SUNDANESE STUDENTS’ PRODUCTION OF ENGLISH DENTAL FRICATIVE CONSONANT SOUNDS

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INTRODUCTION

People all over the world need to master English which is a global language to help them communicate easily with other people. Indonesian people have many difficulties in learning English, as a foreign language, especially in accurately producing the English sounds. Although partly the English consonants are similar to Indonesian consonants, many Indonesian people still mispronounce them.

The use of Indonesian language as a mother tongue by many Indonesians influences the production of English sounds. A problem might arise when Indonesians produce the speech sounds of English which do not exist in Indonesian by using the most similar speech
sounds that Indonesian has. One example of a mispronunciation is in the word *seashore* which most Indonesian people pronounce it as *scissor* (Kencana 32). The pronunciation of both words is different in their middle sounds. The middle sound in the word *seashore* is [s] while that in the word *scissors* is [z].

Indonesian people certainly have a problem in pronouncing English speech sounds due to the variety of ethnic groups which have different accents and language systems. As Prastari states, “one of the elements that can create variations of a language is the ethnic” (Prastari 8).

Campbell (Yusuf 2) mentions that “Sundanese belongs to the Malayo-Polynesian branch of the Austronesian family”. Sundanese becomes the second biggest vernacular that is used in Indonesia. “Sundanese language is used by 19 million people who mostly live in West Java, in the west part of Central Java, Jakarta, and central transmigration areas” (Kartini 1).

As foreign speakers of English, Sundanese people might face a lot of problems in learning English. Although native and foreign speakers do not have different sound-producing mechanism, the sounds they produce are definitely different from one another. Gimson says that “our hearing mechanism also plays an important part in monitoring our own speech; it places a control upon our speech production which is complementary to our motor, articulatory habits” (Gimson 26).

In addition, Sundanese people produce different English sounds, because they are already accustomed to using their vernacular. They produce English speech sounds with the most similar speech sounds that Sundanese has. This problem occurs because of the existence of the particular English sounds in Sundanese.

Besides the difficulties of speaking English with correct pronunciation, they are faced with the problem of misunderstanding. Some Sundanese people cannot produce the English dental fricative sounds correctly due to the limitation of consonants which exist in the Sundanese language. For example, some speakers are likely to pronounce the initial sound [θ] in the word *thank* [θŋk] as *tank* [tŋk]. This might cause a problem of misunderstanding, because *thank* is different from *tank*, and both these words have different meanings.

**PREVIOUS STUDY**

Several studies of phonology have been conducted by students of the English Department. One of the studies is made by Kencana (2011). His research deals with the native speakers’ acceptance of Universitas Gadjah Mada English Department students’ production of English palato-alveolar consonant sounds. It investigates the level of acceptability of students’ production of English palato-alveolar consonant sounds as judged by a native speaker of English. Palato-alveolar consonants are difficult to pronounce and create problems for the students. There are possible factors that influence the acceptability of the students’ production of the consonant. The focus of this research is limited only to the segmental aspects of palato-alveolar consonant sounds, without regard to suprasegmental aspects which consist of stress, intonation, and tone.

In collecting the data, Kencana administered a placement test and a pronunciation test. He collected 612 recorded sentences in the form of soft files which contained four palato-alveolar sounds, and a native speaker of English as an informant assessed the voice recordings. The results of the research show that the words which are acceptable are those with English palato-alveolar consonants (80.2%), (76.2%), (96.9%), (84.6%). According to this research, the level of acceptability is very high. It is an average of 85.5%.
THEORETICAL FRAMEWORK

Spears (Kencana 8) says that English has a complicated pronunciation system: It has approximately 75 different sounds yet only 26 letters to represent them. One letter may represent two or more sounds. A single letter may represent different sounds. For example, a single vowel letter a can be pronounced in six ways, as in these words: dame, dad, father, call, village, and many (Fromkin, Rodman, and Hyams 237). Everyone has a different way of speaking, but when they produce different sounds of a certain word, it may represent a different meaning of a word.

Swan and Smith (Kencana 8) state that an English learner is likely to carry the signature of his/her mother tongue, by virtue both of what goes wrong and of what does not. This is the most striking in the case of pronunciation, where the phonological structure of a speaker’s first language and the associated ‘articulatory setting’ of the lips, tongue, jaws, etc. usually affect his or her English speech quite strongly, giving rise to what is called, for example a Dutch, Turkish, or Chinese accent.

Catford (2001) argues that all the sounds of speech are produced in the vocal tract, which consists of some tools that have roles in producing and articulating speech sounds. Vocal tract is the place where the sounds of speech are being produced. The description below shows the details of the vocal tract.

The vocal tract is the cavity of human beings which assists the production of sound. According to O’ Grady, et. al., (O’Grady et. al. 15) the air supply is provided by the lungs. The sound source is in the larynx, where the vocal cords are located. The filters are the organs above the larynx, which is called the pharynx.

1. The Lungs

The lungs are the places where the air is taken into, and the majority of sounds are produced while the air is expelled by the lungs through the vocal tract during the speech.

2. The Larynx

The larynx is commonly known as the voice box or Adam’s apple. The larynx is a boxlike structure made of cartilage and muscle. It consists of several fine sheets of muscle which line the inner wall of the larynx.

3. The Tongue

The tongue is the main articulating organ of speech. Its elasticity enables the tongue to move freely. It can be raised, lowered, push forward, drawn back, and rolled back. The tongue is divided into five areas. The tip is the small part at the front. The blade lies just behind the tip. The main part of the tongue is called the body, and the hindmost part of the tongue is called the back.

Speech Sounds

Crystal (Kencana 10) mentions that a language which is produced by human beings consists of a wide variety of sounds, called speech sounds. According to Jones (Jones 11), there are no two persons of the same nationality pronouncing their own language exactly alike. One language and another definitely have different speech sounds, such as English and Indonesian speech sounds. It is certain that the English language has more speech sounds than Indonesian. In general, speech sounds are divided into two categories: vowels and consonants.

The most basic division among sounds consist of two major classes, vowels and consonants. Vowels and consonants can be distinguished on the basis of differences in articulation, both acoustically and functionally. Consonant sounds are made with a narrow or complete closure in the vocal tract, while vowels are produced with a little obstruction in the vocal tract and are generally voiced. Vowels are more sonorous and syllabic. Unlike vowels, the consonants are less sonorous and generally not syllabic (O’Grady et. al. 18).

There is also subdivision of vowels called diphthongs. A diphthong is a sequence
of different vowels, within one and the same syllable (Catford 110). English examples are [a] in high, [a] in how, in boy, and in very many types of English [e] in day, [o] or [ә] in go, etc. A diphthong occurring within a single syllable is performed with a single stress-pulse (Catford 111).

**Consonants**

English has 24 different consonant phonemes, or, it has a consonant phoneme inventory of 24 items. These consist of six stops, two affricates, nine fricatives, three nasals, two approximants and two semivowels (Catford 191).

These 24 consonants are also classified as voiced and voiceless consonants, according to the position of the vocal cords. A sound can be classified as voiceless, if the vocal cord is apart during airflow. The air flow freely through the glottis and supraglottal cavities. On the contrary, a sound is voiced if the vocal cords close together, the airstream force its way through and causes them to vibrate (Fromkin, et. al. 244).

Consonant sounds can also be classified according to the places of articulation. According to Fromkin et. al. (2003), on the basic of the places of articulation, consonant sounds can be divided into seven classes:

1. **Bilabials**
   The sounds are produced by bringing the upper and bottom lips together. Bilabials consist of the sounds [p], [b], and [m].

2. **Labiodentals**
   The production of these sounds involve the lips and teeth as the main tools. This class of consonant is produce by touching the bottom lip to the upper teeth. Labiodentals consist of the sounds [f] and [v].

3. **Interdentals**
   Interdentals consist of the sounds [θ] and [ð]. Both sounds are represented by th, for example, thin [θn] and then [ðn]. To produce these sounds, one inserts the tip of the tongue between the upper and the lower teeth. For some speakers, the tongue simply touches the teeth.

4. **Alveolars**
   The sounds are produced by raising the front part of the tongue to the alveolar ridge. The tongue should touch or almost touch the bony tooth ridge.

5. **Palatals**
   The sounds are produced by raising the front part of the tongue to a point on a hard palate just behind the alveolar ridge. The term alveopalatal is also used.

6. **Velars**
   Velar sounds are produced by raising the back of the tongue to the soft palate or velum.

7. **Glottal**
   Glottal sounds are produced if the air is stopped completely at the glottis by tightly closing the vocal cords. Although classified as a consonant, there is no airflow restriction in pronouncing a word.

Consonant sounds can also be classified according to the manners of articulation. This is investigated by seeing how the lips, tongue, velum, and glottis, as the vocal tract, can be positioned in different ways to produce different types of sound. According to O’ Grady, et. al., (1996), there are five types of consonant in accordance with the manner of articulation:

1. **Nasal**
   Nasal sounds are produced by air flowing through the mouth with the lowered velum in order to allow the air to pass through the nasal passages. All voiced vowels and consonants are considered as nasal.

2. **Stops**
   Stops are the sounds that are stopped completely in the oral cavity for a short period. A complete closure of airflow through the oral cavity produces stop sounds. Stops are
found at bilabial, dental, alveolar, palatal, velar, uvular, and glottal points of articulation.

3. Fricatives
Fricatives are the sounds that are accompanied by a continuous noise. Fricatives are produced with a continuous airflow through the mouth. Noises are produced due to frictions between the organs of speech.

4. Affricates
Affricates are produced by a stop closure followed immediately by a slow release of the closure characteristic of a fricative. In other words, affricates consist of the sequence of a stop and fricative.

5. Liquids
Liquids are continuants with the obstruction of the vocal tract formed which is not produced as great as it is for fricative consonants. Liquids consist of the sound [l] and [r] which form a special class of consonants.

English Dental Fricative Consonant Sounds
Dental fricative consonants are produced with a continuous airflow through the mouth. They belong to a large class of sounds called continuants, due to their production which are accompanied by a continuous audible noise. The production of dental fricative sounds, generally is the soft palate being raised, the nasal resonator shut off, the tip, and rims of the tongue make a light contact with the edge and inner surface of the upper incisors and a firmer contact with the upper side teeth. The air escaping between the forward surface of the tongue and the incisors causes friction (Gimson 184).

Dental fricatives are divided into two types: labiodental and interdental. Labiodental fricatives consist of the sounds [f] and [v], while interdental fricatives consist of the sounds [θ] and [ð]. Labiodental fricative sounds are produced when the friction is created at the lips and teeth, where a narrow passage allows the air to escape and produce the labiodental fricative sounds. Interdental fricative sounds are produced when the friction occurs at the opening between the tongue and teeth.

THE STUDENTS’ PRODUCTION OF DENTAL FRICATIVE CONSONANTS

This part presents and discusses the results of the analysis of the production of the dental fricative consonants made by twenty Sundanese students of Universitas Gadjah Mada. There are 35 occurrences of four dental fricative sounds which are represented by three different positions: initial, middle, and final. Each sound in each position is represented by three target words, excluding the final sound [ð] which is represented by only two target words.

The percentage of the acceptability level of the production of the dental fricative sounds is acquired by dividing the total number of acceptability of each sound including the initial, middle, and final sound by the total target words which are tested on the twenty students as the subjects. In general, the subjects are unable to produce the dental fricative sounds acceptably. The level of acceptability of the students, pronunciation as judged by a native speaker of English is only 13.80% as shown in the table below.

<table>
<thead>
<tr>
<th>Sounds</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>f</td>
<td>82</td>
<td>45.56</td>
<td>52</td>
<td>28.89</td>
<td>40</td>
</tr>
<tr>
<td>v</td>
<td>9</td>
<td>5.00</td>
<td>105</td>
<td>58.33</td>
<td>64</td>
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</table>
The Acceptability of the Production of the Dental Fricative Sound [f]

The level of acceptability of the production of the dental fricative sound [f] as it occurs in nine target words is 45.56%. The highest acceptability is in the middle position with the target words *afraid*, *defend*, and *offer*. The average is 21.11%. Eighteen out of twenty subjects pronounce the sound [f] in the word *afraid* accurately. This is the only one out of nine target words which is pronounced accurately by most of the subjects and reaches the percentage 90%. Meanwhile, the sound [f] in the word *defend* is pronounced acceptably by 12 subjects, and there are only eight subjects who pronounce the word *offer* acceptably. The final position is the second highest place of the level of acceptability in the dental fricative sound [f] with an average of 12.78%. The target words in the final position were *leaf*, *enough*, and *roof*. The sound [f] in the target words *leaf* and *enough* is pronounced accurately by eight subjects and reaches the percentage of 40%. Seven subjects pronounce the sound [f] in the word *roof* acceptably.

The lowest acceptability level of the production of the dental fricative sound [f] is in the initial position. It only reaches 11.67% with the highest acceptability in the target word *flat* which is pronounced accurately by nine subjects. Eight subjects pronounce the sound [f] in the word *phone* accurately, while the word *photograph* gets a lower acceptability with only four subjects being able to pronounce it accurately.

Although the total percentage of the dental fricative consonants’ acceptability is a little below the average, it is considered as the highest percentage of dental fricative consonants’ acceptability. Furthermore, the percentage in the category of ‘mostly acceptable’ reaches 28.89%. This shows that the number of acceptability of this sound is high compared to the category of ‘not clear’ which reaches 22.22%, ‘mostly not acceptable’ and ‘not acceptable’ with a total percentage of 1.67% for each category. This indicates that the subjects do not have problems in pronouncing the sound [f] compared to the sounds [v], [θ], and [ð].

The Acceptability of the Production of the Dental Fricative Sound [v]

The acceptability level of the dental fricative sound [v] is 5%. It is the second dental fricative sound with a high level of acceptability after the sound [f]. The percentages of the sound [f] and [v] are greatly different. Although the percentage of the acceptability level is low, the percentage in the category of ‘mostly acceptable’ is high with a total percentage of 58.33%, while the percentage in the category of ‘not clear’ is 35.56%. Despite the high level of acceptability, there are three target words which are totally mispronounced by all subjects. These three words were *voice*, *cover*, and *leave*. However, this does not mean that these three words are pronounced not acceptably because the total number of subjects in the category of ‘not clear’ are thirteen subjects for the word *voice*, nine subjects for the word *cover*, and ten subjects for the word *leave*. 

<table>
<thead>
<tr>
<th>No.</th>
<th>%</th>
<th>No.: Number of occurrences</th>
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<tr>
<td>0</td>
<td>5</td>
<td>2.78 48 26.67 119 66.11 6 3.33 2 1.11</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>3</td>
<td>1.88 55 34.38 95 59.38 5 3.13 2 1.25</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>99</td>
<td>55.21 260 148.26 318 183.26 15 8.68 8 4.58</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>25</td>
<td>13.80 65 37.07 80 45.82 3.8 2.17 2 1.15</td>
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</table>
Nine words are pronounced acceptably in the sound [v]. Two subjects pronounced the words remove, love, and vacation accurately. The words visit, never, and clever were pronounced accurately by one subject. Since the number of the acceptable sounds in each position are almost the same, there was no significant difference of this sound in relation to the percentage of acceptability and the position of the sounds. However, the highest average in relation to the position of the sound is in the middle position with a total percentage of 25%.

In pronouncing the sound [v], most of the subjects produce the sound [f] instead of the sound [v]. Even some subjects pronounce the sound [v] by changing it into the sound [p]. For example, the subjects pronounced the word cover as /kpo(r)/ instead of /kuacr (r)/. Although no subject pronounced the target words voice, cover, and leave correctly, it does not represent that it is a total failure of the production of the dental fricative sound [v]. 27 students pronounce these words in the category of 'mostly acceptable', while 32 students pronounce these words in the category of 'not clear'.

The percentage of the category of 'mostly acceptable' is 58.33% with the highest number occurring in the middle position. In this category, most of the subjects pronounced the sound [v] as [f]. Thus, the informant chose the category of 'mostly acceptable'. While in the category of 'not clear' with a total percentage of 35.56%, most of the students pronounced the sound [v] unclearly which is changed by the eithersound [f] or the sound [p].

The students’ background knowledge of vocabulary is probably one of the factors that influence their production of the dental fricative sound [v]. Also they consider the sound [v] the same as the sound [f] due to their lack of knowledge.

**The Acceptability of the Production of the Dental Fricative Sound [θ]**

The level of acceptability of the production of the dental fricative sound [θ] as it occurs in five target words is 2.78%. The highest level of the acceptability is in the middle position with the target words bathroom and healthy with a total percentage of 1.67%. Two subjects pronounce the sound [θ] in the word bathroom accurately. Only one subject pronounces the word healthy accurately. Meanwhile, all subjects fail to pronounce the sound [θ] in the word nothing accurately. However, the pronunciation of more than seven subjects of these words is assessed as ‘mostly acceptable’.

The initial position is in the second place of the level of acceptability of the dental fricative sound [θ] with a total percentage of 1.11%. The target words for the initial sound [θ] are thin, thank, and theatre. However, no subjects pronounce the word theatre accurately. Only four subjects pronounce it in the category of ‘mostly acceptable’, and 14 subjects pronounce it unclearly.

The lowest acceptability in the production of the dental fricative sound [θ] is in the final position. All of the subjects fail to pronounce the sound [θ] in the final position. The target words are earth, both, and health. Three subjects pronounce the word earth in the category of ‘mostly acceptable’, and four subjects pronounce the word both in the category of ‘mostly acceptable’, while 19 subjects pronounce the word health unclearly.

The similarity between the sound [θ] and the sound [t] might become the possible factor causing the subjects to mispronounce the sound [θ]. As the sound [θ] does not exist in Sundanese, their tongue is not really used to pronouncing the sound [θ].

The highest acceptability level of the production of the dental fricative sound [θ] is in the target word bathroom which is scored 10%. Although that word is familiar, the subjects seemed to have difficulties in pronouncing it accurately. Most of them pronounce /btrum/ instead of /bθrum/. Another target word of the sound [θ] in the middle position are
healthy and nothing. One subject pronounces the target word healthy accurately. Most of the subjects tend to pronounce the sound [θ] in the target word healthy by substituting the sound [θ] with the sound [t]. However, all of the subjects fail to pronounce the sound [θ] in the target word nothing even though the word is quite familiar. According to the native speaker of English who assessed the data, seven subjects pronounce the word nothing mostly acceptable, and the remaining subjects do not pronounce it clearly.

The second highest acceptability for the dental fricative sound [θ] is in the target words thin and thank which is scored 5% for each word. Both of them are the target words in the initial position. One subject pronounces the word thin accurately, while eight subjects pronounce it mostly acceptable and one subject pronounces it mostly not acceptably. The rest of the subjects pronounces the word thin not clearly. One subject also pronounces the word thank accurately, while six subjects pronounce it mostly acceptable, and twelve subjects pronounces the word thank mostly not acceptable.

For the word theatre, all of the subjects fail to pronounce it accurately. Four subjects pronounce it mostly acceptable, while fourteen subjects pronounce it unclearly. One subject respectively pronounces it mostly not acceptably and not acceptable. Most of the subjects changed the sound [θ] in each target word with the sound [t] due to the similarity of those sounds. They mostly pronounce tank /tank/ instead of thank /θŋk/.

The lowest acceptability is found in the sound [θ] for the target words in the final position earth, both, and health. None of the subjects pronounce these words accurately. However, three subjects pronounce the word earth mostly acceptably, and four subjects pronounce the word both mostly not acceptable. The percentage of the unclear production of sound [θ] in the final position is 27.78%.

The lowest percentage of the students’ production of the sound [θ] in the final position indicates that they have significant problems in pronouncing the sound [θ]. Most of the subjects change the sound [θ] with the sound [t] in the final position. For example, they pronounce the word both as /bəθ/ instead of /bəθ/. Furthermore, there are also subjects who choose to omit the final sound of the target words in final position. They omit the sound [θ] in the word health so they pronounce it as /hel/. This is one of the possible factors which shows the students’ production of the dental fricative sound [θ] 66.11% as not clear. The informant cannot understand the target words clearly due to the omission of the final sound.

The Acceptability of the Production of the Dental Fricative Sound [ð]

The dental fricative sound [ð] is considered as the most unfamiliar sound of all the four sounds for the subjects since it got the lowest acceptability level. The percentage of the acceptability level for this sound is 1.88%. The sound [ð] is only pronounced accurately by the subjects in only three out of eight target words that are tested.

The middle position of the sound [ð] gets the highest acceptability level with 1.25%. Only one subject pronounces each of the words there, brother, and whether accurately. Only one subject pronounces the word brother accurately, while seven subjects pronounce it mostly acceptable. The rest of the subjects pronounce the word unclearly. One subject also pronounced the word whether acceptably, while thirteen subjects pronounce it mostly acceptable and the remaining six subjects unclearly pronounced that word. Another target word of the sound [ð] in the middle position the word father. It has a sound similar to that in the word brother. However, none of the subjects pronounce the word father accurately. Seven subjects pronounce it mostly acceptably, while twelve subjects unclearly...
pronounced it and one subject pronounces that word mostly not acceptably.

The second highest acceptability of the sound [ð] is in the initial position. It only reaches 0.63%. There is only one subject who pronounces the word *there* accurately. Twelve subjects pronounces it mostly acceptable and the rest of the subjects pronounce that word unclearly. For the sound *that* and *though*, all of the subjects failed to pronounce these words accurately. No more than eight subjects pronounce the word *that* mostly acceptably, while the rest of the subjects pronounce it unclearly, and four subjects pronounce that word mostly not acceptable. Yet two subjects totally fail to pronounce it.

The highest percentage of these dental fricative sound [ð] is in the category of ‘not clear’ (59.38%). The rest is in the category of ‘mostly acceptable’ with a total percentage of 34.38%, and ‘mostly not acceptable’ with a percentage of 3.13%.

Based on the result, the sound [ð] is the most unacceptable dental fricative sound. This significantly shows that the subjects have great difficulties in pronouncing the sound [ð]. Most of the subjects pronounce the sound [ð] as [d] due to the similarity between the sound [ð] and [d].

Some subjects pronounce the word *brother* as /brðә(r)/ instead of /brðә(r)/. This problem occurs in almost each target word. They change the sound [ð] in the word *breathe* and *smooth* with the sound [d]. Thus, they pronounce these words as /brd/ instead of /brð/ and /smuð/ instead of /smuð/. The substitution of the sound [ð] with the sound [d] is probably the factor which causes the informant to include their dental fricative sound production in the category of ‘not clear’. The subjects’ background knowledge of vocabulary probably also contributes to the mispronunciation of the dental fricative sound [ð].

**CONCLUSION**

The results of this research show that the acceptability level of the production of the dental fricative consonants made by Sundanese students of Universitas Gadjah Mada as judged by a native speaker of English is low with a total percentage of 13.80%. This suggests that most of the students have significant difficulties in producing the dental fricative sounds under investigation. The highest result of this research is in the category of ‘not clear’ with a total percentage of 45.82%.

There maybe some factors that influence the students’ production of dental fricative sounds: phonology and vocabulary. The different consonants in English, Indonesian, and Sundanese can be considered as the phonological factor. The students have great difficulties in pronouncing the sounds [θ] and [ð] than in pronouncing the sounds [f] and [v] as these sounds do not exist in both Indonesian and Sundanese.

The students’ vocabulary knowledge also becomes a factor which affects the students’ production of the dental fricative sounds. Some students mispronounce some dental fricative sounds in unfamiliar target words such as *breathe, theatre,* and *smooth*. It seems that the students have not mastered these words, so they fail to pronounce these sounds accurately. When they do not really know the words and are in doubt about the pronunciation of these words, they tend to pronounce them as they do in their mother tongue. Therefore, they pronounce these particular words in the easy way, even though it is inaccurate.

In relation to the previous research which was done by Kencana (2011) about students’ production of palato-alveolar sounds, the result of this research is quite different. His research shows that the level of acceptability of the English Department students is very high, that is 85.5%. However, this research shows that the level of acceptability
of students’ production of the dental fricative sounds is very low, i.e., 13.80%. This is probably due to the background knowledge of the subjects who are not students of the English Department. Yet this research supports the previous research which is done by Yusuf (2012) showing that Sundanese pronounce the sentence I love you as I love?you? where ‘?’ indicates glottal stop. Because of this glottal stop, it is understandable that Sundanese change the fricative [v] to the voiceless stop [p] to become [a lp? ju?] since they have a similar manner of articulation.

**BIBLIOGRAPHY**


