

The Development of Lexical Tone Production in Thai Children, 18 months to 6 years: Relationships with Language Milestones?

Denis Burnham¹, Kimiko Tsukada², Caroline Jones³, Sorabud Rungrojsuwan⁴,
Niratasai Krachaikiat⁵, Sudaporn Luksaneeyanawin⁵

¹MARCS Auditory Laboratories, University of Western Sydney, Australia

²Department of Linguistics, Macquarie University, Australia

³School of Education, University of New South Wales, Australia

⁴School of Liberal Arts, Mae Fah Luang University, Thailand

⁵Centre for Research in Speech & Language Processing, Chulalongkorn University, Thailand

d.burnham@uws.edu.au, k.tsukada@uws.edu.au, sc.jones@unsw.edu.au,
sorabud@bangkokmail.com, nirat@ksc.th.com, Sudaporn.L@chula.ac.th

Abstract. *Research on tone languages is relatively scarce compared with that on non-tonal languages. Nowhere is this more apparent than in first language (L1) acquisition, especially the acquisition of lexical tone production. Here we present the first comprehensive lexical tone production data from 120 children (from 18 months to 6 years of age) and 12 adults learning Thai as their L1. Participants' pronunciations of each of 20 words (4 with each of the 3 level and 2 contour Thai tones) were recorded and analysed for fundamental frequency (F_0) at 13 points along the course of the production. Analyses of normalized F_0 over time suggest that tone plots become more differentiated over age. To investigate this more closely, tone spaces were computed via plots of F_0 offset against F_0 onset. Tone ellipses based on these were used to derive Tone Differentiation Scores. Analyses of these show linear improvement over age which was more pronounced for level-level than level-contour tones. Over and above this there were periods of significantly heightened tone differentiation. The possible interaction between tone differentiation and linguistic challenges, the vocabulary spurt and lexical restructuring at 27 months, and reading acquisition and language specific speech perception at 6 years, is discussed.*