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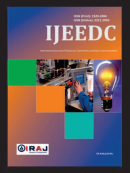

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- To use the research output of the conference in the class room for the benefits of the students.
- To encourage researchers to identify significant research issues in identified areas, in the field of Science, Engineering, Technology and Management.
- To help dissemination of their work through publications in a journal or in the form of conference proceedings or books.
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EDITORIAL

It is my proud privilege to welcome you all to the The IRES International Conference at Johannesburg, South Africa. I am happy to see the papers from all part of the world and some of the best paper published in this proceedings. This proceeding brings out the various Research papers from diverse areas of Science, Engineering, Technology and Management. This platform is intended to provide a platform for researchers, educators and professionals to present their discoveries and innovative practice and to explore future trends and applications in the field Science and Engineering. However, this conference will also provide a forum for dissemination of knowledge on both theoretical and applied research on the above said area with an ultimate aim to bridge the gap between these coherent disciplines of knowledge. Thus the forum accelerates the trend of development of technology for next generation. Our goal is to make the Conference proceedings useful and interesting to audiences involved in research in these areas, as well as to those involved in design, implementation and operation, to achieve the goal.

I once again give thanks to the Institute of Research and Journals, The IIER & The IRES for organizing this event in Johannesburg, South Africa. I am sure the contributions by the authors shall add value to the research community. I also thank all the International Advisory members and Reviewers for making this event a Successful one.

Editor-In-Chief

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THE USE OF PRAAT IN DIFFERENTIATING VOICED PHARYNGEAL FRICATIVE AND VOICELESS GLOTTAL PLOSIVE OF SURAH AL-FATIHAH BY SUNDANESE DAILY PRAYER

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Abstract - Arabic has two unique consonants, namely voiced pharyngeal fricative and voiceless glottal plosive. These consonants are spread in al-Quran, including in surah al-fatihah. This surah is frequently recited by al Muslim in the world, including Sundanese people. This research discusses the adaptation of those two consonants pronounced by Sundanese people. By using some theories related to vowels and consonants both in Arabic and Sundanese, the researcher revealed the shifting sound from Arabic to Sundanese. Facilitated by praat; doing phonetic by computer, the researcher compared and analyzed the different sounds in Arabic and Sundanese. The result shows that those Arabic consonants are shifted to be vowels in Sundanese. Besides they are hard to produce, the nearest way of Sundanese people in producing the sounds are by eliminating those consonants, just to pronounce the only the vowels of the sound. In conclusion, it needs more training for these two sounds to have a better sounds for their daily prayer.

Keywords - Sundanese, Arabic, Praat.

I. INTRODUCTION

The sound of language is the smallest element, first and foremost focus in language learning. Likewise with the grammar of all languages, each language requires the sound of language as a rule that must be mastered before stepping on the rules of other languages. Linguistic studies require phonology as the main basis of linguistic learning before moving on to morphology, syntax, semantics and interdisciplinary studies related to language and other sciences. The virtue of initial skills is language, which is in the form of language sounds.

As the children in Indonesia have native language, most of them, especially Muslims learn Arabic in which they learn both formal and informally institutions even they learn Arabic before they are going to school to learn lingua franca, Indonesia. In other words, it can be said that some Muslim children study linguistics, especially phonology long before they enter high school or even college.

Moreover, learning Arabic has become part of daily life since it is used for daily worship. It has become part of sharia, the belief that learning Arabic is the most important part of being a Muslim. In addition, they also know and believe that they will use Arabic intensively in their daily worship, so learning it is an integral part of Islam. Thus, it can be said also that some Muslims actually learn foreign languages earlier than learning other languages, even before they learn Indonesian in formal schools for some with regional languages. The difference in this language system will certainly influence each other, especially the influence of regional languages (Sundanese) on foreign languages (Arabic). Sundanese language consists of eight vowels (Djajasudarma, 2010: 3) by not having a long vowel system like in Arabic (Nasution, 2007: 37) of course it will affect the way of reading Arabic by speakers of regional languages, in this case Sundanese.

Some Muslims read and recite sounds of Arabic with high intensity, because besides being used in at least five times in daily prayer, they also have other activities in praying outside the five prayers time, dawah activities. Arabic has complex vowel sounds that different from Sundanese. Beside short and long vowels, Arabic has phonemes of voiced pharyngeal fricative and voiceless glottal plosive. The following are the examples of the minimal pairs of the different sounds of voiced pharyngeal fricative /ʕ/ and voiceless glottal plosive /ʔ/

No	Gloss	Transciption	Meaning	Gloss	Transciption	Meaning
1	عليم	/ʕʌli:m/	To know	أليم	/ʔʌli:m/	Suffer
2	وَعَدَ	/wʌʕʌdʌ/	Swear	وَأَدَ	/wʌʔʌdʌ/	To burry
3	تَعْلَمُوْنَ	/tʕʌlʌmu:/	Knowing	تَألَمُوْنَ	/tʔʌlʌmu:/	Suffered
4	جَزَعَ	/jʌzʌʕʌ/	Lottery	جَزَأَ	/jʌzʌʔʌ/	Merit

Table 1 example of voiced pharyngeal fricative /ʕ/ and voiceless glottal plosive /ʔ/

II. THEORIES

Basically the sound change research is an inseparable part of the variation of language in sociolinguistics studies. This is because the sound changes that occur are part of the sound variations that occur as a result of adjusting native sounds to the Arabic they produce. Therefore, researcher will use several theories regarding this sound shift. In addition, a more specific theory in the form of detailed phonological studies will be discussed as a major part of the theoretical basis studied in this writing. The International Phonetic Alphabet will also complement the foundations of thinking in order to answer the research questions proposed.

The International Phonetic Alphabet is used as a standard reference source of sound between Arabic, Sundanese and sound which may not come from both. Finally, the theory of Arabic and Sundanese vowels then will be the center of the theory in discussing the finding of the research.

Arabic vowels

Arabic has two functions, namely as a means of human communication and as a language of religion in terms of Islam. Arabic is the language of the Qur'an so Arabic is the official language used in 25 countries in the world. (Suherman, 2012: 27). Generally Arabic has six vowels, namely / a /, / a: /, / i /, / i: /, / u / and / u: /. As mentioned by Nasution, (2012: 37), namely: there are six vowels in Arabic, namely short fathah, short dhammah, short kashrah, long fathah, long dhammah, and long kashrah. The following is the position of Arabic vowels.

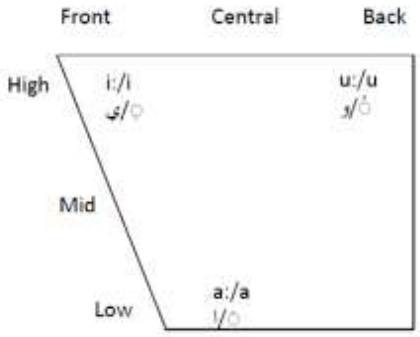

Figure (a) Arabic vowels

Sundanese vowels

Djajasudarma (2010: 3) explains in detail about the grammar of the Sundanese phonology. She explained that there were more number of phonemes than those of Indonesian. The phonemes of Sundanese are as many as eight, namely: /a/, /ɪ/, /ʊ/, /e/, /o/, /ə/, /ɛ:/ and nasalized vowel /ã/. There are three aspects that can affect the quality of vowel sounds, where they can be classified and named according to the position of the tongue and the shape of the mouth. First, the position of the tongue is based on its height and low consists of the upper vowels (/i/ and /u/), upper-lower ocal /ɛ:/, middle vowels /ə/, middle-bottom /ɛ:/ and /o/, and lower vowels /a/. While the tongue part in the front, center, back consists of the frontal vowel /i/, /e/, and /a/, the central schwa /ə/, and the back vowel /u/, /ɛ:/, and /o/. While bilabial depends on the flat lips so as to form a round /u/ and /o/, and not round /i/, /e/, /a/, /ə, and /ɛ:/.

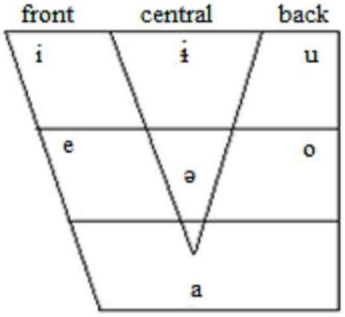

Figure (b) Sundanese vowels

III. METHODOLOGY

As believed that qualitative research methods are tools to explore and understand individual or group problems. Furthermore, this method focuses on the explanation and interpretation of the problem under study which is manifested in narrative form. Thus, the use of this method is very appropriate considering the data in the form of language sounds are presented, compiled and made patterns of sound changes in the form of narratives in detail.

The data in this study are sound changes from what should be read based on the sound in the International Phonetic Alphabet with sounds produced from natural sounds spoken in the daily reading of Surah Al-Fatihah. This surah is taken because it is the most frequent surah read in daily prayer, including Sundanese people. Thus this surah is a source of data of this research. The secondary data is the recording of Sundanese speakers who the surah. Thus, the steps taken in collecting the data are through the following.

a. The researcher took the Arabic and Sundanese native sounds
b. Then the researcher crop the selected sound having the intended sounds
c. The researcher transcribed the Arabic and Sundanese sound using IPA
d. The researcher analyze them using prat
e. The researcher analyze the sound based on its categories.

IV. DATA ANALYSIS

There are five recordings from surah al-fatihah that contain the sound of voiced pharyngeal fricative and

voiceless glottal plosive. These five sounds are devided into two categories. The first is from native Arab, taken from murotal reading Quran and the second is the recitation of Sundanese people who read al-fatihah. It is transcribed based on the standard sound of the International Phonetic Alphabet (IPA). From these five data, the researcher analyzed the voiced pharyngeal fricative and voiceless glottal plosiveof surah al-fatihah by comparing the native Arabic and Sundanese sound. After analyzing the sound change, the last is describing sound changes to the nearest sound that Sundanese have. The following is the first table of the analysis.

No	Gloss	Transcription	Meaning	Recording
1	عَلَيْهِمْ	/ʕʌlʌjhɪm/	on whom	[ʌlʌjhɪm]
2	ٱلْعَٰلَمِينَ	/ʕa:lʌmi:n/	Lord of universe	[ʔa:lʌmi:n]

Table 1 The initial position of voiced pharyngeal fricative

Data number 1 in table 1 is the sound /ʕ/ in/ʕʌlʌjhɪm/. The sounds /ʕ/ in Arabic is categorized into a consonant sound. It is called by voiced pharyngeal fricative. In this data, the sound /ʕ/ is followed by the short vowel /ʌ/,becomes /ʕʌ/. As Arabic is a consonantal language, this first sound actually consists of the consonant /ʕ/ andvowel /ʌ/. However, in the recording of the Sundanese people in the daily prayer the sound /ʕʌ/ is pronounced as vowel [ʌ]. It means that the Arabic voiced pharyngeal fricative sound is shifted by Sundanese people to be vowel sound. The sound shift from /ʕʌ/ to [ʌ] could be mainly because Sundanese people does not have consonant sound of voiced pharyngeal fricative /ʕ/. So the nearest sound Sundanese people can produce is directly to pronounce /ʌ/.

Data number 2 in table 1 is the sound /ʔa:/in/ʔa:lʌmi:n/. The sounds /ʕ/ in Arabic is categorized into a consonant sound. It is called by voiced pharyngeal fricative. In this data, the sound /ʕ/ is followed by the long vowel /a:/,becomes /ʕa:/. This first sound consists of the consonant /ʕ/ andlongvowel /a:/. However, in the recording of the Sundanese people in the daily prayer the sound /ʕa:/ is pronounced as long vowel [a:] without preceded by the voiced pharyngeal fricative consonant. In the recording of the Sundanese people in the daily prayer the sound /ʕa:/ is pronounced as vowel [a:]. It means that the Arabic voiced pharyngeal fricative sound is shifted by Sundanese people to be only the vowel sound. It happens because Sundanese people does not have the consonant of voiced pharyngeal fricative.

Beside the initial position, the voiced pharyngeal fricative also occurs in the middle. In surah al-fatihah, the researcher found two data. The following is the table of the two data of voiced pharyngeal fricative.

No	Gloss	Transcription	Meaning	Recording
1	أَنْعَمْتَ	/ʔʌnʕʌmtʌ/	You have bestowed Your Grace	[ãnãmtʌ]
2	نَسْتَعِينُ	/nʌstaʕi:n/	we ask for help	/nʌstaɪ:n/

Table 2 The middle position of voiced pharyngeal fricative

Data number one in table 2 is the sound /ʕ/ in /ʔʌnʕʌmtʌ/. The sound /ʕ/ is categorized into voiced pharyngeal fricative. In this data, the sound /ʕ/ is followed by the vowel /ʌ/ becomes /ʕʌ/. This sound is pronounced independently as voiced pharyngeal fricative without any surrounding sounds, although it lies between the two nasal consonants, namely the preceding sound /n/ and the following sound /m/. Sundanese people does not have the kind of voiced pharyngeal fricative /ʕʌ/. In the recording, this sound is shifted to be nasal vowel [ã]. The nearest sound of voiced pharyngeal fricative for Sundanese people is nasal vowel. Another strong reason for Sundanese shifting the sound of /ʔʌ/ to be [ã] is the following nasal sound /m/. Data number two in table 2 is the sound /ʕ/ in /nʌstaʕi:n/. The sound /ʕ/ is categorized into voiced pharyngeal fricative. In this data, the sound /ʕ/ is followed by the long vowel /i:/ becomes /ʕi:/. This sound is pronounced independently as voiced pharyngeal fricative without any surrounding sounds, although the following sound /n/. Sundanese people does not have the kind of voiced pharyngeal fricative /ʕ/. In the recording, this sound is shifted to be nasal vowel [î:]. The nearest sound of voiced pharyngeal fricative followed by / î:/ is the vowel itself, namely [î:]. It means that the shifting of the voiced pharyngeal fricative consonant for Sundanese people is the following vowel in nasal. Another strong reason for Sundanese shifting the sound of /ʔʌ/ to be [ã] is the following nasal sound /n/. The next analysis will be the consonant of voiced pharyngeal fricative in the position of sukun. It means that the voiced pharyngeal fricative sound without vowels. In surah al-fatihah, the researcher found one data. The following is the table of the two data of voiced pharyngeal fricative.

No	Gloss	Transcription	Meaning	Recording
1	نَعْبُدُ	/nʌʔbʊdʊ/	we worship	/nʌʔbʊdʊ/

Table 3 The middle position of voiced pharyngeal fricative in sukun

Data number two in table 3 is the sound /ʕ/ in /nʌʔbʊdʊ/. As been mentioned that the sound /ʕ/ is categorized into voiced pharyngeal fricative. In this data, the sound /ʕ/ is in the position of sukun—there are no vowels following this sound. So in term of pronounce the sound is to be like retroflex. Since this sound is produced at the very back of the mouth, when this sound is in the position without vowels, so naturally it will be moved to be retroflex. Sundanese people does not have the kind of voiced pharyngeal fricative /ʕ/, even to be without vowels. So in the recording, this sound is shifted to be nasal. The nearest sound of voiced pharyngeal fricative without vowels is nasala. It means that the shifting of the voiced pharyngeal fricative consonant for Sundanese people is the nasal. Another strong reason for Sundanese shifting the sound of /ʔ / to be [ʻ] is the preceding nasal sound /n/.

The next analysis is the sound of voiceless glottal plosive. This sound is to be famous to be called by Hamza(ء). In Arabic, this sound is categorized into a consonant. In surah al-fatihah, the researcher found five data categorized into voiceless glottal plosive. The following is the table of voiceless glottal plosive taken from surah al-fatihah.

No	Gloss	Transcription	Meaning	Recording
1	اَلرَّحْمَٰنِ	/ʔʌrrʌhma:nɪ/	the Most Beneficent	/ʌrrʌhma:nɪ/
2	اَلرَّحِيمِ	/ʔʌrrʌħi:mɪ/	the Most Merciful	/ʌrrʌħi:mɪ/
3	اَهْدِنَا	/ʔɪhdɪna:/	Guide us	/ɪhdɪna:/
4	اَلَّذِينَ	/ʔʌllʌði:nʌ/	those on whom	/ʌllʌði:nʌ/
5	أَنْعَمْتَ	/ʔʌnʕʌmtʌ/	You have bestowed Your Grace	[ãnãmtʌ]

Table 3 the sound of voiceless glottal plosive

Data number one until number four in table 3 are the initial sounds /ʔ/ in /ʔʌrrʌhma:nɪ/, /ʔʌrrʌħi:mɪ/, /ʔɪhdɪna:/ and /ʔʌllʌði:nʌ/. As been mentioned that the sound /ʔ/ is categorized into voiceless glottal plosive. In this data, the sound /ʔ/ is pronounced by only the vowel—not preceded by the consonant of voiceless glottal plosive. Since Sundanese does not have the productive sound of voiceless glottal plosive, so the voiceless glottal plosive is shifted into only the vowels of the sound. It is different from the previous analysis, in data number 5 the voiceless glottal plosive is shifted into nasal vowel. The strong reason for Sundanese shifting the sound of /ʔ/ to be [ã] is the following nasal sound /n/. it is also the same with data number 2 in table 2. The sound of /ʔʌ/ to be [ã] is the following nasal sound /m/.

V. CONCLUSION

From the explanation above, it can be concluded that.

1. The Arabic voiced pharyngeal fricative consonant is shifted in Sundanese to be nasalized vowel; beside the reason of the nearest sound to Sundanese sound, the vowel nasalization happen also because of the surrounding of nasal consonants.
2. The Arabic voiceless glottal plosive consonant is shifted in Sundanese to be vowel. Besides, if the surrounding sound also nasal vowels, Sundanese people tend to pronounce it by nasalized vowels.

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