An Empirical Study on Correlation Between English Pronunciation and Listening

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Abstract. In years of English learning and teaching, the author has been impressed by the facts that English learners who pronounce accurately usually listen better. An English learner with American pronunciation may find materials read with British pronunciation more difficult to comprehend compared with materials read with American pronunciation. A hypothesis is proposed therefore that there is correlation between pronunciation and listening of English learners and phonetic trainings to English learners help to enhance their listening. On the basis of sound discrimination theory and “Calling Out of the Sense of Sound” concept, the present research aims to find the answer by adopting the methodology of empirical study and data analysis. An experiment was conducted to college English learners. The results supported the hypothesis, which suggested that there is positive correlation between pronunciation and listening of English learners and phonetic knowledge and trainings help to improve their listening.

Introduction

Listening enjoys prominent position in the human communications. For ordinary people in their daily lives, they listen as twice as they speak, four to five times as much as they read and write (Rivers, 1981). Listening is equally important in foreign language acquisition. People acquire a foreign language by understanding the messages they hear. Listening provides inputs for language learners. Without the proper understandings of the inputs, no foreign language learning begins. Listeners have a limited memory of the target language (Richards, 1983:219). If they acquire little knowledge about the phonological features of that language, they have to spend more time in recognizing and decoding the sounds they hear. New messages squeezes in before the former being treated, which will produce a vicious circle in which listeners are pressed by new messages continuously cramming in.

In years of English learning and teaching, with regard to listening, the author has been puzzled by a phenomenon that if English learners speak with accurate pronunciations, they usually listen English better than those who pronounce English inaccurately. In other words, the better they pronounce, the better they listen. When the pronunciation styles of English learners differ from the features of the given listening materials, their pronunciations will hinder the comprehension process. This brings about a question that whether there is any relation between English pronunciation and listening.

In the Chinese language lab, however, English teacher provides students various listening materials played on the multimedia without any phonetic teaching involving. Both teacher and students believe as long as more listening trainings are carried on, the listening of students will be consequently promoted. Another listening source is neglected: their own reading. Will their own English readings affect their English sound discrimination and further affect their listening? If it is the case, will it help to enhance the listening of learners by giving them adequate phonetic knowledge and trainings?

Hypothesis

On the basis of the sound discrimination theory and the “Calling Out the Sense of Sound” concept by Qian Guanlian, this study hypothesizes that there is positive correlation between the listening of English learners and their pronunciations and phonetic trainings help to improves their listening.
Literature review

Listening is an activity requiring devoted attention to comprehend the target language (Underwood, 1989), which means listening involves two aspects: sound discrimination and sound comprehension. Sound discrimination, as a concept, was proposed as early as in the 1950’s and 1960’s in the field of structuralism in linguistics and behaviorism in psychology. Scholars advocated that sound discrimination occurs in “listening trail” in human ears, and is vitally important to the successful listening of the language learners because it is the premise of comprehension. Listeners have limited memory of the target language. If they lack the knowledge about the phonological features of the foreign language, they have to spend more time in stimulating the auditory nerves to decode the sounds in their ears. If new messages keep squeezing in before the former ones being treated, it will result in a vicious circle in which listeners are pressed by new messages continuously cramming in. How well the language learners listen attributes to how well they discriminate the sounds they hear before the messages are delivered to human brain and processed there by the “language decoding mechanism” to achieve comprehension. Knowing the phonological features of the foreign language is vitally necessary for learners to understand it through listening (Lagefoged, 2001).

In China, studies by Tang Guoyu (2010) found that British pronunciation and American pronunciation affect listening comprehension; Li Junlei (2016) stated negative transfers from the Chinese local varieties interfere with the English listening. Systematic theories are rare in the Chinese research field to support the hypothesis. Related theory can be traced back to the 1990s. Qian Guanlian believes that when affected by the external stimulus, the internal sound memory will call out the corresponding impression and combine the sound with its semantic meaning. He also pointed that English learners should be encouraged to read loudly and repeatedly on themselves in that the stimulus the reading makes is the same as that produced by the external media, such as other objective equipments or other speakers. According to him, the learners perceive the sound and organize them according to the phonological patterns already existing in their mind and distribute them into acoustic images. When English learners have phonetics practices, their sound acquisition channels will be broadened and their internal sound storage will be alike the external stimuli. Consequently their time of “calling out” will be shortened (Qian Guanlian, 1990). So listening and reading share the same effect—to store adequate senses of sound to help achieve instant and accurate understandings.

Methodology

Subjects

Sixty freshmen in Shandong University of Political Science and Law were randomly sampled as subjects on the premise that they were at the similar ages (17-19) with similar educational backgrounds in order to avoid the bias of unforeseen socio-linguistic variables which would influence the experiment. They came from different places of Shandong Province. They graduated from high school before college. They constituted a highly homogenous socio-linguistic group.

Instruments

Two PET3 (Public English Tests3) test papers on English proficiency; two listening tests (the listening of PET3 after edited); two pronunciation tests (designed by the author); a computer with Gold Wave, the recording software, and SPSS20.0, the data analysis software. Pronunciation tests included three parts of phonetic symbols, word pronunciation, and passage reading. Listening involves psychological processes, common senses and personal experiences already existing in human brain. Questions of compound dictations rather than listening comprehensions were chosen in that the former involved less mental activities than the latter to ensure that the listening scores would be the valid and objective to evaluate the sound discrimination ability of the subjects.
Data collection

Pre-tests of English proficiency, pronunciation and listening were conducted to subjects within two days. Among 60 papers handed out, 59 papers were collected as valid ones. Two English teachers were invited as assistants, both of whom have English teaching experiences of over ten years and they speak English with standard English pronunciations. They helped to invigilate tests and grade test papers and audio files.

Treatment

Listening is a process of decoding sounds people hear from phonemes, the smallest meaningful units to complete texts. When English learners listen, their first task is to discriminate sounds accurately. In order to achieve this, they must be fully aware of English phonemes and the suprasegmental features, such as assimilation, liaison, rhythm, etc. The pronunciation tests revealed numerous phonetic problems among the subjects. Many subjects read English with the interference of negative transfers from their hometown varieties. For example, subjects from the district of Jining and part of Qufu, where there is no sounds like [zh],[ ch],[sh] in their native variety, substituted the Chinese sounds [z],[c],[s] for the affricates [dz],[tʃ],[ʃ]; Subjects from Weifang district have low differentiation degree between [z] and [ð], [s] and [θ]. Errors in stresses, pitches, and intonations are common as revealed in the pronunciation tests.

Phonetic trainings were arranged for four weeks, one hour each day except for weekends, guided by the book Vowels and Consonants: an Introduction to the Sounds of Languages (Peter Ladefoged, 2001). An Introduction to Phonetics and Phonology (3rd edition) (Clark J. et al., 2007). During the treatment, the pronunciation errors revealed in the pretest were corrected. The techniques of the phonetic knowledge such as stress, intonation, rhythm, liaison, assimilation, etc. were introduced to the subjects. The training was divided into four phases: phonetic symbols, phonemes, suprasegmental features, and prosodic features, one week for each phase.

Post-tests on their English proficiency, pronunciation, and listening were conducted at last. Among the 60 papers handed out, 57 papers were collected back as valid ones. The test procedures, difficulty degree, and evaluations were consistent with the pre-tests.

Results

All valid data were collected and input into SPSS. With listening scores being the dependent variable, pronunciation scores and English proficiency scores the independent variables, bivariate correlation analysis, partial correlation and on-way ANOVA analysis were conducted. The following tables were the results with P1, L1, and Ep1 standing for the scores of pronunciation, listening, English proficiency of the subjects respectively in the pre-tests and P2, L2, and Ep2 standing for the scores of pronunciation, listening, English proficiency of the subjects in the post-tests.

Table 1. Bivariate Correlation Coefficients between English pronunciation and listening.

|       | P1       | L1       |
|-------|----------|----------|
| P1    | Pearson correlation | 1        | .895*     |
|       | Sig. (2-tailed)     |          | .000      |
|       | N         | 59       |           |
| L1    | Pearson correlation | .895*    | 1         |
|       | Sig. (2-tailed)     | .000     |           |
|       | N         | 59       |           |

Note: * Correlation is significant at the 0.01 level (2-tailed)

The bivariate correlation analysis showed that in the pre-tests, the correlation coefficient (r) between English pronunciation and listening was 0.895, p= 0.000<0.01, which indicated that the correlation between English pronunciation and listening was significant.
Table 2. Partial Correlation Coefficients Controlling for English Proficiency.

|     | P1          |          | L1          |
|-----|-------------|----------|-------------|
| P1  | Pearson correlation | 1        | .726*       |
|     | Sig. (2-tailed)  |          | .000        |
|     | N            | 12       |             |
| L1  | Pearson correlation | .726*    | 1           |
|     | Sig. (2-tailed)  | .000     |             |
|     | N            | 12       |             |

Note: * Correlation is significant at the 0.01 level (2-tailed)

In Table 2, the value of p was 0.000, less than 0.01, which meant after the variable of English proficiency was removed, correlation between pronunciation and listening is still significant, which suggested when English proficiency was equal, the better subjects pronounce, the better they listen.

When four-week treatment finished, the subjects took three tests for their English proficiency, pronunciation and listening. The results showed that the majority of the subjects improved in the three aspects. In order to test how proficiency and pronunciation affected listening in a changed situation, one-way ANOVA analysis was conducted. The first step was to analyze how English proficiency affected listening. We input the scores of the subjects into the software and got the result as below.

Table 3. One-way ANOVA analysis between pronunciation and listening.

|     | P1          |          | L1          |
|-----|-------------|----------|-------------|
| Ep2 | 1.540       |          | .062        |
| L2  |             |          |             |

In the above table, f=1.540, and p=0.062 > 0.05. It meant that the statistic result was insignificant, which suggested that the improvement of English proficiency after four weeks did not have the significant effect to the listening of the subjects. The next step was to show how the improvement of their pronunciation affected the listening of the subjects.

Table 4. One-way ANOVA analysis between proficiency and listening.

|     | P1          |          | L1          |
|-----|-------------|----------|-------------|
| Ep2 | 9.530       |          | .000        |
| L2  |             |          |             |

Table 4 showed that p=0.000 < 0.05, which meant that the possibility of none linear correlation between the two variables was below 0.05. The null hypothesis was rejected. The linear correlation was significantly high with f=9.530.

Discussion

The data collected from the experiment supported the hypothesis. In order to certify whether there was correlation between pronunciation and listening of the subjects, the bivariate correlation analysis was conducted. The results showed that the correlation coefficient “r” equaled 0.895, which indicated that the pronunciation and listening of the subjects were highly correlated. Although the result was significantly positive, however, the conclusion could not be drawn hastily. The variable of the English proficiency of subjects might interfere with the data. There are possibilities when a subject has lots of pronunciation problems but still gained a fairly good listening score owing to his overall high English proficiency, or a subject whose English proficiency is comparatively poor got a good listening score attributing to his excellent pronunciation. Partial correlation analysis was therefore adopted with the coefficient of English proficiency being controlled. Twelve subjects were chosen whose PET3 scores were within the range from 70 to 75. With all subjects have similar English proficiency, the variable was controlled. It helped guarantee the validity of the data analysis. The correlation coefficient of the rest two variables of pronunciation and listening in table 2 was 0.726, which was a little lower than that in Table 1 when the variable of English proficiency was not controlled. It was predictable and reasonable because English proficiency does affect the listening of
subjects. To what degree it affects, however, is not the focus of the present study. The point is that without the variable of English proficiency playing its role, the correlation between English pronunciation and listening is highly significant. The result is very positive to support the hypothesis.

One-way ANOVA analysis is to show how one single dependent variable changes when affected by different independent variables. The post-tests proved that four-week is a period of time within which progress of English proficiency, pronunciation, and listening might be measureable and evident. With listening being the dependent variable, the study aimed to find which of the two independent variables accounted for the progress, the improved English proficiency or the improved pronunciation? During the four weeks, no English knowledge or listening training were purposely crammed to the subjects other than phonetic trainings. But the subjects still had been taking the normal English classes during this time. In order to find the real reason of the improved listening level, we analyzed the relation of listening with English proficiency and pronunciation respectively. In Table3, the value of p was 0.062, above the minimum value of 0.05, which indicated that the analysis had no insignificant value and the improvement of English proficiency had no significant effect on the listening of subjects. While Table4 showed a contrast with the value of p being 0.000, less than 0.05, which suggested the analysis was highly significant. It proves that the phonetic trainings were effective and made a significant contribution to the improved listening ability of subjects.

Conclusion

On the basis of the sound discrimination theory and the “Calling Out the Sense of Sound” concept, the present research aims to explore the correlation between pronunciation and listening of English learners. The result of the experiment supported the hypothesis and showed that there is positive correlation between them. The study also proved that in college English teaching, phonological knowledge and phonetic trainings are essential and effective to promote listening of the English learners. In teaching practice, English teachers should innovate their pedagogical approach by teaching students correct pronunciations to improve their listening. Due to the research resources and numbers of the subjects, the research has some unavoidable limitations. Work are left for the further research to investigate how the sounds, via ears, are treated in human brain and affect the message decoding mechanism, and how vocal sounds, hearing sense and brain interact with one another. These are the frontiers to be reached in the further studies.

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