

## AN EXPERIMENTAL STUDY ON CHINESE TONE ACQUISITION ERRORS OF SRI LANKAN UNIVERSITY STUDENTS

T. K. A. P. Kumara\*<sup>1</sup>, N. G. D. Madhusanka

<sup>1</sup>*National Research Centre for Foreign Language Education, Beijing Foreign Studies University*

<sup>2</sup>*Department of Modern Languages, University of Kelaniya*

### Abstract

This study was carried out to investigate the errors in the Chinese tones of Sri Lankan undergraduate students, analyze the causes of the errors, and summarize the error rules through experimental method. Findings indicate that Sri Lankan students had a relatively short tone length for the fourth tone compared to native speakers. Moreover, their tonal range is relatively low and narrow, and their yang-ping tonal type is evident. From the aspect of tonal patterns, there is more confusion between the position of the Yangping and the upper tone in the pattern space of the Sri Lankan students, plus they pronounce the Yangping as the upper tone. Aiming at the above errors, this paper analyzes the causes of the errors in terms of the negative transfer effect of the Sinhala mother tongue, the complexity of Chinese tones, the difficulty of acquiring Chinese tones, and the learning environment incorrect countermeasures and methods.

**Keywords:** *Acoustic experiment, Chinese tones, Error analysis, Sri Lankan University students', Teaching strategies*

---

\*Corresponding author: Tel.: +94 (76) 6859 158; Email: [asela.ciuoc@gmail.com](mailto:asela.ciuoc@gmail.com)

## **Introduction**

The Chinese language is recognized as a tonal language. Tone has great significance in acquiring Chinese as a second language. In the teaching and study of Chinese tone, tone has always been the focus and difficulty of instruction. Even at the intermediate and advanced stage, the problem of intonation is still an important reason for the "foreign accent" of foreign students. For Chinese learners whose native language is toneless (such as English, Sinhala, etc.), tones are particularly difficult to acquire, and they often confuse the Chinese tones with the accent phenomenon in their native language or the native intonation. In view of this, in this paper, we use an experimental approach to investigate the deviation of Chinese tones in Sri Lankan university students to promote their improvement in Chinese language ability.

## **Material and Methods**

### *Samples and materials*

There are 24 undergraduate students; 6 males and 18 females who are majoring in the Chinese language in 3 state universities in Sri Lanka with elementary, intermediate, and advanced Chinese proficiency. Then another 6 native Chinese speakers; 3 males and 3 females with Putonghua level 1.

In this experiment, 5 groups of words for each tone of Yinping (阴平), Yangping (阳平), Shangsheng (上声), and Qusheng (去声) were selected as our experimental word list, and the more commonly used words were selected in the word list to ensure that the subjects could read them correctly.

### *Data analysis*

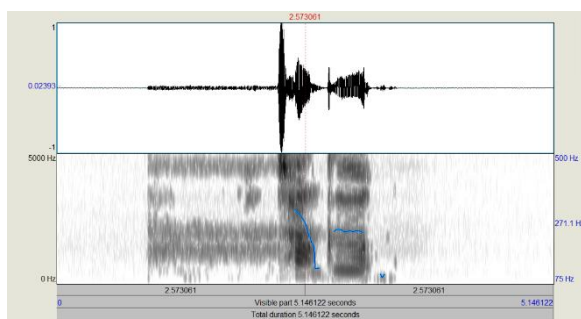
The voice analysis software "Praat" was used to extract and measure the pitch and duration of each syllable, and to make a pattern diagram of each subject's 4 tones. To facilitate the comparison with the fifth-degree value, we adopt Shi Feng's research method to convert the average frequency values of the starting point, midpoint, and ending point of the tone curve into a logarithmic scale and then normalize them according to the tonal range of the subjects. Gets the reference value for fifths. Specifically, Shi Feng's formula is used:  $T = (\lg x - \lg b) / (\lg a - \lg b) \times 5$ . Among them, a is the upper limit frequency of the modulation domain, b is the lower limit frequency of the modulation domain, and x is the frequency of the measurement point; the value obtained in this way, 0 ~ 1.0 is equivalent to 1 degree of the fifth, 1.0 ~ 2.0 is equivalent to 2 degrees, 2.0~3.0 is equivalent to 3 degrees, 3.0~4.0 is equivalent to 4 degrees, and 4.0 ~5.0 is equivalent to 5 degrees.

## Results and Discussion

First, mispronunciation of 1st tone between 4+1 tone combination was one of the most prevalent errors committed by Sri Lankan Chinese learners. And then several issues were discovered when pronouncing the 1st tone soon after pronouncing the 4th tone. Another issue, students have difficulty accurately pronouncing the 4th tone because the students gave more attention to appropriately pronouncing the 1st tone which was placed after the 4th tone. Finally, it was discovered that pronouncing the 4+1 tone combination as the 4+4 tone combination was a common error made by many students.

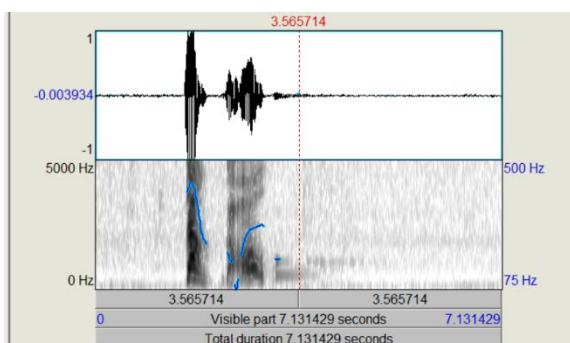
### Figure 1:

*Pitch contour of 4+1 tone combination (Native speaker)*



### Figure 2:

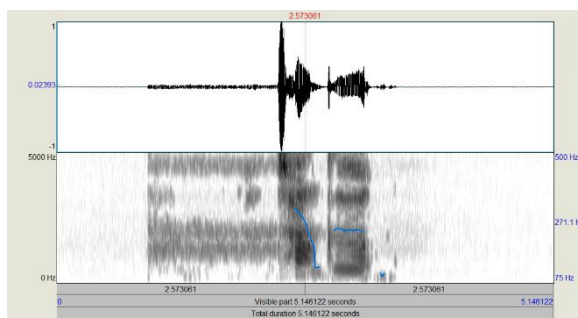
*Pitch contour of 4+1 tone combination (Local student)*



Regarding this study, as another issue, the first tone could not be pronounced correctly because it was placed after the 4th tone, which pronounces starting from the high pitch and ending in low pitch. So, the students unintentionally start to pronounce 1st tone in a low pitch.

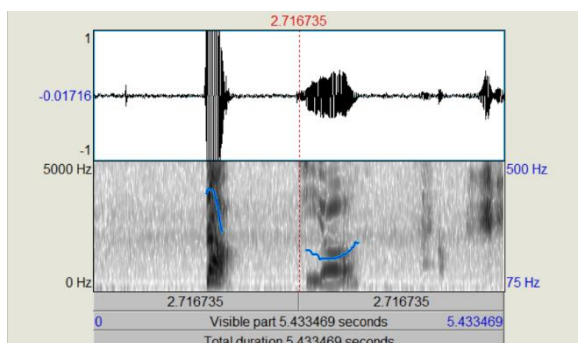
**Figure 3:**

*Pitch contour of 4+1 tone combination (Native speaker)*



**Figure 4:**

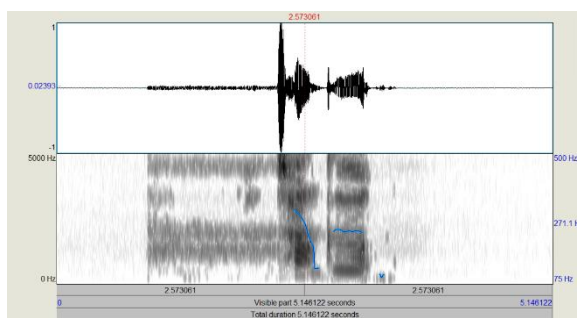
*Pitch contour of 4+1 tone combination (Local student)*



As previously mentioned, students tend to pay more attention to the first tone out of anxiety of being mispronounced. Because the first tone is one of the hardest tones to pronounce among Sri Lankan Chinese learners. So as a result, the fourth tone which is placed before the 1st tone is pronounced incorrectly. Here we can carry out it as one kind of anxiety in tone pronunciation. (Figure 5, Figure 6)

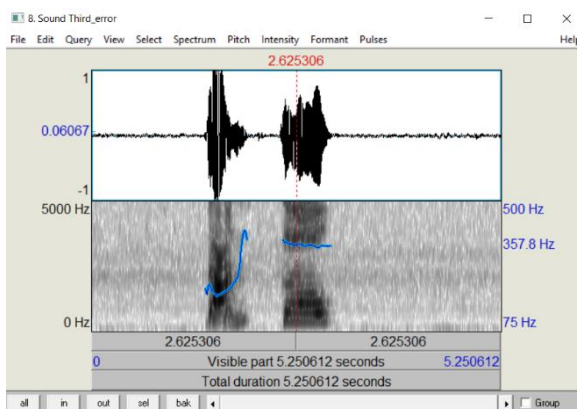
**Figure 5:**

*Pitch contour of 4+1 tone combination (Native speaker)*



**Figure 6:**

*Pitch contour of 4+1 tone combination (Local student)*



## Conclusion and Recommendations

By comparing the acoustic characteristics of Chinese tones between Chinese and Sri Lankan university students, we discovered that Sri Lankan university students had errors in tone length, tone range, and tone pattern when they acquired Chinese tones. The tonal deviation of Sri Lankan university students is mainly in the tonal domain. The most serious errors are in the first and fourth tones. The specific performance is that "the first tone is not high enough, and the fourth tone is too long." Based on the findings of a number of studies that have been done before, the researchers implemented some of the causes that led to the errors mentioned in this study. They are: the yin level does not rise, and the yang level loses tonal length. Errors in the acquired Chinese tones by students are mainly caused by various factors, such as their native tone habits and learning strategies. Analyzing the causes of Chinese tones in Sri Lankan university students can effectively help teachers teach tones and summarize

their rules for tone acquisition. Based on the acquisition laws of Chinese tones for Sri Lankan students, scientifically designed teaching strategies can be proposed to guide students to learn Chinese tones more effectively.

## References

- An Analysis of Errors in Second Language Acquisition[J]. 封杰. 海外英语. 2012
- Corder, S., & Richards, J. C. (1978). *Language Learner Language. Understanding Second and Foreign Language Learning: Issues and Approaches.*
- Fluent speech prosody: Framework and modeling [J] . Chiu-yu Tseng, Shao-huang Pin, Yehlin Lee, Hsin-min Wang, Yong-cheng Chen. *Speech Communication.* 2005
- On the phonological organisation of Mandarin tones [J] . I-Ping Wan. *Lingua* .2007
- Rhythmic grouping, tone Sandhi and stress in Beijing Mandarin. Wang, J. Macquarie University, Sydney, Australia . 2002
- 郭锦桴.汉语声调语调研究[M].北京:北京语言学院出版社,1992.
- 近三十年汉语作为二语的语音习得研究述评[J]. 周小兵,王功平. *汉语学习*. 2010(01)
- 浅析泰国留学生对外汉语教学中声调偏误的表现[J]. 李豪. *现代企业教育*. 2012(09)
- 声调教学新教案[J]. 喻江. *语言教学与研究*. 2007(01)
- 中国社会科学院.方言调查字表[M].北京 :商务印书馆,1981.