

# The Plosive Sound Change in Indonesian Final -k Syllabic Words: A Case Study of Indonesian Acehnese Readers

Septhia Irnanda<sup>1\*</sup>, Sabrina<sup>1</sup>, Zaiyana Putri<sup>1</sup>, Nurul Inayah<sup>2</sup>, Nyak Mutia Ismail<sup>1</sup>,

Marisa Yoestara<sup>1</sup>

<sup>1</sup> English Department of Education and Teacher Training Faculty Universitas Serambi Mekkah

<sup>2</sup> English Department of Education and Teacher Training Faculty Universitas Syiah Kuala

\*Corresponding author. Email: septhia.irnanda@serambimekkah.ac.id

# ABSTRACT

This study examines the sound shift from plosive /?/ to /k/ as a coda in final -k syllabic words, such as *duduk, anak, bisik*, and *pojok* in the Indonesian-Aceh dialect. The Indonesian dialect developed in Aceh province area has /?/ variant for most words with final-k spelt syllables. However, due to the increasing popularity of and contact with the Standard dialect via television, internet and travels, there is now a new variant of final plosive production for orthographically final -k syllabic words. The present study aimed to verify if this sound shift is occurring in the dialect by asking 25 Acehnese who spoke the Indonesian-Aceh dialect for daily basis to read an Indonesian text consisted of 39 final -k words with varied vowel letters preceding it, and varied degrees of word-frequency effect. The results show that the final -ik and final -ek syllables tend to be more prone to change to the Standard dialect. The position of the syllable also determines the rapidity of the shift, as /?/ positioned as the coda in the non-final syllable, like words *makna* anda *paksa*, changes faster to /k/ sound compared to those positioned in the final syllable. It can be summed up that the sound shift from coda /?/ to /k/ in the Indonesian-Aceh dialect context confirms the lexical diffusion theory, with the speed of the change determined by factors that include word frequency, the position of the syllable (whether at the beginning or the end), and the onset-nucleus combination of the syllable.

Keywords: Acehnese, Indonesian dialect, pronunciation, sound change, plosive

# 1. INTRODUCTION AND LITERATURE REVIEW

Indonesian or Bahasa Indonesia has numerous dialects spoken in many areas of the country. The standard dialect, or what is known as Bahasa Indonesia yang *Baik dan Benar* (The Proper and Accurate Indonesian Language) is a dialect used in the national news broadcasts and does not belong to any specific ethnic. This standard form is a language style people will normally use in formal situations.

The Standard Indonesian has certain morphological, lexical and phonological characteristics that distinguish it from the vernacular forms (Sukesti, 2015). At morphological level, words used in the Standard Indonesian have more complex affixation (Sukesti, 2015). Lexically, words used in literacy is preferred to the corresponding vernacular forms (Kurniawan, 2018; Sukesti, 2015). For example, the word *seperti* "like" is the standard counterpart for *kaya/kayak*; the word *sekali* "very" is used to replace the vernacular *banget* (Jakartan and Bandung dialects) or *kali* (North Sumatran and Acehnese dialects). At the phonological level, Standard Indonesian has no clear regulation (Adib, 2019). However, there is a large number of similarities between the Jakartan and the Standard dialect in terms of the phonetics (Kurniawan, 2018). Both dialects also similarly have higher status than that of the other Indonesian dialects due to their domination in mass media; one represents the formal use of the national language, the other represents the casual one.

Lately, as travels become easier and cheaper, the frequency of face-to-face contact between the Jakartan dialect speakers and the non-Jakarta dialect speakers is increasing. According to the author's observation as one who was born and raised in the Aceh area, the Indonesian dialect speaking in this region is shifting. These days, the younger generation's speech is now heard more like the Jakartan dialect as they use more /k/ sound for the final - k syllabic words, such as *duduk, cantik, anak* and *hak*.

Many factors determine why one changes their language style, for instance from a vernacular to a more standard one; or vice versa. Holmes (2008, pp. 236–246) proposed two main factors; the addressee and the context. In the first one, the interlocutor's characteristics and their relationship with the speaker is the reason why one changes their language style. For example, a mother who accommodates her baby's language by simplifying hers. The latter factor is the formality of the context or the setting of when and where the speaker is to speak. A president will speak the standard language when he is to give a formal speech in a flag ceremony and will speak a vernacular language with his mother and aunt in a family gathering.

Based on the standard rules of Indonesian grammar and spelling, every letter [k] at the end of a syllable should be pronounced as a glottal plosive sound /?/ (Alwi, Dardjowidjojo, Lapoliwa, & Moeliono, 2010; Li, Baryadi, & Wijana, 2019). However, as the first Roman Alphabet of Malay language was transcribed by a Dutch linguist, Von Ophuysen, who were assisted by two West Sumateran Malay native speakers (Rahmayati, Rahmi; Rengganis, 2016), the mapping process was influenced by the Sumateran Malay dialect. The glottal /?/ coda was firstly represented by an apostrophe, although the sound realisation was still varied across dialects. Post Indonesia Independence, the spelling was reformed, which caused the apostrophe to be replaced by letter [k]. Decades after, television and radio mass media which was centralised in Jakarta areas started to introduce a more specific accent of the Standard Indonesian to the whole nation; the Jakartan accent, where a velar /k/ coda is the norm for most final -k syllabic words instead of the glottal one. An analysis of the final-k syllabic words used by Indonesian news broadcasters conducted by Irnanda (2020) reported the lessening use of the glottal plosive sound, and the increasing use of the velar voiceless /k/ for most final -k syllabic words, except for several high-frequency words, such as tidak and bapak (Irnanda, 2020). The decreasing use of local languages and the shift to the official language (Cohn & Abtahian, 2017) is what causes the dialectal shifts around Indonesia regions.

In looking at the sound change particularly, after the users (speakers and interlocutors), one can also use words or lexicon as the parameter of change. Thus, language change can spread not only across the people but also across the lexicon (Holmes, 2008). The analogical

generalisation of the lexical phonological rules is called lexical diffusion (Kiparsky, 2003, p. 314). In the lexical diffusion theory, sound change occurs on a particular word which spreads rapidly or gradually to other words in that language (Bybee, 2002). Sometimes, the spread occurs to other words at the relatively same rate, but in some cases, some words change first, and the rest follows many years or generations later (Bybee, 2002, pp. 261). High-frequency words are reported to be affected earlier than the low frequency ones (Dinkin, 2008; Kiparsky, 2016; Schleef, 2013), although some other theorists believe word frequency does not play any role in some cases (Phillips, 2006). The present study aimed to examine if the plosive glottal change occurring in the context of the Indonesian-Aceh dialect follows the lexical diffusion theory. If it does, the present study is to explore factors that influence the rapidity of change across the lexica.

# 2. METHOD

This is a descriptive quantitative study that has the research questions answered through a statistical analysis applied to the primary data. The primary data was withdrawn from an elicitation reading test. There are two secondary data used to support the analysis. The first one was the information of the word frequency ranks taken from the LLC corpus (Leipzig Corpora Collection, 2013). The second one was the data of the phonological differences between the Jakartan and Standard Indonesian dialect and the dialect spoken around the Aceh area that was formulated by one of the authors, as the native speaker of the Aceh-Indonesian dialect. To verify the forms of the Indonesian Standard's phonological characteristics, two Indonesians who lived in Jakarta and spoke the Jakartan dialect – the dialect phonologically closest to the standard one used in the news broadcast (Kurniawan, 2018) - were asked to elicit each word used in the text.

# 2.1 Participants

There was a total of 25 participants in the present study aged 20-40 years old at the time the data was collected. All participants were female, born from Acehnese parents, grew up and work or study in the Aceh province area. All participants spoke both Acehnese and Indonesian on the daily basis, depending on whom they talk to. Acehnese was mostly used among family members in the home context, while Indonesian was used at work or college or with the people who did not speak Acehnese (e.g., friends from different provinces). Moreover, all of the participants read and wrote in Indonesian, and spent a varied amount of time watching videos on the internet and television. None of the participants was recorded to have articulation or verbal issues.



#### 2.2 Instruments

The data was collected through a reading-aloud test. This test elicited the participants' pronunciation of 39 selected Indonesian final-k syllabic words. The words were selected from *Kamus Besar Bahasa Indonesia* or The Great Dictionary of Indonesian and were arranged into a set of meaningful paragraphs. The final-k syllable was located (1) at the beginning of the word; thus, the k letter was positioned in the middle of the two-syllabic words, such as *makna* and *paksa*; and (2) at the end of the word, such as *lirik* and *pojok*. The final k syllabic words were also varied in the aspect of vowel type that precedes it, or the nucleus of the syllable. There are five vowel letters in Indonesian alphabets; thus, there were five categories of words; final -uk, final -ak, final -ek, final -ik and final -ok.

### 2.3 Procedure

Due to the Covid-19, the data for the present study was collected through WhatsApp voice message. The participant would receive two documents that were sent to them; a one-page form to be filled with their name, date of birth, educational background, parent ethnics and language, occupation, and other linguistic information. The other document is a text entitled 'Kakek Banta' for the participant to read. They were asked to read the text and self-record the reading whenever they were ready. The participant was suggested to use the WhatsApp voice text to record their reading, but if they have different recording application, they were allowed to use it.

#### 2.4 Data Analysis

After the recording was gained from every participant, it was checked for its completeness. The participant was supposed to read the whole text with a clear voice. After the checking process, the audio was played at a slower speed and the audio was checked for the plosive sound type produced for the target k letter in every word. Then one out of the three boxes provided in the scoring sheet was ticked. The first box was for /k/ sound, the second one for /?/ sound, and the last one was for other sounds or none.

#### **3. RESULTS**

Based on the Aceh and Standard dialectal comparison result, it was found that eight final -k syllabic words have the same plosive sound in both dialects. They were *jijik*, *bapak* (along with its family words, *bapak-bapak* and *pak*), *kakek*, *tidak*, *kok*, and *rokok*. This result was confirmed by the results of the elicitation reading test for the related words which demonstrated a ceiling effect. Those words were dominantly pronounced with /?/ sound by the participants. The words thus were eliminated from the analysis, making the total of words analysed only 31.

Out of these 31 words, the data suggests no significant relationship between the production and the word frequency level. However, as the words were grouped based on the vowel letter preceding the target sound, the data show an interesting trend. Figure 1 depicts the percentage of the plosive sound production, the velar /k/, starting from the preceding vowel letter [u], [a], [i], [e], and [o], respectively. The -ak syllabic words tend to be pronounced with a glottal plosive, while -ik with velar plosive, while the rest categories, -ek, -ok, and -ak, shows a half-half result. The result for the words with the final uk syllables, shows that the words duduk and batuk do not only have relatively higher frequency ranks, 8 and 11, but also have a higher /k/ percentage production than that of bungkuk, cucuk and garuk, which were only pronounced as /k/ sound by half of the participants. Meanwhile, the word bungkuk, which relatively has a low wordfrequency rank shows a significantly higher percentage production for the velar sound /k/, or by 68% of the total participants.



Figure 1 The Sound Change Vs the Word Frequency Rank

From Figure 1, it can also be seen that most of the final -ak syllables are less likely to be pronounced with the velar /k/ sound. In other words, most of these words' pronunciation is still retained using glottal /?/. The only exception is for final -k syllables positioned at the beginning of the words, e.g., *makna* and *paksa*, in which the final sounds were pronounced as /k/ sound by almost all participants. Whilst, two words, *infak* and *galak* show half-half results.

Meanwhile, all the 5 final -ik words tested were pronounced as /k/ sound by more than 60% of the participants. The words *lirik* and *bisik* have relatively high /k/ production, although their levels of frequency are lower than those of the words *baik* and *balik*. Similarly, final -ek words also have a higher tendency to be pronounced using the velar /k/ sound, which is consistent with their relatively high frequency ranks. The words *robek*, *becek* and *sobek* are all pronounced as velar /k/ by respectively 56%, 68% and 68% of the participants.

For the last category, the final -ok rime, the words *pojok* and *patok*, have relatively equal results for both sounds, which is consistent with their levels of the word frequency. However, the word *sogok* is realised by most participants using glottal /?/ sound despite the relatively the same level of word frequency with the other two words, *pojok* and *patok*. The word *sogok* is only pronounced as velar /k/ by 8% of the participants.

# 4. DISCUSSION

From the findings above, first of all, it can be inferred that Acehnese Indonesian speakers do not read Indonesian texts in their dialectal style; instead, they put on an effort to perform the reading in the Standard Indonesian although the dialectical influence is unavoidable. This is in line with what was stated by Adda-Decker & Lamel (1999) about dialectical influence as one of the factors that shapes pronunciation variants. However, as consonants are more resistant to change (Dinkin, 2008; Holmes, 2008; Kiparsky, 2016), vowel shift is found to be more common in reading aloud. Readers consistently change the vowel /o/ or /ɔ/ to /u/, for instance, by reading words duduk and ketuk as /dudu?ketu?/ instead of their Aceh dialectical forms, /dudo?/ and /keto?/.

Meanwhile, the style in pronouncing the consonants, in this case final plosive /k/ consonant, still displays variations. Some people use all /?/ sounds for every finalk word as how they are allowed in their regional dialect. Some use all /k/ as the Standard Indonesian dialect, and some others both alternately. Across this inconsistency, some words have a higher tendency to be realised as one form than the other. This regularity across lexemes in terms of the /?/ and /k/ sound productions indicates support for the lexical diffusion theory (Blevins, 2015; Bybee, 2002; Phillips, 2006). The results from the present study show that Indonesian Aceh-dialect is undergoing a sound change in terms of the final -k syllabic words, and the change is diffusing into other lexicons with the same orthographic constructions.

Based on the preceding vowel letter, the change occurs more speedily in -ik ending syllables such as *bisik* and *ketik*, followed by the -ek ending syllabic words, such as *robek* and *becek*. It is unknown why this -ik and -ek construction are more prone to change compared to other -k forms with a different preceding vowel. However, the word frequency effect as described by Dinkin (2008); Kiparsky (2016) and Schleef (2013) does not apply here, as the words *baik* and *balik*, do not change that rapidly despite their high frequency.

Furthermore, the -ak rime form is the category that changes least rapidly. All words with -ak ending tested in the present study are mostly still pronounced as how they are realised in the regional dialect. Interestingly, this category seems to follow Phillips' (2006) theory of lexical diffusion, in which the sound change across the lexicons is not determined by the level of the word frequency. As shown in Figure 1, all -ak words from the lowest frequency like *mendongak* to the highest one like *hak*, are retained as how they are normally realised in the Indonesian-Aceh casual spoken dialect.

Referring to the usage-based theory of lexical diffusion (Bybee, 2002), the change of glottal plosive coda to velar /k/ sound in Indonesian-Aceh dialect is not simply determined by the word frequency factor. The phonological environment, in this case, the preceding vowel, is also a pivotal factor that determines the diffusion of change. Coda /?/ that comes after /i/ sound is more likely to change first compared to comes after /a/ sound.

Whilst for other types like -ok and -uk, the diffusion pace seems to be even more complicated. Other than the vowel sound preceding it, the 2 > k shift also occurs only for the syllable with a certain type of onset. In other words, the consonant onset that preceded the nucleus seems to influence the rapidity of the change. To illustrate, *pojok* and *patok* are more prone to change than sogok. The latter one has a plosive consonant /g/ preceded the /o/ sound; thus, making the syllable sounds more like the other phonologically similar syllables with /o?/ ending; namely rokok and kok. A surprisingly similar pattern is also found in an -uk ending lexicon, bungkuk or pronounced as /bungko?/ in Aceh region dialect. This word has relatively the same level of word frequency as ketuk, but it significantly demonstrated different results. It can be assumed that final -uk and -ok words tend to change to the standard dialect if the word frequency rank is high, except the -uk/-ok sound combination is preceded by plosive /g/ or /k/.

Moreover, according to the findings from the present study, some lexicons with the final plosive /k/ syllable located at the beginning of the words undergo the sound change more abruptly than the same counterparts that are positioned at the end of the word. The examples of the words are makna and paksa which change faster than the words like tergeletak or anak. However, a phonologically similar word, rakyat /rak.jat/ changes at a slower pace. Two possible factors cause this irregularity; (1) the phonological environment of which the /?/ sound is followed by a liquid  $\frac{j}{, (2)}$  the context, such as the word rakyat is high in frequency but only within a special context. Bybee (2002), opposing the Neogrammarian theory of sound change, stated that there is a possibility of a non-phonetic factor, in lexical sound change, such as the context of which the certain words containing the relevant sound is commonly used. Alternatively, the word rakyat is simply an -ak syllabic word whose sound is retained, as most of the other -ak syllables are, regardless of its positions within a word.

# 5. CONCLUSION

The present study confirms that the final -k syllabic words are undergoing a sound change in the Indonesian-Aceh dialect toward the standard form of the language which is spoken at the capital of the country. Coda /?/ in the final -k syllabic words are now shifting to velar /k/ sound. The change is found to spread from one lexicon to another, which supports the lexical diffusion theory. However, some factors have to be considered first. Firstly, the vowel sound that comes before the coda is the most important factor that determines the spread of the change across lexica. Rimes -ik and -ek change more abruptly than rimes -ak. Whilst, rime -ok and -uk show a medium pace of shift. Also, within the -ok category, it is found that the onset of the syllable might also influential. This means that when the -ok is preceded by a velar /g/ or /k/, the shift is more likely to occur. Yet, to confirm this, more lexemes in this -ok category needs to be tested in future studies. The last determinative factor is the position of the syllable. In -ak category, the glottal /?/ coda in the non-final syllable shifts to velar /k/ more rapidly, than those of positioned as the last syllabic codas.

Overall, the spread of the glottal /?/ to velar /k/ sound in Indonesian Aceh dialect occurs when the syllable position, nucleus and onset are considered, one or all at the same time. Thus, this study confirms the usage-based prediction that lexical diffusion is affected by word frequency effect, although not absolutely.

Nevertheless, the change phenomena recorded in the present study is limited due to the data was withdrawn only from the reading passage test, with an imbalance number of words included in each category. It is suggested that further studies will look at the change using the data from a more casual context, with a larger corpus and a larger number of participants.

#### REFERENCES

- Adda-Decker, M., & Lamel, L. (1999). Pronunciation variants across system configuration, language and speaking style. *Speech Communication*, 29(2), 83–98. https://doi.org/10.1016/S0167-6393(99)00032-1
- Adib, H. (2019). *Logat standar Bahasa Indonesia*. Berita Tagar. Retrieved from https://beritagar.id/artikel/tabik/logat-standarbahasa-indonesia
- Alwi, H., Dardjowidjojo, S., Lapoliwa, H., & Moeliono,A. (2010). *Tata bahasa baku Bahasa Indonesia* (Third). Jakarta: Balai Pustaka.
- Blevins, J. (2015). Evolutionary phonology: A holistic approach to sound change typology. *Handbook of Historical Phonology*, 485–500.
- Bybee, J. (2002). Word frequency and context of use in the lexical diffusion of phonetically conditioned sound change. *Language Variation and Change*, *14*(3), 261–290. https://doi.org/10.1017/S0954394502143018
- Cohn, A. C., & Abtahian, M. R. (2017). International seminar on sociolinguistics and dialectology: "Changes and development of language in social life" 2017 Plenary Speakers. *International Seminar* on Sociolinguistics and Dialectology: "Changes and Development of Language in Social Life" 2017 (pp. 1-17).
- Dinkin, A. J. (2008). The real effect of word frequency on phonetic variation: The real effect of word frequency on phonetic variation. University of Pennsylvania Working Papers in Linguistics, 14(1), 97–106.
- Holmes, J. (2008). *An introduction to sociolinguistics*. Essex England: Pearson Education Limited.
- Irnanda, S. (2020). The change of Indonesian Final -k syllabic words pronunciation in television news broadcasting. Unpublished.
- Kiparsky, P. (2003). The phonological basis of sound change. In B. D. Joseph & R. D. Janda (Eds.), *The nandbook of historical linguistics* (1st ed.) (pp. 313–342). Cornwall: Blackwell.
- Kiparsky, P. (2016). Labov, sound change, and phonological theory. *Journal of Sociolinguistics*, 20(4), 464–488. https://doi.org/10.1111/josl.12196
- Kurniawan, F. O. (2018). *Phonological variation in Jakarta Indonesian: An Emerging variety of Indonesian*. Cornell University.
- Leipzig Corpora Collection. (2013). Indonesian mixed corpus based on material from 2013. Retrieved

from https://corpora.unileipzig.de?corpusId=ind\_mixed\_2013.

- Li, H., Baryadi, I. P., & Wijana, I. D. P. (2019). Sound Pattern of Indonesian Plosives. *Linguistik Indonesia*, 37(1), 1–12. https://doi.org/10.26499/li.v37i1.84
- Phillips, B. (2006). Word Frequency and lexical diffusion. New York: Palgrave Mcmillan.
- Rahmayati, Rahmi; Rengganis, R. (2016). Strategi masjid dalam pemberdayaan ekonomi umat. *Jurnal Lentera*, 14(2), 279–290.
- Schleef, E. (2013). Glottal replacement of /t/ in two British capitals: Effects of word frequency and morphological compositionality. *Language Variation and Change*, 25(2), 201–223. https://doi.org/10.1017/S0954394513000094
- Sukesti, R. (2015). Pendekatan Linguistik sinkronis dan diakronis pada beberapa dialek Melayu: Pemikiran kritis atas sejarah Bahasa Melayu. *Jurnal Pendidikan Bahasa Dan Sastra*, *15*(1), 46. https://doi.org/10.17509/bs\_jpbsp.v15i1.798