ERROR ANALYSIS OF TONE PATTERN OF CHINESE MONOSYLLABIC TONES PRODUCED BY PAKISTANI STUDENTS

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Abstract

Chinese is heavily tone based language. Importance of tone in Chinese can be realised by the fact that most of the semantic makeup of Chinese language is heavily dependent on tone variation. This means a Chinese syllable takes it's meaning with the help of the tone it is allotted. The tone in Chinese is just like the phoneme of English. Foreigners face considerable amount of difficulty while learning Chinese language tones. But, after a period of time and repeated practice, most people can acquire quite an agreeable pronunciation of the four tones: Yin Ping (1stTone), Yang Ping (2ndTone), Shang Sheng (3rdTone), Qu Sheng (4thTone). The focus of the present study is on the Mono tone of Chinese which is the static form of tone and the basis of dynamic change of tone. This study reports the errors committed by Pakistani students in the production of Chinese mono tone. The acoustic performance of mono-character tone is mainly reflected in the tonal pattern, tonal value and duration. The present research uses the experimental phonetics software system to analyse the tone types and tone values of Chinese single tones of Pakistani students, and also finds out the errors of Chinese tone made by them. Moreover, it puts forward the correct solutions for students and then provide help for the teaching of Chinese tones for Pakistani students.

Key words: Single Tone Pattern; Analysis; Tone Teaching; Urdu; Pakistan

1. Background

Today in the 21st century, with the emergence of China's international status in the world, the influence of Chinese language is increasing. In order to know more about China, many foreigners are opting for Chinese language as their second language. This provides language researchers with more topics for research. Therefore, the study of Chinese language as a second language should

keep pace with the time and provide a solid theoretical basis for its teaching. The quality of phonetic acquisition is even related to the success or failure of Chinese learning. Generally speaking, phonetic teaching is the foundation of the entire teaching of Chinese language process.

Chinese language has one important feature that distinguishes it from Indo-European and most of the other languages i.e. **Tone**. In the teaching of Chinese language phonetics, teaching of tone is particularly important. The reason why Chinese language sounds melodious and pleasant to the ears is because of the role of tone. So, why do foreigners often have a "foreign accent" while speaking Chinese language? Lin Xi (1996) said, "The key to the formation of foreign tones in foreign accents is not only in initials and finals, but also in tones". Lin Xi (1996) in the Chinese phonetic structure compared the significance of the sound, rhyme and tone, and according to his findings, most of the information is conveyed through the tones.

Zhao Yuan Ren (1980) found that as long as the intonation is correct, even if the tongue of a person while pronouncing “zh”, “ch”, “Sh” and “r” is not up or the lips not round, he or she may still sound fluent. It can be seen that the teaching of tone carries more importance as compared to the teaching of initials and finals in the stage of teaching the basic structure of Chinese language phonetics. According to Li Ru Long (1990) tone is the core part of Chinese language phonetics and it is difficult to master it. Speaking Chinese language with improper tone is like singing a song out of tune, and the cadence of Chinese language will appear unnatural and affect the expression.

Lu Jian Ji (1984) studied on the inter-language theory and teaching of Chinese language phonetic analysis and pointed out: "Students who have a non-tonal mother tongue face special difficulty while learning Chinese language tones". This determines that while teaching Chinese Language phonetics to native speakers of non-tonal languages great emphasis must be laid on intonation teaching. But in teaching practice of Chinese language, tones acquisition levels are not very desirable. As there is shortage of time and less demand from the students, most teachers tend to concentrate on the intonation practice only in the phonetic teaching phase. At further stages, more attention is paid to vocabulary and grammar teaching, and when a student advances to a senior stage the defects related to tone may be pointed out by the teacher but not stressed enough as other areas have to be concentrated on. Furthermore, as the student has already used to pronouncing a certain tone in a certain way, the teacher’s efforts in trying to correct the defect in speech falls short. Therefore, the current situation of tone teaching and acquisition needs to be improved.

In recent years, the Chinese learners come from different countries from all over the world. Some students have tones in their mother tongue (such as Thai, Vietnamese, etc.) while some students have no tones in their mother tongue. Students with different native language backgrounds learn Chinese language tones at different speed and with different errors. Therefore, the teaching of Chinese as a second language requires studying and analysing the tone acquisition of foreign students from different countries. At present, the Chinese language tone acquisition research mainly focuses on British, American, Japanese, and Korean students. Only a few scholars did research in Chinese language tone acquisition for Pakistani students. There are only 6 articles about Pakistan foreign students learning Chinese language tones. Among them, Ye Liang Ying (2010) described the scientific method of sound transfer of single and double words for middle-level Pakistani students in the experimental study on the acquisition of Chinese tones by Pakistani students. The author found that when students pronounce a single word sound, the tone pattern of rising and falling sound is basically correct, but the tone pattern of Yin and Yang is wrong. The pronunciation of single-word tone is better than that of double-word tone. New results of these biases have yet to be verified. Chen Chen (2010) studied the pronunciation of Pakistani students in the book “Analysis and

countermeasures of phonetic errors in learning Chinese by Pakistani students". He found the errors in the tones of foreign students and then analysed them in detail, and put forward new suggestions. Li Dong Wei (2011) studied the parts of speech software in Pakistan foreign students Chinese words errors and shown the tone value through the experiment, the domain of the objective data, and described the three aspects of Pakistan student's language mediation system. Li Dong Wei and Hu YaNan (2012) conducted experiments on the errors of inter-language immunomodulation of Pakistani overseas students in their book called Chinese immunomodulation phenomenon and solutions, and proposed relevant teaching countermeasures. Tang Zhi Fang and Qi Hui (2012) analysed foreign students' Chinese static tone acquisition errors and investigated Pakistani students' Chinese monolingual tone. They used questionnaire survey to study the specific pitch changes and errors of foreign students' tones and proposed strategies for tone teaching.

Tian Tong (2016) described and characterized the acoustic performance of Chinese single and double characters of Pakistani overseas students in detail by using a new analysis tool of NanKai university voice desktop software (Mini Speech Lab) in the experiment's preliminary exploration of the tone of single and double characters of Pakistani overseas students. This paper intends to make a systematic acoustic analysis of the characteristics of Chinese language monosyllabic tones by means of experimental phonetics in order to provide an objective basis for the study of Chinese language tone errors and teaching Chinese as a foreign language. Moreover, present study also plays a pivotal role in promoting the reform in tone teaching of Chinese as a second language.

2 Experimental Description

2.1 Pronunciation Materials

This experiment is designed on 32 common words and sounds, including Mandarin four tones: Yin Ping, Yang Ping, ShangSheng, QuSheng. Each tone has eight words; each Chinese character has Chinese pinyin Phonetics written beside.

YinPing	YangPing	ShangSheng	QuSheng
巴ba1	拔ba2	把ba3	罢ba4
逼bi1	鼻bi2	比bi3	闭bi4
扑pu1	葡pu2	普pu3	铺pu4
多duo1	夺duo2	躲duo3	舵duo4
低di1	迪di2	底di3	地di4
搭da1	达da2	打da3	大da4
督du1	读du2	赌du3	杜du4
歌ge1	革ge2	葛ge3	个ge4

2.2 Experimental Subjects

The experiment was conducted on Pakistani International students from Beijing language and culture university China, including 16 students (8 boys and 8 girls) from both 1st year and2nd year. In addition, there are 8 Beijing students (4 boys and 4 girls) as representatives of native speakers. Their pronunciation will be the basis of this study.

2.3 Experimental Recording Equipment and Methods

The experimental recording software is Cool Edit, sampling frequency is 22050Hz, mono channel, and 16 bit. Before recording, printed pronunciation of word list was shown to the person pronouncing the words. During recording, the respondent was asked to read the Chinese characters in the pronunciation word list. The first and the last word in each line were read for 4 times while the other words were read for3 times. The speaker was given a small gift at the end of the recording.

2.4 Analysis Software

The analysis software of Mini Speech Lab developed by NanKai University was used in this experiment. This software can easily make T values and can use Excel software to make statistics on these T values, and draw an intuitive pattern diagram.

2.5 Experimental Data Analysis Method

This experiment mainly adopts the method of comparative analysis. In order to avoid absolute data and to reduce errors, Mini Speech Lab software was used to calculate and extract 9 measurement points and T values so that the length and pitch were relatively uniform. Therefore, four tones could be put into the same coordinate for comparison. Where the T value represents the pitch and corresponds to the fifth value. The calculation principle is as follows (Shi Feng, 1986)[1]

$$T = \frac{\lg X - \lg \min}{\lg \max - \lg \min} \times 5$$

T = {[lgx – lg(min)]/[lg(max) – lg(min)]} x 5

This paper examines the data and charts of "A statistical analysis of the pronunciation of single words in Beijing dialect", and compares the pronunciation of Pakistani students with that of the natives from Beijing.

3. Analysis of Experimental Results

3.1 Overall Statistical Analysis

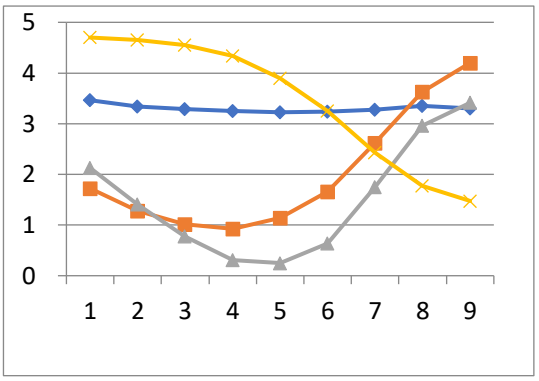
In this experiment32 X 16=512 speech samples were obtained from the 1stand 2ndyearstudents. We reconstituted these samples into 4 sound files according to the tone. The software automatically selected 9 measurement points for each tone and calculated the T value separately in order to get the T value of each measurement point of the 4 tones of 16 speakers. Thus, the total Tvalue is 16 X 4 X 9 = 576.

[1]Shi Feng: Phonetic pattern - The intersection of phonetics and phonology [M], Beijing: Commercial Press, 2008 edition, page 28.

3.2 Main Distribution of Speech Samples

In the tone pattern of Mandarin, each tone does not occupy a line, but a ribbon of acoustic space (Shi Feng, 1994). Therefore, if only the T-value average curve is described, the characteristics of the whole tone will not be reflected because the T-value average curve is only a main line or midline in the acoustic space. Thus, in this experiment, the main distribution map of 4 tons of the 1st and 2ndyear Pakistani students was drawn in the software (see figure 1, figure 2) and the distribution map was divided into sub-maps of 1st tone, 2nd tone, 3rd and 4thtone of the students in different grades according to the 1st and 2ndyear students and different tones.

Each tone consists of three curves. The two dotted lines above and below represent the mean value of T plus standard deviation, and the mean value of T minus standard deviation respectively. The solid line in the middle represents the mean value of T which is the main line of acoustic space.



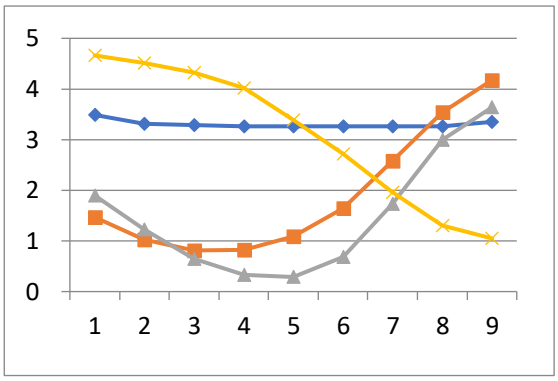


Figure 1 general map of the main distribution of four tones of Pakistani grade one students

Figure 2 general map of the main distribution of four tones of Pakistani grade two students

Note: For artistic purposes, only the T-value average curve of each tone is shown in the main distribution diagram of the four tones. In the sub graph of each tone, a complete banded acoustic space is shown, that is, two curves of mean plus or minus 1 standard deviation are added.

(1) Yin ping (1st tone)

The Yin ping of 1styear students is mainly distributed in the middle and upper part of the range which is basically a flat tone. The mean T value of the starting point is 3.46 that is the highest value. The lowest middle point, the fifth point, is 3.23, and the end point is 3.30. The starting standard deviation is 0.36, the sixth and seventh points have the smallest standard deviation of 0.29, and the largest deviation at the end point is 0.37. The pitch range is mainly in 4 degrees, and the maximum fluctuation is 0.23, so, the tuning value is basically 44 (see figure 3).

The Yin ping of the 2ndyear students is also distributed in the middle and upper part of the range which is basically a flat tone. The mean T value of the starting point is 3.49, which is the highest value. The fourth point in the middle had the lowest value of 3.26, and the endpoint was 3.35. The standard deviation of the starting point is 0.53, and of the second point is the smallest, 0.51, and the maximum end point is 0.56. In figure 4, it can be seen that the range of Yin ping pitch

of the 2nd year foreign students from Pakistan is mainly in the range of 4 degrees, and the maximum fluctuation is about 0.23 degrees, so, the tuning value basically represents 44.

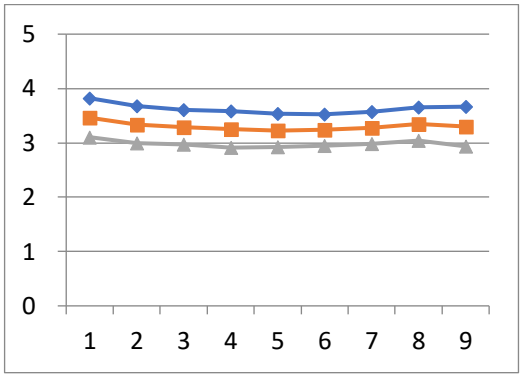


Figure 3. Distribution diagram of 1st year Pakistani students

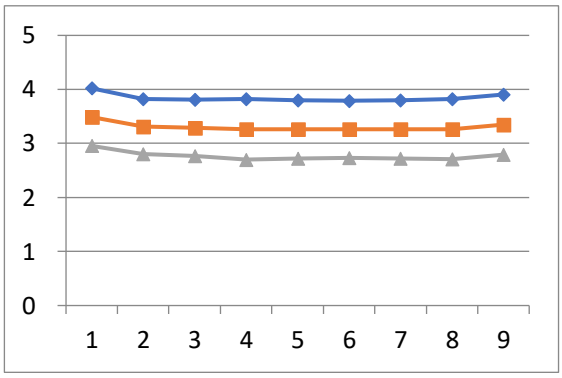


Figure 4. Distribution diagram of 2nd year Pakistani students

Chinese student's Yin ping is a high flat tone with the mean T value of 4.18 at the starting point and 3.88 as the lowest at the ninth point which is the end point. The standard deviation of the starting point is 0.32 which is also the point with the minimum standard deviation and the maximum end point is 0.46. The pitch range is mainly in 5 degrees, and the maximum fluctuation is 0.3, so, the tone value basically represents 55.

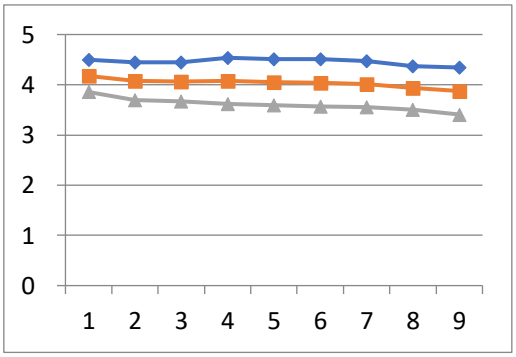


Figure 5. Distribution diagram of Chinese students

The Yin Ping of the two grades of Pakistani students is similar, but different from Chinese students in two points. Firstly, it is not as high as Beijing students. The transfer city of Beijing students is in the upper part, concentrated in 5 degrees while Pakistani students are in the lower part, concentrated in 4 degrees. Second, the minimum standard deviation of Chinese student's Yin ping is at the starting point while that of Pakistani 1st year student Yin ping is at the sixth and seventh points, and 2nd year student Yin ping is at the second point that is close to the characteristics of native speakers (see figure 5).

(2) Yang ping (2nd tone)

The Yangping adjustment range of the first-year students is very large, spanning 1 to 5 degrees, with a depression in the middle and front, and then rising rapidly. The mean value of T value at the starting point is 1.73, the minimum value of T value at the depression is 0.93 at the

fourth point, the end point is lifted very high, and the maximum value of T value is 4.20. The standard deviation of the starting point is 0.38, the minimum standard deviation of the sixth point is 0.31, and the maximum standard deviation of the end point is 0.63. The maximum fluctuation is 3.27 and the adjustment value of yangping is basically set as 215 (see figure 6).

The yang ping of the 2nd year students is similar in shape to that of the 1styear students. The mean T value of the starting point is 1.46, the depression is located at the third point, the T value is 0.81, and the maximum T value of the end point is 4.18. The starting standard deviation is 0.46, and the minimum standard deviation is 0.37 at the third point. The maximum standard deviation of the end point is 0.79. The maximum fluctuation is 3.37 which can be adjusted as 215 (see figure 7).

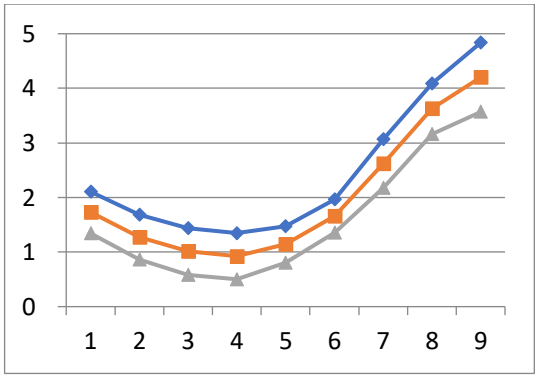


Figure 6. Distribution diagram of 1st year Pakistani students

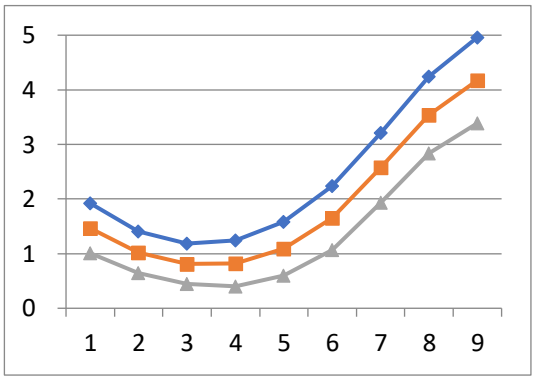


Figure 7. Distribution diagram of 2nd year Pakistani students

Chinese students Yang Ping level also has a small depression in the front and then slowly rises. The mean T value of the starting point is 2.35, the lowest point is 2.06, and the highest point is 3.98. The maximum standard deviation of the starting point is 0.60 and the minimum standard deviation of the end point is 0.38. The maximum fluctuation is 1.92, so, the adjustment value can be expressed as 34 (see figure 8).

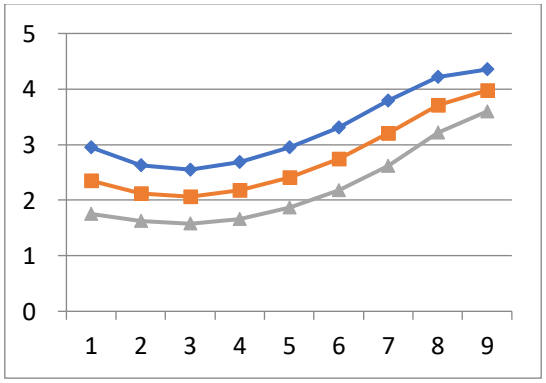


Figure 8. Distribution diagram of Chinese students

The adjustment range of Pakistani students in yang ping is obviously different from that of Chinese students. The adjustment range of Pakistani students in yang ping is large because the curve in the front middle is relatively low that lies at 1 degree while the rise in the second half is

relatively high which lies at 5 degrees, and the overall fluctuation is more than 3 degrees. The adjustment range of Peking natives is mainly concentrated in the middle of 3 degrees and 4 degrees, and the fluctuation is within 2 degrees.

The curve of yang ping tone of Pakistani students is larger as compared to Chinese native speakers. Moreover, the curve of the 1st year students is more than Chinese native speakers but the 2nd year students have almost same curve as the Chinese. In the second half of yin-ping period, the increase of Pakistani students was too large as compared to that of Chinese students, and there was a significant increase in process. Moreover, there was no significant change in the 2nd year Pakistani students as compared to that of the 1st year Pakistani students.

In addition, in terms of standard deviation, the minimum standard deviation of Chinese is at the end point, which reflects that the end point of the native speaker Yangping is a relatively stable position, which is a representative position of Yangping. However, the end point of two grade Pakistani students, has the maximum value of standard deviation. This reflects that the foreign students have great individual differences in the process of mastering Yangping tail adjustment, and they have not reached a stable state; among the foreign students, the points with the smallest standard deviation are located at the sixth and third points respectively, which basically lies in the depression. It can be inferred that this obvious depression is a relatively stable feature of Pakistani students.

(3) ShangSheng (3rd tone)

The average T value of the 1st year students is 2.13, the fifth middle point is the lowest point: 0.25, and the highest point is the end point: 3.41. The standard deviation at the starting point is 0.41, the minimum standard deviation at the fourth point is 0.12, and the maximum standard deviation at the end point is 1.04. The maximum fluctuation is 3.16, and the tuning position of the upper tone is 314 (see figure 9).

The mean T value of the starting point of 2nd year students is 1.90, the lowest point the fifth point is 0.29, and the highest point at the end point is 3.64. The standard deviation of the starting point is 0.45, the lowest point of the standard deviation at the fourth point is 0.10, and the highest point at the end point is 0.48. The maximum fluctuation is 3.35 which can be adjusted to 214 (see figure 10).

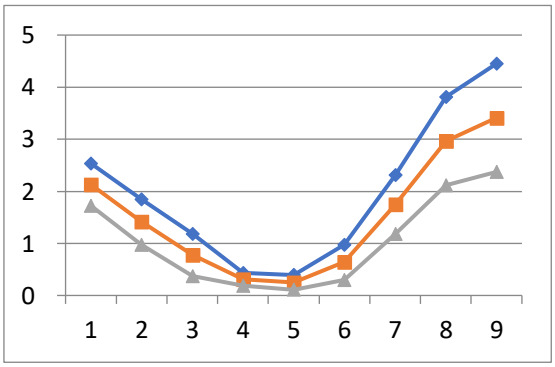


Figure 9. Distribution diagram of 1st year Pakistani students

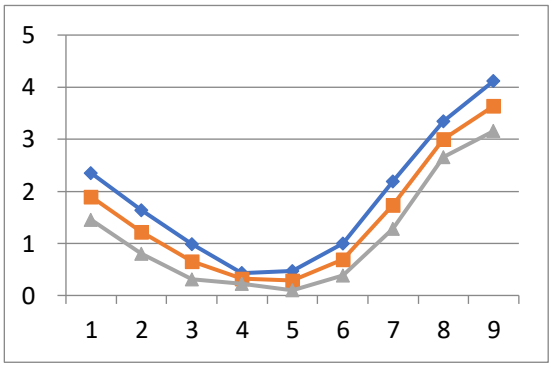


Figure 10. Distribution diagram of 2nd year Pakistani students

The average T value of the starting point of Beijing student's ShangSheng is 2.30, which is also the highest point. The fourth point in the middle is the lowest point which is 0.19, and the final point is 2.19. The standard deviation of the starting point is 0.27, the fourth point is 0.06, and the final point is 0.55. The maximum fluctuation is 2.11, and the adjustment value is basically set as 313 (see figure 11).

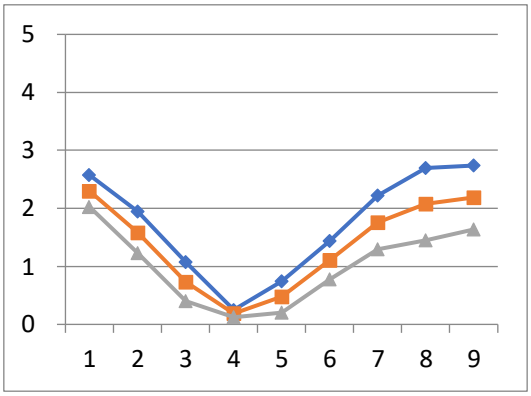


Figure 11. Distribution diagram of Chinese students

In the starting point, the T value of Chinese students is 2.30, the starting height of the 1st year international students is slightly lower than that of Chinese students (2.13), and the starting height of the 2nd year international students is 1.9. It can be seen that as the grade increases, the starting position decreases away from native speakers. The T value of Beijing students is 2.19, 3.41 for first-year students, and 3.64 for second-year students. As the grade increases, the position of the terminal points tends to increase which is further and further away from the standard of native speakers. In addition, the lowest point of the upper voice is the fifth point for both grades while the fourth point is for Beijing students. The lowest point of the upper voice is further behind. In terms of standard deviation, the minimum value of both international students and Chinese students appears at the fourth point which indicates a good grasp of the situation. 1st and 2nd year students are 314, 214, and 313 for native speakers. They need more guidance on the starting and ending points.

(4) QuSheng (4th tone)

The T value of the 1st year students with the highest starting point is 4.70 on average, the third point starts to decline gradually, and the end point is 1.48. The standard deviation at the starting point is the minimum value of 0.28, and the maximum value at the end point is of 0.48. The maximum fluctuation is 3.22, and the adjustment position is 52 (see figure 12).

The mean of T value at the starting point of vocalization of 2nd year students is 4.66 which is also the highest value and the lowest end point is 1.05. The standard deviation of the starting point is 0.39, the minimum value of the second and fourth points is 0.32, and the highest end point is 0.40. The maximum fluctuation is 3.61, and the adjustable value can be fixed at the position of 52 (see figure 13).

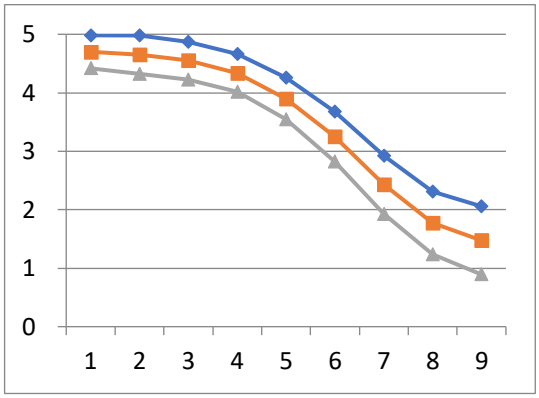


Figure 12. Distribution diagram of 1st year Pakistani students

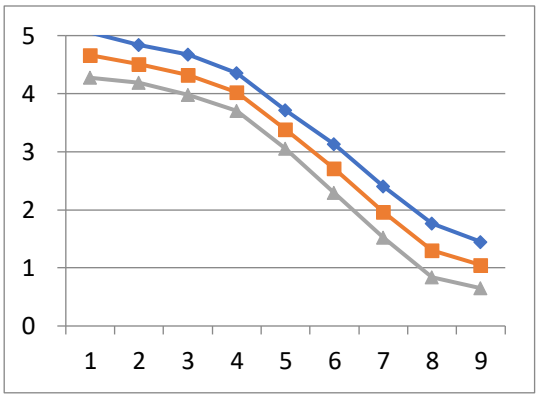


Figure 13. Distribution diagram of 2nd year Pakistani students

The average T value of the starting point of Beijing student's Shangsheng is 4.86 which is also the highest point, and then gradually declines, and the end point is the lowest, which is 0.88. The standard deviation of the starting point is 0.07, which is also the minimum value, and the end point is the highest, which is 0.49. The maximum fluctuation is 3.98, and the tone reduction value is basically set at 51 (see figure 14).

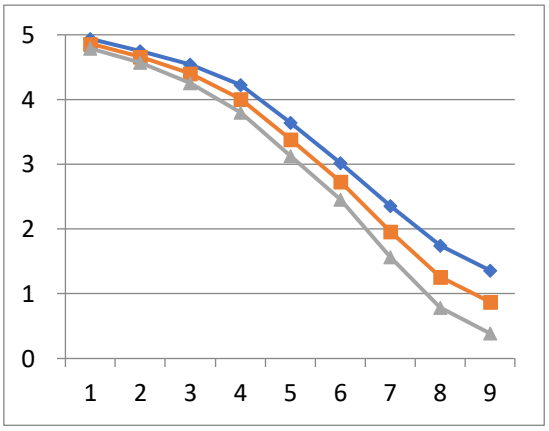


Figure 14. Distribution diagram of Chinese students

The pronunciation of overseas students is better, but the adjustment of the end is slightly different from that of Chinese students. The main reason is that the adjustment of the end of overseas students is not low enough. The adjustment of Chinese student's end is 51, and the end point is 1 degree. In terms of standard deviation, the minimum value of native speakers appears at the first point, indicating that the significant characteristics of voice reduction are concentrated at the beginning. The minimum value of standard deviation of 1st and 2ndgrade international students appears at the first point and the second point respectively, indicating that the steady state section is similar to that of native speakers, and the key characteristics of voice reduction are well mastered.

3.3 Experimental Summary

Through the experiment, we can see that the characteristics of single word tone of Pakistani students in two grades are mainly as follows

1.The Yin ping of Pakistani students in two grades is basically flat, but not high enough, the range of tone is not as high as 55.

2.The yang ping range of Pakistani students has a large span which is mainly due to the relatively low decline in the depression in the middle of the front and the relatively high rise in the second half.

3.The students' ShangSheng pronunciation is close to that of native speakers, but the transition is relatively late. In addition, the lowest point of the upper voice is the fifth point for both grades while the fourth point is for Beijing students. The lowest point of the upper voice is further behind.

4. Qu Sheng Tail adjustment of Pakistani students is not low enough.

4. Analysis of Monolingual Errors and Teaching Strategies for Pakistani Students

4.1 Reasons for the Errors of Pakistani Students

Single word tone is the basis of Chinese tone. In the teaching of Chinese as a foreign language, tone has always been the key point and is an obstacle for Chinese learners that is very hard to overcome. For Pakistani Chinese language learners, Yin ping, Yang ping and Qu Yin tend to be the most common errors. Present research analyses four reasons for errors made by the Pakistani Chinese language vocabulary learners - including the influence of negative transfer of native language Urdu, the interference of the target language, teaching and learning environment, and then puts forward some countermeasures and suggestions on tone teaching, in the hopes to provide some guidance to Pakistani Chinese language learners.

4.1.1 Influence of Urdu Language Negative Transfer

In language transfer, "transfer" refers to the influence of what learners have mastered on what they want to acquire in the learning process. If the mother tongue is conducive to the learning of the second language, it is positive transfer. Negative transfer occurs when the mother tongue interferes with the learning of the second language.

Chinese language and Urdu belong to different language systems. According to behaviourist learning theory, when learning a second language the thinking habits of the mother tongue will have an impact on the formation of new language habits, that is, the thinking habits formed in the mother tongue may interfere with the acquisition of the second language. Although, the mother tongue of students learning Chinese language in Pakistan has a certain background and rules but Urdu language does not have any specific tones. So, it is difficult for Pakistani students to learn Chinese language thoroughly that has multiple tones. We find that when they speak, their tone tends to change from zigzags and flat tones to rising or falling tones which is mainly influenced by their native intonation. When they are unable to grasp the changes of ups and downs and folds in zigzag tones, they will use ascending or descending tones instead. This comparison of Urdu's intonation rules with Chinese language monolingual tones while ignoring the similarities and differences between the two languages, is bound to lead to errors.

4.1.2 Interference of Target Language

"Interference of target language" is also called "negative transfer of knowledge of target language". Due to the limitation of insufficient knowledge of target language, scholars tend to apply mechanically to the target language, resulting in errors, which can also be called excessive summarization or over-generalization. For Chinese language learners, modulation of tones is difficult but important. Wu Zong Ji (1981) pointed out that when ShangSheng was combined with light tone and other tones, it was characterized by low flat tone. Shi Feng (2011) demonstrated that the essence of ShangSheng is low flat tone.

It was found that Chinese language learners in Pakistan were basically correct and in good condition when they only had to pronounce the tone alone, but when they had to pronounce it in combination with other words, especially when the tone was in the pre-syllable of a two-syllable word or when it was linked to a soft tone, such as a phrase: ni hao ma? Because they are unaware of the need to change the tone of the "hao" word at this point, where the "hao" word is not entirely uppermost, but a transitional tone, Pakistani Chinese language learners will pronounce the "hao" word as the third tone. The reason for this error is that students do not understand such a rule: if the first word is on the pronunciation, usually do not read the whole word but need to change the tone. However, this does not mean that Pakistani Chinese language learners do not have a deep grasp of the law of modulation of tones in Chinese, rather it is caused by the change of some rules in the actual use of the target language, thus resulting in this error.

4.1.3 Errors in Teaching Material

In Pakistan's Chinese language teaching techniques, there exists certain disadvantages to the teaching material. Since Pakistan does not have a Chinese textbook in Urdu, most of the teachers use textbook which are translated in English. Although these textbooks are quite professional, but students with poor English cannot grasp the meaning and functions of the books. As we all know, textbooks are authoritative and their functions remain unchanged in the teaching process. High-level textbooks will lay a solid foundation for foreign language learning, and their quality will directly affect the level of scholars.

In China, on the one hand, there are currently many versions of Chinese teaching materials for foreigners. In order to reflect the importance of tones, phonetic teaching is basically arranged in the first five to ten lessons. However, the teaching time is only about one to two weeks. The initials, tones, and the changing rules of tones are taught, and the rules of phonetic writing are also taught. Therefore, the actual teaching time for tones is very small. On the other hand, the textbooks do not update the relevant academic research results in time, especially for the full and semi-upper tones. The academic circle has agreed that the essential characteristic of the basic tone value of Shang Sheng is low flat tone.

In addition, the current of materials used for teaching Chinese as a foreign language lack necessary elaboration of the meaning, do not introduce the essence of features of tone and have no methods for tone training. There are only a few textbooks with the 5^{th}degree mark map. And as for Pakistani Chinese language students, it is impossible to master Chinese tones without any perceptual and detailed theoretical knowledge.

4.1.4 Impact of the Learning Environment

Mono-character tone is the key point and main difficulty for Chinese learners, whether they are at the elementary level or the intermediate or advanced level. However, there are many dialects in China. When Chinese people in the same area communicate, they usually use the dialects of different regions. It is not Mandarin communication. Over time, under such an environment, this will have a certain impact on the tone learning of Chinese learners in Pakistan.

Language has an input and output process both of which are crucial to language learning. But outside of class, Pakistani students usually stay in the circle of Urdu-speaking classmates, resulting in few opportunities to communicate in Chinese. They all communicate in Urdu. Some people are not willing to go out if they are not good at Chinese. When they travel, they either simply use translation software or ask classmates and friends to help online. All of this reduces the tone acquisition opportunities.

In addition, as the mother tongue is not Chinese, foreign tone is a common phenomenon among Chinese language learners. As for the exploration of the causes behind foreign tone, most scholars have paid attention to the tone output of Chinese language learners, and have investigated the errors and influencing factors of tone output (Hu Ming Guang, Wu Men Ji, 2004; Qi Hui, Tang Zhi Fang, 2012; Wang Jian Qin, Hu Wei Jie, 2016, etc.), difficulty of tone acquisition (tang you, 2008; Yang yi, 2013, et al.), tonal category acquisition (Zhang Lin Jun, 2010; Chen Mo, 2011, etc.), as well as tone perception (Wang Yun Jia, Li Mei Jing, 2011; Zhang Lin Jun, 2013) and Lin Tao (1996) pointed out that "the key to the formation of foreign tones in foreign accents is not in initials and vowels, but in tones and phonetic levels higher than tones". Usually, when foreigners communicate with the Chinese in Mandarin, even if it is with a foreign accent, the Chinese will tolerate it, will not laugh at them or despise their incorrect tone. This Chinese politeness comes with certain impacts on foreigners' learning process. As the Chinese ignore the pronunciation mistakes and try to understand the whole meaning through context while avoiding the need to deliberately correct, the foreign students get used to the idea of the natives understanding their meaning and thus, ignoring the need to further improve their tone. Gradually, the Chinese' tolerance for this phenomenon also leads to the gradual "fossilization" of these errors.

4.2 Tone Teaching Strategies for Pakistani Students on Single Word Tone

In this paper, from the Chinese tonal acoustics experiment and error analysis of Pakistani foreign students, it can be seen that in the four tones of Pakistani foreign students, errors made in yin-ping, yang-ping and caisson pronunciation are relatively large. In terms of the type of error, there are more errors in the tone range than in the tone type.

The following are the suggestions for Pakistani student's tone errors:

4.2.1 Strengthen Target Language Communication

Language is an important medium of thought, with the process of input and output. The lack of either of them will restrict the acquisition of language. To learn a new language effectively and quickly, it is necessary to speak and listen more. While learning tones, not enough time to practice is always going to be a big problem. Teaching materials and classroom activities play an important role in teaching Chinese as a foreign language. In order to enhance the interest of Chinese language learners, in addition to complete and effective teaching by professors and teachers, the method of

teaching through lively activities can also be adopted, so that learners can effectively master the content and difficulties of Chinese. Classroom activities are very important and increase in their variety can create a pleasant classroom learning atmosphere for students where they can master the Chinese language word tone Yin ping, Yang ping and Shangsheng along with their specific meaning and function.

Nowadays, immersive learning method is widely advocated. The purpose of teaching a second language is to cultivate multi-purpose target language thinking mode, but also to get the target language communication, and form the habit of using the target language, so in the long run, quantitative change causes the qualitative change. For example, the use of sentences like "ni hao, xiexie, zaijian", which is frequently used in daily life, will disappear, except in class by teachers to strengthen the learning of vocabulary. Pakistan's Chinese language learners should also be on the active search for words used in daily life to strengthen training. This can be achieved through more communication with Chinese people, especially with those who have enough patience to let the communicator revise their incorrect pronunciation. Span of communication is not to be confined to one area but should cover a variety of topics such as the weather, the news, scenic spots and historical sites, sports events, entertainment gossip, and so on.

4.2.2 Enhance the Contrast between Mother Tongue and Chinese

Chinese is a tonal language while Urdu is a non-tonal language, with various phonetic factors. There are altogether 54 phonetic factors and the pronunciation is not easy. Many Urdu sounds have no corresponding pronunciation in Chinese. Therefore, only by enhancing the contrast between mother tongue and Chinese language, can Pakistani students reduce the influence of negative transfer of mother tongue and thus reduce the errors of monological tone.

4.2.3 Textbook Suggestions

For embedding the right concept of Chinese language tones in Pakistani Chinese language learners and to achieve good teaching effect, the teaching material on the Chinese language tone should be more comprehensive and the introduction more detailed. For example, the essential characteristics of the formation process of tone, tone of voice, the significance of the relationship between the vocal cords, and the corresponding tones of practice, etc. In addition, because of the importance of intonation, it should not be taught only for a week or two but even at later stages and thus the teaching time should be increased accordingly. At the same time, we should update the research results that have been agreed by the academia as soon as possible to make the teaching materials more scientific and rational.

4.2.4 Suggestions on Tone Teaching Methods

The teaching of single character tone is the basic stage of teaching Chinese language tones. Zhao Yuan Ren's famous sentence "once the pronunciation is lost, it will last forever" shows that once the pronunciation is formed, it is not easy to correct. In order to avoid the formation of "foreign accent", students are prone to confusion and making tone errors. We need to start from the source of tone, strengthen tone awareness, and standardized tone teaching must be practiced.

Wang a Hong (2006) summarized the key points for the study of tone with a formula based on the difference of linking words and tones: "First tone is high and flat, second tone rises to the top, third tone often drops, fourth tone speed drops", which can be used as a reference for tone teaching.

1. Introduce the concept of tone feature points

Through the analysis and research on the tone of Pakistani students, it is concluded that one of the causes of tone errors is not grasping the characteristic points of pitch changes. They had the wrong type of adjustment when it came to Yin ping. The adjustment value of hair was 44, and the starting and ending values of Yin ping were significantly different from those of standard Mandarin. Professor Shi Feng pointed out that the tone has a steady state section. An attention has to be paid to the sound of a tone, time, position and the dynamic section which plays the role of locating information. Specifically, the steady state section refers to the starting and ending point of Yin flat, the end point of Yang flat, and the folding point and the beginning of falling sound. Therefore, teachers should strengthen the awareness of the tone feature point steady-state section of the teaching.

2. Adjust the teaching part

The intonation of Mandarin remains the same and the intonation value changes in the language flow. Lin Tao (1996) said, "Intonation should mainly be learned to distinguish the intonation type". Therefore, when teaching foreign students to learn the tone of a word, it should be in the pursuit of the correct tone on the basis of the demand for accurate value.

3. Use visual demonstration method to teach tone

On one hand, teaching tone with visual demonstration method can enhance the interest of learners; on the other hand, it makes Chinese language tone characteristics intuitive, vivid and easy to understand. Teachers can use body actions accordingly to reflect tone. In order to understand the tone errors teachers can also apply the multimedia technology such as the international students with voice software of tone language and intonation language contrast figure of the Chinese people, and then apply the remedy suitable to the case to correct tones bias. Such methods not only demonstrate to the Chinese learners, the intuitive impression of their tone of voice, but also can improve the enthusiasm of learning Chinese tone.

4. Teaching intonation in flow

After learning the sounds, words, and words of a language, it is in the flow of language that ideas are finally communicated and expressed through sentences and paragraphs. A significant feature of second language learners is that after they master the tone of a word, when they apply it to a sentence, the tone errors increase, that is, words or sentences are not consistent with the tone of a word, which is due to the poor mastery of tone linking and tone sandhi. Thus, it can be seen that speech flow plays a role in detecting monolingual tone errors. It can be improved by reciting articles, practicing tongue twisters, etc.

Conclusion

As the number of Pakistani students studying in China has increased in recent years, tones are the most difficult part of learning Chinese language and is the focus of teaching Chinese as a foreign language. This situation has broadened the scholars' research on tone by country. In this paper, the researcher studied the error of single-character of Pakistani students who start learning Chinese language. After going through extensive search of relevant documents and in-depth comparison, it is found that among the Chinese single-character tones, Pakistani students have basically good grasp on 3rd tone but they make errors with other tones such as Yinping, Yangping and Qusheng. The overall pitch range of the four tones is narrow. Yin ping is relatively low; the range

span of Yangping is large, and the depression in the front middle is lower. Overseas students have a good command of pronunciation, but the end of the tone is slightly different from Beijing, mainly because the end of the tone is not low enough.

Pakistani students mainly make mistakes in Yinping, Yangping and Qusheng. There are four reasons for the errors. They are: the negative transfer effect of the native Urdu language, the influence of the target language Chinese, the influence of foreign Chinese teaching materials and the influence of the learning environment. In addition, based on the analysis of the causes of errors, some tone teaching strategies are proposed. For example, Chinese language learners of Pakistani foreign students should strengthen the communication of target language and enhance the comparison between the native language Urdu and Chinese. The compilation of Chinese teaching materials for foreigners should be more scientific and reasonable. In tone teaching, teachers should understand the value of teaching tones, introduce the concept of tonal characteristics, the use of visual presentation and teaching tones in speech flow in order to improve the effectiveness of Chinese language learning for Pakistani students. Due to the objectivity of the author's data collection, there are inevitably some limitations in the study of the errors of the single-character tones of Pakistani students studying Chinese language. Further research in the future will be more in-depth.

Reference

Bei Xianming, The tone pattern and vowel pattern of Putonghua [J]. Wuling journal, 2012 (4) Chen Chen, Analysis of Chinese phonetic errors and countermeasures of Pakistani students, master's thesis of Jilin University, 2010

Hu Bo, Acoustic analysis of Chinese first level vowels of Pakistani students, master's thesis of Hunan Normal University, 2011

Li Dongwei, A survey of Chinese Putonghua monosyllabic tones of Pakistani students, international communication of Chinese and teaching of international Chinese, 2011

Li Dongwei, Hu Yanan, Chinese Monosyllabic errors and solutions of Pakistani students, Journal of Yunnan Normal University, 2012

Liang Lei, A review of the research on tone pattern and vowel pattern [J]. Contemporary foreign language research, 2011 (5).

Lu Jianji, Interlanguage theory and an analysis of phonetic errors in learning Chinese by foreigners [J]. Language Teaching and Linguistic Studies 1984 (3).

Shi Feng and Wang Ping, Statistical analysis of tones of Beijing dialect single character [J]. Chinese. 2006 (1): 33-40

Shi Feng and Wang Ping, A statistical analysis of the tone groups of Beijing dialect monosyllabic [J]. Contemporary linguistics, 2006 (4)

Shi Feng and Wang Ping, Statistical analysis of the tones of Beijing dialect monosyllabic [J]. Chinese, 2006 (1)

Shi Feng, Exploration of experimental phonology [M]. Beijing: Peking University Press, June 2009

Shi Feng: phonetic pattern - The intersection of phonetics and phonology [M], Beijing: Commercial Press, 2008 edition, page 28.

Ye Liangying, An experimental study on the acquisition of Chinese tones by Pakistani students, master's thesis of Hunan Normal University, 2010