

A Study on the Hierarchy of Difficulty Setting of the Consonant Allophones in Korean through Recording and Listening Test

Lina Leng^{1,*}, Guangyong Shan²

¹ Northwest University of Political Science and Law, Xian 710063, China

² Harbin Institute of Technology, Weihai 264209, China

*Corresponding author e-mail: 42142963@qq.com

ABSTRACT. During the process in which Chinese students learning Korean, they have difficulty in mastering the pronunciation of consonants and the variation in pronunciation according to phonological rules. This paper is aimed to help the learners master and learn the pronunciation of Korean consonants well by focusing on the difficulty they meet in learning the consonants and setting the hierarchy of difficulty of Korean consonants through experiments like recording.

KEYWORDS: Korean, consonant, allophones, recording experiment, five-Likert Scales, hierarchy of difficulty.

1. Introduction

Since the establishment of diplomatic relations between Korea and China, with the rapid development of South Korea's economy, the exchanges between the two countries have become active, and the status of Korean language has been greatly improved. In this context, Chinese Korean language education has made an unprecedented leap forward. Although the Korean language is spoken by a relatively small number of people, Korean majors are offered at more than 70 accredited undergraduate universities throughout China.

It is well-known fact that the pronunciation education in Korean education is important. Because one cannot convey accurately what he wants to say with wrong pronunciation even though they understand and use Korean vocabulary and grammars accurately. That is, mispronunciation is a bigger obstacle to communication than grammar or vocabulary. In addition, pronunciation habits are

the first to form in the process of language learning. When learners learn the target language, if they do not learn the pronunciation correctly at the beginning, they will make mistakes or rigid pronunciation fixation, so that mistakes will continue to the advanced stage. The main discussion about pronunciation education is that the similarities and differences were analyzed and the errors were predicted through the comparison of the unit of phoneme between native language(L1) and the target language(L2).

This study presented and analyzed the actual condition of the errors of Chinese learners when they pronounce the Korean consonants. In L.N.Leng[1], the errors in the learners pronunciation were predicted first through the comparison analysis of these two language focusing on the consonant phoneme of these two languages, consonant allophones and phonemic variation. It is called the first round hierarchy of difficulty behind. In order to confirm if the errors will happen when the learners pronounce the consonants as predicted in the first round study and how the errors are, consonants recording experiments and listening test were conducted. To achieve these research objectives, the following objectives were set.

Theory of phonological level consonants · controlled comparison of Korean and Chinese. The consonant contrast between Korean and Chinese has two aspects. Firstly, the consonant sounds of Korean and Chinese should be compared, and the similar points or differences between the corresponding consonants should be described from the perspective of phonology. Korean and Chinese have obvious differences in consonant phonemes. In pinyin, Korean has three opposite systems of hot exhaust and pinyin, while Chinese has two opposite systems of "loose qi -- no air supply". In addition, the frictional sound of Korean is the opposite of "flat sound - tight sound", and the frictional sound of Chinese is the opposite of "voiced sound - unvoiced sound". Secondly, the changes of Korean and Chinese consonant phonemes are compared according to the three factors of pronunciation position, pronunciation method and occurrence type, and the similarities and differences between corresponding pronunciation are expounded. On the basis of such comparative analysis, a listening experiment was carried out to understand how well Chinese Korean learners can pronounce consonants. The recording begins with 38 sentences made up of 19 Korean consonant phonemes. 17 students majoring in Korean in northwest university of political science and law were selected to record 19 Korean consonants and consonant-related phonological changes. This is to look at the different pronunciation of Korean consonants in different places. The listening test was conducted by 5 Korean teaching experts who listened to the recordings and rated the pronunciation with 5 points of Likert Scales. That is to say, the learners of consonant pronunciation how natural, accurate individual rating. Pronunciation is natural and accurate, you will get a high score, on the contrary, if the pronunciation is not correct, you will get a low score. In this way, students learning Chinese can master difficult consonants and mistakes when learning Korean consonants.

2. The contents of the recording experiment

2.1 Recording method

This study took 19 Korean consonants as experiment subjects. The consonant recording experiment was conducted in professional recording rooms located in Northwest University of Political Science and Law in July, 2018. Considering that if the participants use the recording room without any preparation, their pronunciation will be different, the participants were made to do reading exercises in the recording room before recording, so that they can demonstrate their Korean proficiency on their own way in a familiar environment.

In the recording experiment, the participants needed to read 38 sentences for three times. Although the contents were recorded three times, the second time was taken as the assessment subject.

This study took 19 Korean consonants as experiment subjects. The consonant recording experiment was conducted in professional recording rooms located in Northwest University of Political Science and Law. The recording experiment was done by subjects reading 38 sentences on a piece of paper three times. The subjects were shown the material first, but not asked to practice. Fearing that the results would be distorted, the subjects were shown 38 sentences three minutes before the recording and then recorded. In the experiment, only the subjects recorded in a recording studio, while the others waited outside. Moreover, although the content was recorded three times, the second recording will be used as the criterion for evaluation. The recording tool of the recording experiment used the tsinghua Oriental recording machine in the special recording studio of Northwest University of Political Science and Law. The model for this radio is super cup e300, made in the east by tsinghua university in Beijing, China.

2.2 Experiment material

The learners which were the participants of the recording experiment were all in advanced level, so the experiment material was made in intermediate level. 38 sentences in the experiments were based on 19 consonants and the allophones of the consonants according to three factors like co-articulation, articulation place and articulation method and the phonological variation were included when making the sentences. The example of Korean consonant recording experiment material was as follows. Korean Consonant Recording Experiment Materials : ‘Do not put the plate on the ground after eating meat in the canteen’ This sentence is an experimental sentence related to the consonant / ㄷ /. firstly, examining the words related to / ㄷ /, there were ‘ (plate)’, ‘ (meat)’, ‘ (eat)’, in which / ㄷ / located in the first, the middle and the final place of the word.

2.3 Participants

There were many difficulties in selecting the participants of the consonant recording experiment in this study. In China, people can learn Korean through many social organizations like universities and language institutes. Considering many situations, the advanced Korean learners who are majoring Korean in Northwest University of Political Science and Law and learn Korean less than 4 years were taken as the participants of the consonant recording experiment in this study. Because China is very broad and people in different area speak dialects, the participants who can speak standard Chinese well were more suitable. The undergraduates have been learning standard Chinese continuously from primary school, so they master standard Chinese generally.

3. Contents of the listening test

3.1 Test method

Then as for the listening test method, five experts in Korean education listened to the recording files of 17 advanced Korean students and assessed if their pronunciation was natural and accurate with the five-Likert scale. There are very few studies related to the pronunciation assessment or the pronunciation diagnosis with five-Likert scale. Most of the studies were based on comparison and contrasting study in Korean pronunciation education.

In Park E.Y. Jim [2], five-Likert scale was used to make the Korean pronunciation diagnosis table, diagnose the pronunciation of the learners of various countries and examine the influence of the native language on the pronunciation. The pronunciation assessment standard in this study was divided into five level which are 'very close to Korean native speaker', 'fairly accurate', 'a little different', 'different but can be understood' and 'very different'. Through this, it can be known that the pronunciation of learners from different countries was influenced by their native language. The shortcomings in pronunciation of learners from different countries were also examined. Harris put forward the evaluation criteria for oral interview and took the stage from 1 to 5 in the field of pronunciation as the evaluation criteria. How seriously the pronunciation of "speaker" is interfered by the mother tongue, the degree of "speaker"'s understanding of pronunciation and pronunciation problems, and how much "speaker" is required to repeat have become the standards. In order to verify the appropriateness and credibility of the lecture evaluation project in the use of English lectures, and to grasp the characteristics of the relevant projects, the lecture evaluation was carried out in the case of a university lecture in English. The lecture evaluation questionnaire used consisted of 10 standard five-point questions. Or early with 5 scale method is applied to evaluate degree of interest in the English class (FFC/CMC) after the use of "participation" in English communication subject self assessment (FFC/CMC) after use English lesson on "increasing confidence in English" contribution evaluation (FFC/CMC) after use English lesson on "familiarity" to improve English contribution evaluation; English

classes are used to evaluate the contribution of "improving English ability" and other assessments.

Accordingly, the assessment standard of the listening test in this study was established appropriately based on the assessment standards of several previous studies above.

3.2 Test materials

The listening test materials were 17 advanced Chinese learners' recording files of 38 sentences related to the Korean consonants. The example of the listening test was as follows.

3.3 The second round of hierarchy of difficulty setting of the consonant allophones

In this part, through the listening test, the assessment results of consonant allophones were analyzed, focusing on how naturally the Chinese learners pronounce the consonants and what kind of errors happened when they made mistakes. In this study, the assessment standard of allophones was divided into five levels. They are 'very close to Korean native speaker', 'fairly accurate', 'a little different', 'different but can be understood' and 'very different'. The statistical chart of the pronunciation assessment results of 17 participants is as follows[3][4].

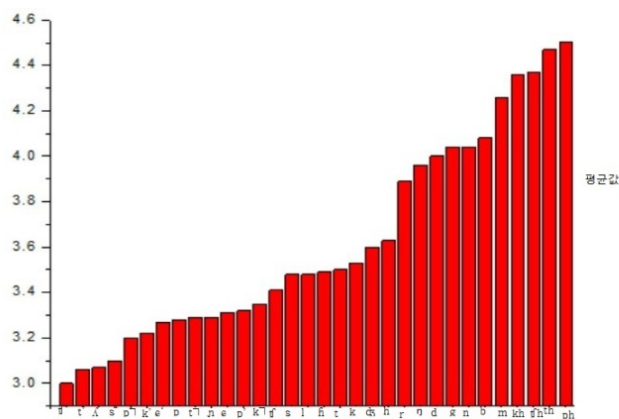


Figure. 1 Mean value of the pronunciation assessment results of 17 participants

In this chapter, the analysis results based on the results of the listening test related to the consonant allophones pronounced by Chinese learners showed difference with the first round of hierarchy of difficulty setting. In addition, because it has close relationship with the phonological variation, when talking about if the consonants

were pronounced accurately, it is necessary to set the hierarchy of difficulty again. The hierarchy of difficulty of the first round was presented as follows[5].

Level of difficulty 1 (level 0): [m], [n], [ŋ], [b], [d], [g], [dʒ], [p^h], [t^h], [k^h], [ʃh]

Level of difficulty 2 (level 3): [l]

Level of difficulty 3 (level 4): [ḳ], [ṭ], [p̣], [ɦ], [h], [ŋ], [r], [ʌ],

Level of difficulty 4 (level 5): [p], [p'], [t], [t'], [k], [k'], [ʃ], [ʃ'], [s], [s'], [e], [e']

The level of difficulty 1 in level 0 needed resetting. The consonant allophones from the hierarchy of difficulty of the first round was consistent with the actual pronunciation results. However, unlike the setting of the hierarchy of difficulty of the first round, Chinese learners made many errors in the velar nasal consonant [ŋ], so the velar nasal consonant [ŋ] was set in the level of difficulty 2 in level 3. Because the phonemes of the level of difficulty 1 in level 0 have corresponding phonemes in Chinese without differences, but the velar nasal consonant [ŋ] in Korean and the nasal consonant [ŋg] have distinct difference. Moreover, the allophone [dʒ] in the level of difficulty 1 in level 0 should be put in the level of difficulty 2 in level 3. according to the actual pronunciation results, the advanced Chinese learners showed many errors in the allophones. Although [dʒ] is corresponding with the voiced affricate [dʒ] in Chinese, [dʒ] is dental voice. In Chinese, there is not only one dental voice. /z/, /c/and /s/ are also dental voice. Errors appear because they contrast them with the voiced affricate in Korean. Accordingly, it was reset into the level of difficulty 2 in level 3.

The level of difficulty 2 in level 3 needed resetting according to the pronunciation results. According to the hierarchy of difficulty of the first round, only [l] was set in the level of difficulty 2 in level 3. however, in the assessment of actual pronunciation, it got relatively lower score. Moreover, the lingual voice [r] was set in the level of difficulty in level 4 in the hierarchy of difficulty of the first round. Because it is difficult for Chinese learners to remove and touch the back part of the upper teeth at a rapid pace from the front part of the tongue not the end of the tongue when pronouncing the lingual voice while the level of tension of the tongue increases also, it is modified into the level of difficulty 3 in level 4. likewise, allophone [k] and [t] got relatively good score which is different from what has predicted, they were reset from the level of difficulty 4 in level4 into the level of difficulty 2 in level 3.

The allophones in the level of difficulty 3 in level 4 needed resetting also. According to the hierarchy of difficulty of the first round, [ḳ], [ɦ] and [h] belong to this kind. These three phonemes are not different from the actual pronunciation results. However, the 5 allophones left were set in the level of difficulty 3 in level 4 according to the actual pronunciation results. They are [l], [ʃ], [e], [p'] and [s]. Allophone [l] was in the level of difficulty 2 in level 3 in the hierarchy of difficulty of the first round, but unlike the actual pronunciation results, they got lower score

and the learners made more errors than it was expected, so they were raised up to one level. Moreover, [ɸ], [ɛ], [p'] and [s] were set into the level of difficulty 4 in level 5 in the hierarchy of difficulty of the first round, the learners made more errors than it was expected in the pronunciation results, so they were taken down to one level.

The level of difficulty 4 in level 5 was reset like the other levels according to the pronunciation results. The allophones which belong to the level of difficulty 4 in level 5 were [p], [p̃], [t'], [t̃], [k'], [ɸ], [s'], [ɛ'], [ʌ] and [n]. The allophones in this level had many differences with the hierarchy of difficulty of the first round. For example, when setting the hierarchy of difficulty of the first round, it was predicted that Chinese learners would have many problems in the lax consonants and hard consonants in Korean, but just a few errors were found, which was not what it was expected. Accordingly, slight modification was conducted.

Based on the contents above, the final hierarchy of difficulty of the consonant allophones in Korean was set as follows.

Level of difficulty 1 (level 0)	[m], [n], [b], [d], [g], [p ^h], [t ^h], [k ^h], [ɸh]
Level of difficulty 2 (level 3)	[ŋ], [dʒ], [r], [k], [t]
Level of difficulty 3 (level 4)	[k̃], [ɦ], [h], [l], [ɸ], [ɛ], [p'], [s]
Level of difficulty 4 (level 5)	[p], [p̃], [t'], [t̃], [k'], [ɸ], [s'], [ɛ'], [ʌ], [n]

4. Conclusion

In this study, how the Chinese learners pronounce the Korean consonants and what kind of errors they made when pronouncing the Korean consonants were presented through the recording experiment and listening test. In the recording experiment, 38 sentences were made with 19 consonants. 17 undergraduates of Northwest University of Political Science and Law who are majoring in Korean and have reached the advanced level in Korean were taken as the subjects in the recording experiment. In the listening test, 5 Korean experts in Korean education listened to the recording of 17 students and assessed their pronunciation to see if their pronunciation was natural and accurate with the five Likert scales. Through the experiments, the results of the pronunciation assessments of the Chinese learners showed differences in the first round and second round of hierarchy of difficulty setting. First of all, in the first round, 11 allophones belonged to the level of difficulty 1 in level 0, while in the second round, 2 allophones were excluded and 9 left. Secondly, in the first round only [l] belonged to the level of difficulty 2 in level 3, while in the second round it was changed totally. It was reset into a lower level. Thirdly, the first round setting of the level of difficulty 3 in level 4 was different from that of the second round. Fourthly, the allophones which belonged to the level of difficulty 4 in level 5 changed according to the modification mentioned above.

Finally, in order to do sound conclusion of the hierarchy of difficulty setting of the consonants allophones, not only advanced Chinese learners, but also learners in the beginning and intermediate level should be included as the research subjects in the future studies. Moreover, the analysis related to the similarities of the consonant allophones in these two languages is also demanded.

Acknowledgements

This work is supported by research support project for young teachers in school of foreign languages, northwest university of political science and law “Study on the training mode of non-lingua franca compound talents in western universities” ; (subject number: 2018QJF1)

References

- [1] L.N. Leng (2017). The difficulty setting of Korean subtone variation. *Korean Teaching and Study*, vol.21, no.4, p.36-42.
- [2] E.Y. Jim (2012). A Study on the Hierarchy of Difficulty Setting of the Single Vowel in Korean. Doctoral Thesis, Graduate School of Chungnam National University, p.77-85.
- [3] H.Y. Lee (2012). Approaches and Methods in Language Teaching: A description and an analysis. *Korean Voice Institute*, vol.21-24, p.144-147.
- [4] Z.J. Wu (1992). *An Outline of Modern Chinese Phonetics*. Chinese Language Education Press, p.98-112.
- [5] C.H. Prator(1967). Hierarchy of Difficulty. Unpublished Classroom Lecture. University of California. Los Angeles, p.42-63.