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Title: The acquisition of English vowels by Javanese and Sundanese native speakers

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Summary

Second language (L2) learners often face difficulties while learning L2 sounds. Evidence suggests that difficulties in learning L2 sounds are affected by the first language. The interference by the first language could have a substantial impact on the production and perception of sounds for L2 learners. Many studies in L2 production and perception have performed cross-linguistic comparisons between English as a second language and western European languages such as Spanish, German, Dutch, Swedish, Danish, and Italian. So far, few studies have investigated Austronesian languages, such as Javanese and Sundanese—two widely spoken languages in Indonesia. Given that English has become a foreign language that is officially studied in schools in Indonesia, it is worth investigating whether Javanese and Sundanese learners of English show systematic problems in learning English, and if so, if the pattern of acquisition problems can be explained by interference by their native language (L1). Therefore, the current study investigates the native vowels of Javanese and Sundanese as well as the perception and production of English vowels by Javanese and Sundanese speakers.

Chapter 2 presents a description of these languages' sounds by examining the vowel quality and vowel duration of Javanese and Sundanese as produced by native speakers. Four native speakers of Javanese produced six Javanese vowels and four Sundanese native speakers produced seven Sundanese vowels. This chapter showed that Javanese speakers produced schwa considerably higher than that of the Sundanese speakers. For the Javanese speakers, schwa is produced higher than /e/ and /o/. For the Sundanese speakers, /i/ is produced in closed central position, only for the male speakers. The formant frequencies of the Javanese and Sundanese vowels agree with the description of the vowel system by Wedhawati et al. (2006), Van Zanten and Van Heuven (1984), Crothers (1978), and Kurniawan (2013). The chapter also showed that durations of Javanese and Sundanese are phonetically short (between 60 and 100 ms) for all vowels.

Chapter 3 sets out to investigate the perception of ten English vowels among the L2 learners. This chapter examines (1) whether the sound category (new vs similar vowels) affects the L2 sound perception based on L2 learning models and (2) whether the phonetic distance between target and distractor sounds influences the L2 sound perception. Thirty Javanese, thirty Sundanese, and twenty English native

speakers participated in a mouse-tracking experiment. Participants were required to identify English vowels corresponding to an auditory token by clicking on one of two word strings presented on a computer screen. This chapter showed that phonetic distance between target and distractor plays a more important role in the sound perception of the Javanese and Sundanese listeners than the sound category of the target itself. The findings partially support the L2LP model indicating that new vowels are more problematic to be perceived by the L2 learners than similar vowels.

In **Chapter 4**, the current thesis investigated how the Javanese and Sundanese speakers produce ten English vowels. This chapter examines the formant frequencies and the duration of English vowels produced by the L2 learners. Forty Javanese and Sundanese speakers and ten native English speakers participated in the experiment. Speech Learning Model (SLM) predicts that highly advanced Javanese and Sundanese speakers of English should have trouble producing vowels that are similar, such as /i:/ and /u:/, but should no longer exhibit native-language interference with new L2 vowels, such as /ɪ, ε, ʊ, æ:, ɑ:, ɔ:, ʌ, ɜ:/ . In contrast, the Second Language Linguistic Perception (L2LP) model predicts that the production of new L2 vowels is more difficult than of similar L2 vowels - as long as the L2 acquisition process has not been completed. This chapter shows that the Javanese and Sundanese speakers have more difficulty with the new than with the similar vowels in English, indicating that the L2 acquisition process has not been completed. In addition, the Javanese and Sundanese speakers poorly contrasted the members of English tense-lax vowel pairs using spectral parameters while the use of duration is relatively sufficient.

The results of the present thesis are not only theoretically relevant but also have implications for teaching English as a second language among Javanese and Sundanese learners. First, the L2 speakers do not accurately perceive the *new* L2 vowels /ɑ:, ʌ, æ:, ε, ɪ, ʊ/ and the *similar* L2 vowels /i:, u:/ . Hence, it is recommended that teachers of English design vowel identification tasks to familiarize Sundanese and Javanese students with and improve their identification of the above-mentioned vowels. Second, as L2 speakers have difficulty contrasting intended vowels using spectral parameters, we suggest that Javanese and Sundanese learners of English should focus on increasing the F₁ for the vowels /ɑ:/, /ɪ/, /æ:/, and /i:/ . The training should emphasize producing these vowels with more openness and a frontal tongue position. Moreover, as the duration of Javanese and Sundanese speakers was shortened for both long and short English vowels, we

recommend that Javanese and Sundanese speakers receive phonetic training focusing on lengthening short and long vowels. These approaches are expected to improve the perception and production of English vowels among the Javanese and Sundanese speakers.

