundanese. The participants for each group are three females and three males. The average age of the participants is 53 year-old. All of the participants can speak Sundanese. However, the differences between the Sundanese speakers and Javanese learners of Sundanese can be seen from the language that is used. Javanese learners of Sundanese use Sundanese that is syntactically correct, but phonetically different from the Sundanese speakers, since their accent is still influenced by their Javanese accent. Moreover, all speakers can speak Indonesian, but it is used as their passive language.

### 3.2.2 Data Collection Techniques

The data are collected through a reading task. A reading task is used as the instrument of the research to obtain natural yet controlled data. More specifically, the participants are asked to read a narrative text in Sundanese language. The Sundanese narrative text is taken from *Dongeng-dongeng Sunda Jilid I* book entitled *Maung, Embé jeung Ajag* written by M. Saleh (1910). Reading task is conducted to obtain the participants' pronunciation in a continuous speech. All of the data are recorded by using a voice recorder. Example of the text of reading task is presented below.

> *Maung, Embé jeung Ajag*
> (The Tiger, The Sheep and The Fox)
> *Ajag ngomong ka embé: "Bagéa sakadang embé, tas ti mana, naon baé nu diseja datang ka kaula téh?"*
> (The Fox said to the Sheep: "My dear Sheep, where were you from? What is up?")

*Jawab embé: "Puguh kaula téh keur meunang kasusah banget pisan. Nu kagungan leuweung geus meunang dua peuting ngulincer baé di pakarangan rék ngarah kaula".*

(The Sheep answered: "I'm in a middle of something extremely terrible. The king of the jungle has been wandering in the backyard for two nights hunting me.")

Before the actual data collection session is started, a pilot test is conducted to see the knowledge/level of Sundanese which has been acquired by the participants, and to predict the possible sounds that are going to be investigated in the research. Based on the pilot test, the pitch range of Sundanese and Javanese participants showed specific differences and the pronunciation of vowels /e/, /é/ and /eu/ are also noticed to be different.

### 3.3 Data Analysis

The data that have been collected are sorted to find every part of the interview that contains the particles observed in the research. In addition, the data are cut by using software called Audacity. After cutting the data, the data are transcribed and analysed by using Praat. Praat is software to analyse, synthesize, and manipulate sounds, and also to discover the pitch realisation (Boersma & Weenink, 1999).

Prior to the transcription, the recorded speech is transcribed in form of orthographic transcription with the assistance of one Sundanese speaker. The involvement of the Sundanese speaker to assist this data transcription is intended to minimize transcribing error. The transcriptions are then compared and any disagreements are resolved through negotiation.

The data are transcribed by the following International Phonetic Alphabet system. The example of the data analysis is exemplified in the table 3.2.

**Table 3.2. Example of Javanese Learners of Sundanese's Phonetic Transcription**

| Word | Target phoneme | Participants' actual pronunciations | Deviation |
|---|---|---|---|
| tékték | /e/ | [tək.tək] | [e → ə] |
| seja | /ə/ | [se.dʒa] | [ə → e] |
| seupah | /ɨ/ | [sə.pah] | [ɨ → ə] |

As can be seen from the table, Javanese learners of Sundanese often pronounced incorrect phoneme when uttering word(s) that are related to phoneme /e/, /ə/and /ɨ/. Thus, the deviations that the Javanese learners of Sundanese made are also identified, as stated by Crowley (1997) that the deviations must be identified and classified. The occurrences of the deviations are then calculated and compared by using a scale composed by Thorsten (1992 in Salma, 2013).

$$P = \frac{F \times 100\%}{N}$$

Note:

P= Percentage

F= Frequency

N= Overall Number

The transcriptions of the participants are then compared to see the pitch range's differences. The pitch-range of the speakers' particle production is determined by subtracting the highest frequency with its lowest frequency. The examples of the pitch range analysis are presented in pictures 3.1. and 3.2.

**Picture 3.1. Pitch Analysis Example of Javanese learner of Sundanese's Utterance**
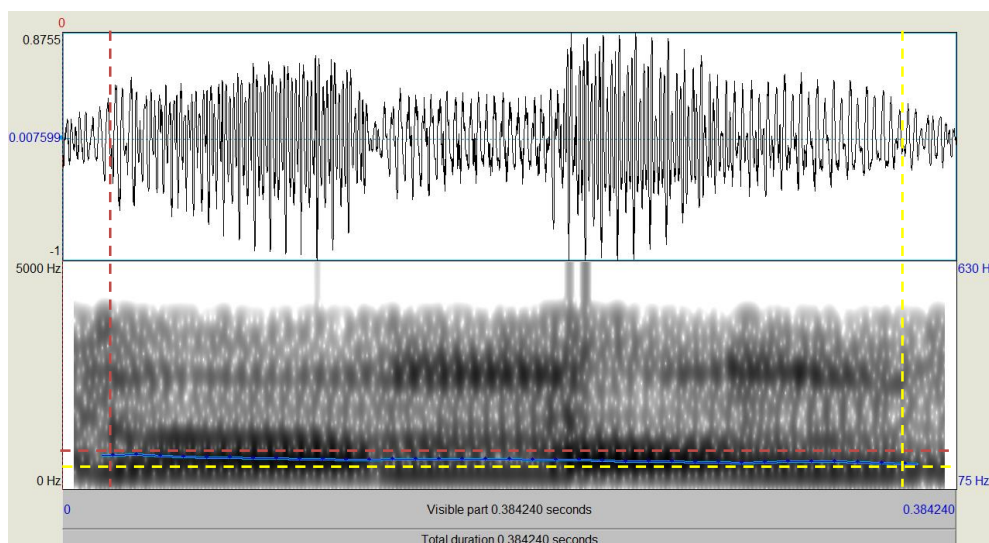


**Picture 3.2. Pitch Analysis Example of Sundanese Speaker's Utterance**
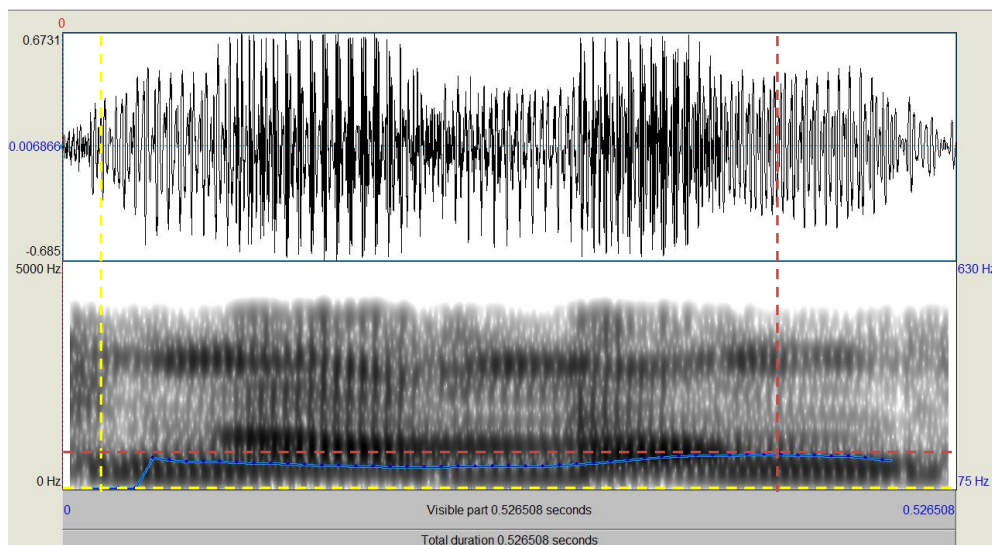


As can be seen from the pictures 3.1. and 3.2., the pitch of the participants is different. The highest blue dot shows the maximum pitch frequency of the sound, and the lowest blue dot shows the minimum pitch frequency of the sound. To make comparison, here, the maximum pitch number is showed by red horizontal and vertical lines, while yellow lines show the minimum pitch. In fact, in Praat software, the lines that show maximum and minimum pitch are only

indicated by red horizontal and vertical lines; there are no such thing as yellow lines in Praat software. To calculate the pitch range, the maximum frequency is subtracted with the minimum frequency. The results of each word's pitch range are added, then are divided with the total words of the data in order to get the total mean of participants' pitch range when reading the text. Then, the pitch ranges between Sundanese speakers and Javanese learners of Sundanese are then compared.

Regarding the data collected from the reading test, a further analysis of the vowels durations is also conducted. The duration is analysed and compared by using one of the features of Praat. It shows the duration of the sounds represented by the horizontal axis on top of both the oscillogram and spectrogram. The examples of the acoustic phonetic analysis are presented in pictures 3.3. and 3.4.

**Picture 3.3. Example of Duration Analysis in Production in /leuweung/ (woods) by Javanese learner of Sundanese**
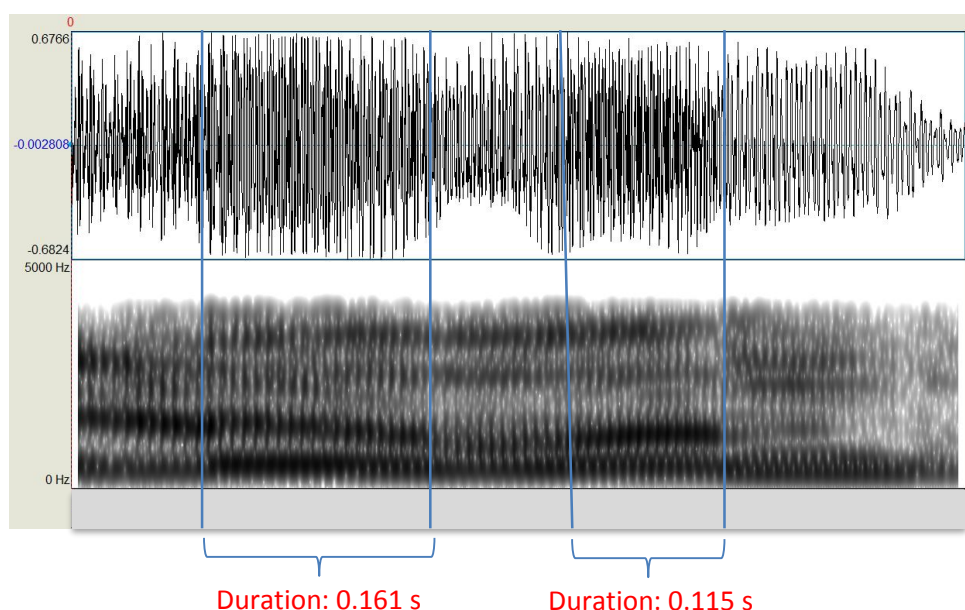
**Picture 3.4. Example of Duration Analysis in Production in /leuweung/ (woods) by Sundanese Speaker**



Duration: 0.172 s          Duration: 0.178 s
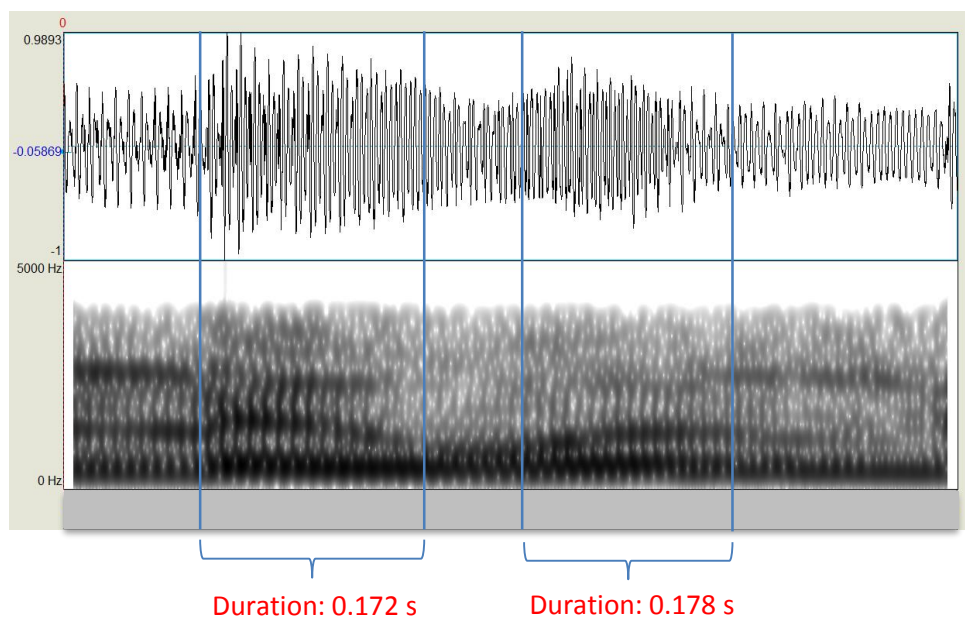
From the pictures above, the durations of vowel /eu/ produced by the participants are different. To calculate the vowel duration of the data, the oscillogram and spectrogram that display the data are analysed and the sounds are distinguished by following relevant guidelines in the literature. After that, the mean of the vocal duration analysis is calculated and compared. The entire analyses are presented in the fourth chapter of the research and the rest of data presentations are shown in the appendices of the research.

## 3.4 Concluding Remark

This chapter has discussed the methodology applied in conducting the research. It covers research design, data collection, and data analysis techniques complimented with the examples. Further data analyses and data presentation will be developed and presented in the next chapter.