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Thai Tonal Expression in Preschool Normal Children

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Abstract

Background and Purposes: Thai language is a tonal language which has five tones: low, mid, high, falling and rising. Previous studies have examined the development of Thai tone expression in a small sample size. The purpose of this study is to investigate tone expression in a group of 480 typically-developing boys and girls from different regions of Thailand in order to examine trends in the acquisition of tone expression including the possibility of developmental differences associated with gender and geographic area.

Method: Participants were 480 children from 2 years to 5 years 11 months of age, divided into four age groups (2-2;11, 3-3;11, 4-4;11 and 5-5;11). Tone expression was investigated with the use of a picture-naming task.

Results: The results demonstrate a non significant difference between genders and geographic area at p value > .05 and the tone expression of age level at 2-2.11 significantly related with age level at 4-4.11 and 5-5.11 and age level at 3-3.11 significantly related with age level at 5-5.11. This result found an increasing of percent of correctly tone expression with increasing chronological age.

Conclusion: There was no significant effect of gender and geographic area on tone expression accuracy. There was a significant difference in tone expression accuracy between 2-2.11 and 4-4.11 and 5-5.11 and 3-3.11 significant related with age level at 5-5.11.

Keywords: Thai, Tone, Tone Expression

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Introduction

A tonal language is a language in which pitch is used to distinguish lexical items. The tone must be spoken correctly for the intended meaning of a word to be understood. Tonal languages are found primarily in Asia, Africa, and South America. In Asia, Chinese, Vietnamese and Thai are tonal languages. Cantonese has six tones: high level, high rising, high-mid level, low level, low rising and low-mid level. Several studies have examined young children's expression of Cantonese tone. So and Dodd (1995) and Fong (2004) studied Cantonese tonal expression development. They found that the completion of the tonal acquisition process would occur at approximately the age of two. High tones were acquired prior to low tones.[1,2] Fong (2004) found that high-level and mid-level tones were first acquired by age group 2-2;11 and low-level tone was acquired by age group 3-3;11. All six tones were acquired by the age group 4-4;11. Low-rising tone was the latest to be acquired.[2] Mandarin has four lexical tones; level, rising, falling and dipping tones. Zhu (2002) reported on a longitudinal study of 4 children from 10-24 months in Beijing. The results of this study showed that the children produced all four tones accurately in various contexts in their spontaneous speech before the age of 2 years. Zhu and Dodd (2000) examined 129 Mandarin-speaking children age 1;6-4;6. They reported that the children in the youngest age group (age 1;6-2;0) had mastered the expression of tones in various linguistic contexts.[3] Li and Thompson found that level and falling tones were acquired before rising and dipping tones.[4]

In the Thai language, all syllables may be produced in one of five tones: low, mid, high, falling and rising. A set of five words can be minimally distinguished by tone. For example, the following Thai words are distinguished solely by tones: /k^{h} aa / ("roof"), /k^{h}àa/ ("glangal, a rhizome"), /k^{h}âa/ ("to kill"), /k^{h}áa/ ("to engage in trade"), and /k^{h} a/ ("leg"). Several studies have examined Thai tonal expression in typically-developing children. Tuaycharoen (1977) studied the process of tone expression development of a single Thai girl and concluded that the achievement of expression for all 5 tones occurred by approximately 23 months of age.[5] Onsuwan C, Duangmal and Panpraneet (2014) studied the expression of five lexical tones for 15 Thai girls age of 2-3;11, 4-5;11 and 6-7;11 who were born and grew up in the metropolitan Bangkok area. They found that the girls were able to produce and differentiate the five lexical tones by the age of 2-3 years, but they did not achieve mastery of these contrasts until 5-7 years of age. Among the five tones, mid and low tones seem to be mastered sooner than the others.[6] But to date, no study has examined the development of tone expression utilizing a large sample size of both male and female children. The purpose of this study is to investigate tone expression in a group of typically-developing boys and girls, aged 2 to 5 years and 11 months in order to examine trends in the acquisition of tone expression including the possibility of developmental differences associated with gender and geographic area.

Methods

Subjects

Subjects for this study were 480 Thai children from 2 years to 5 years 11 months of age. There were 4 groups; 2-2.11, 3-3.11, 4-4.11 and 5-5.11 and each group consisted of 30 children: boys 15 and girls 15. The subjects were selected by purposive sampling from preschools in 4 areas; central, north, northeast and south in 4 different ages.

The selection criteria were

- Speak Thai as their native language
- All subjects had normal hearing and speech and language development which were evaluated from conversations with an examiner by observing listening behavior and children's talking about themselves such as "What is your name?" and "How old are you?" The conversation was carried on in normal conversational loudness. If the examiner had to speak louder than usual in actual speech or repeat the same words many times, that child was excluded from this study.

Materials

A set consisted of natural speech tokens of the same root phoneme /k^h aa / was used in this study: /k^h aa / "roof", /k^hàa/ "glangal, a rhizome", /k^hâa/ "to kill", /k^háa/ "to engage in trade"and /k^h a/ "leg". All five picture and words were presented in color random order in A4 paper.

Procedure

The test was administered to each child individually. The examiner and the child sat opposite to each other in a comfortable, quiet and well-lighted room so that the child was not disturbed. Before starting the test, the examiner explained the test procedure and told the child to name all five pictures following the items in a record sheet. If the subject cannot name the pictures, he/she can repeat after the examiner.

Results recording

Subjects who responded correctly received 1 point per 1 trail. No points were given for incorrect naming.

Results

The result shows that there is a non significant difference between area at p value > .05 (table 1)

The result shows that there is a non- significant difference between genders at p value > .05 (table 2)

The result shows that there is a significant difference between ages at p value > .05 (table 3)

The result of Scheffe relative to tone expression between age levels presents that tone expres-

Table 1 Summary of T-test between tone expression and gender.

Sex	$\bar{x}$ (SD)	P value
Male	9.83 (0.556)	0.539
Female	9.86 (0.481)	

*significant at p < .05

Table 2 Summary of one - way ANOVA to tone expression between ages.

Age	$\bar{x}$ (SD)	P value
2-2.11	9.68(0.767)	0.000
3-3.11	9.78(0.553)	
4-4.11	9.93(0.322)	
5-5.11	9.98(0.183)	

*significant at p < .05

Table 3 Summary of Scheffe Relative to Tone Expression between age levels

Age (years)	2-2.11	3-3.11	4-4.11	5-5.11
2-2.11	-	0.508	0.004*	0.000*
3-3.11	-	-	0.199	0.026*
4-4.11	-	-	-	0.851
5-5.11	-	-	-	-

*The mean difference is significant at the .05 level

Table 4 Percentage of correctly tone expression scores of each age levels.

Age range (years)	Percent of correctly tone production
2-2.11	83.3
3-3.11	84.2
4-4.11	94.2
5-5.11	99.2

Table 5 Summary of one - way ANOVA to tone expression between area.

Province	$\overline{x}$ (SD)	P value
Khonkane	9.79 (0.607)	0.066
Lamphun	9.94(0.325)	
Bangkok	9.86(0.490)	
Phuket	9.78(0.597)	

*significant at p < .05

sion of age level at 2-2.11 significantly related with age level at 4-4.11 and 5-5.11 at p-value > .00 and age level at 3-3.11 significantly related with age level at 5-5.11 at p-value > .00. (table 4)

Percentage of correctly tone expression of 2-2.11, 3-3.11, 4-4.11 and 5-5.11 were 83.3, 84.2, 94.2, and 99.2 respectively. Children in 5-5.11 age-range had the highest percent while children in 2-2.11 age range had the lowest percent.

The result shows that there is a non- significant difference between area at p value > .05 (table 5)

Discussion

The present study found that there is a non significant difference of tone expression between genders. This result was concurrent with Klann-Delivs (1981)[7] and Fluharty (1974)[8]. Klann-Delivs studied evidence supporting gender differences in phonological, syntactic, semantic and pragmatic dimensions of language acquisition. He found that sex difference exists in language learning in semantic-pragmatic domain, not in all areas of language acquisition.[7] Therefore, speech production may not be difference between genders and tone production also may not be difference. Fluharty reported that children's language performances at early ages do not appear to be correlated with gender differences.[8] To CKS et al studied children's acquisition in initial consonants, final consonants, vowel/diphthongs and tone of Hong Kong Cantonese. They found that the main

effect of age was significant for all 4 measures and sex was significant for all measures except tone.[9]

The present study showed relationship between tone expression and age level. The tone expression of age level at 2-2.11 significantly related with age level at 4-4.11 and 5-5.11 and age level at 3-3.11 significantly related with age level at 5-5.11. These results were similar to Fluharty (1974). Fluharty reported speech and language ability of 203 children age 3;0 to 5;0 years that speech and many areas of language development increased along with age.[8] Wilainam (1996) found that older Thai children also significantly produced more verbs than younger ones.[10] The result of this study also shows that an increasing of percent of correctly tone expression with increasing chronological age. Percent of correctly tone expression of 2-2.11, 3-3.11, 4-4.11 and 5-5.11 were 83.3, 84.2, 94.2, and 99.2 respectively. Onsuwan C et al (2012) studied tone identification in 40 Thai children form two age groups: 5;0-7;11 and 8;0-10;11. They found that age difference played an important role in tonal perception of Thai children and the ability to accurately identify 5 lexical tones seems to develop with age.[11]

The result of relationship between area and tone expression is no significant difference. It could be that all children use Thai language in school even though they use dialect at home.

Recommendations

Further research should collect data on other age groups; lower than 2 years old and larger samples of subjects in different demographic areas in order to complete on tone acquisition and order of tone expression so that a comparison between populations would be more complete.

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