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An Analysis of the Acquisition of English Phrase Stress by Non-English Major University Students

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Abstract: Phonological acquisition is the foundation of second language acquisition and plays an important role in the learning of English by university students. Although many non-English majors can achieve high scores in various English examinations, they have problems with their speaking and listening. One of the reasons for this situation is misplaced stress. A comparison with native English speakers revealed some problems in the acquisition of phrasal stress by non-English majors: high pitch, long duration of pronunciation, strong and unstable sound intensity, etc. This study is an attempt to offer some suggestions for the acquisition of stress by non-English majors.

Keywords: Phrasal stress; Chinese EFL learners; Experimental phonetics

Introduction

Stress is crucial in English phonetics and phonology, forming the base of intonation and rhythm. English rhythm involves alternating stressed and unstressed syllables, while Chinese, a syllable-timed language, gives equal stress to each syllable (Halliday, 2008). This difference often leads to comprehension issues for native English speakers when listening to Chinese EFL learners (Cai, 2015). Roach (2000) identified incorrect stress assignment as a major cause of these difficulties, emphasizing the importance of mastering English stress for effective communication.

Numerous studies on English stress acquisition reveal common issues among Chinese learners, such as failing to distinguish stress from weak syllables (McGory, 1997), exhibiting multiple stress phenomena (Chen & Wang, 2015), and neglecting context (Wang, 2013). However, existing research often focuses on word or sentence stress and primarily involves English majors, limiting sample diversity. This study employs experimental phonology to investigate phrase stress acquisition among Chinese non-English major college students, comparing their stress patterns to those of native English speakers. The study addresses two questions:

(1) How well do non-English major college students acquire phrase stress?

(2) What are the specific stress-related issues they face compared to native English speakers?

1. Research design

1.1 Subjects

The subjects in this study are 20 non-English major third-year undergraduate students from China Agricultural University, of whom 8 are male and 12 are female. The average age of their English learning level is 9 years, and all of them have passed the College English Test Band 6.

1.2 Materials

The current study chose a paper entitled When Honesty Disappears of a short text from the New Horizons College English 1 Third Edition Reading and Writing Tutorial, which is of moderate difficulty and matches the actual language ability of the students. Eight word phrases in two categories are selected from this article, four of which are noun phrases and four are prepositional phrases. Sound materials based on standard native speakers' recordings are used for comparison with the subjects, to represent the characteristics of and problems in the acquisition of phrasal stress by Chinese non-English major university students.

1.3 Data Collection and Analysis

Two software programs, Praat (version 6.3.08) and Microsoft Excel, were used in this experiment. Subjects recorded audio samples using Praat in a relatively quiet environment. During auditory annotation, initial stress positions were determined by listening. The final stress positions were confirmed by analyzing the duration, pitch, and intensity in Praat's speech diagram, which was then used to map the distribution of English phrase stress positions.

1.4 Scorer reliability

To calculate the acquisition rate, audio recordings of native speakers were used as a reference. Accent positions were scored as follows:

1 for completely correct, 0 for completely incorrect, and 0.5 for ambiguous cases. After analyzing the recordings of all subjects, the overall acquisition rate of English phrase accents, the acquisition rate for different types of phrase accents, and the rate for each specific phrase were calculated using Excel.

2. Problem Analysis and Discussion

Table 1

Types of phrases	Noun phrases				Prepositional phrases			
Target phrases	the reports	a term paper	a clerk	the critical importance	around the globe	inside the papers	with Internet access	at a major university
Scores	12	4	19	11	14	11	9	15
Acquisition rate	60%	20%	95%	55%	70%	55%	45%	75%

2.1 Overall analysis of subjects' English phrase stress output

As shown in Table 1, the acquisition rate of English phrase stress was calculated for the subjects in this experiment. As a whole, the subjects' acquisition rates for the eight selected English phrase stresses were not high, with an average acquisition rate of 59.3%. Four of the eight phrases were acquired at a rate below the average, namely "a term paper" (20%), "the critical importance" (55%), "inside the papers" (55%) and "with Internet access" (45%).

In addition, when looking at the acquisition rates of noun phrases and verb phrases separately, the average acquisition rate was 57.5% for noun phrases and 61.25% for prepositional phrases, with prepositional phrases having a slightly higher accent acquisition rate than noun phrases. Among the noun phrases, "a clerk" had the highest output acquisition rate, while the phrase "a term paper" had the lowest output acquisition rate. Of the prepositional phrases, "at a major university" showed the highest output acquisition rate, while "with Internet access" showed the lowest acquisition rate.

2.2 Problems of English Phrase Stress among Chinese Non-English Majors

The data indicates that Chinese non-English majors struggle with acquiring phrasal stress, as shown by acoustic comparisons with native speaker recordings. These comparisons reveal several issues in the students' responses.

For example, when comparing the spectrograms of a native speaker (Fig. 1) and a Chinese student (Fig. 2) reading the noun phrase "the critical importance", notable differences emerge. In Fig. 2, the pitch (blue line) is significantly higher, and the intensity (yellow line) is stronger and more unstable, with each word in the phrase receiving equal stress. Additionally, the total time to read the phrase in Fig. 1 was 1.57 seconds, compared to 1.83 seconds in Fig. 2, indicating that Chinese students take longer to read aloud than native speakers.

This example highlights three main issues among Chinese non-English major university students when reading aloud. First, there is a significant tendency toward multiple stress, with equal emphasis placed on each word, which distorts the intended accentuation of the phrase. Second, the excessive pitch during noun phrase reading creates an exaggerated and unnatural tone. Finally, these students struggle to differentiate between stressed and unstressed components based on duration, leading to similar durations for both, which can also extend the overall pronunciation time.

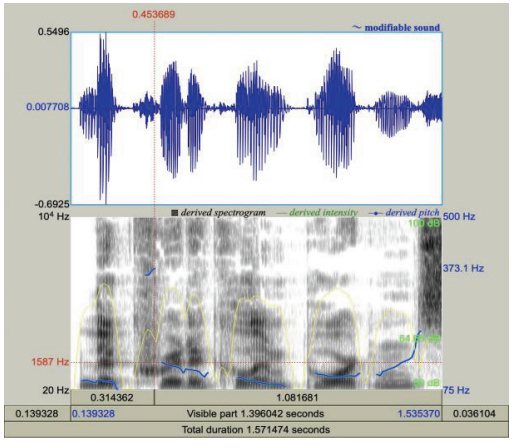

Fig. 1

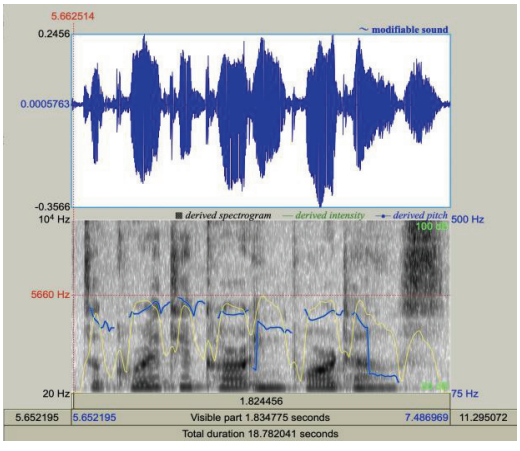

Fig. 2

3. Conclusion

3.1 Findings

Through speech listening, acoustic analysis and data statistics, this study has attempted to analyze the English phrase stress situation of

Chinese non-English major university students and has come up with the following conclusions. Firstly, the acquisition rate of English phrase stress among non-English majors is not very high, with an average acquisition rate of only 59.37%. Two main types of phrases were analyzed in this paper, namely noun phrases and prepositional phrases. In comparison, the acquisition rate of prepositional phrases was slightly better than that of noun phrases. In terms of individual phrases, the noun phrase "a clerk" was the most acquired, while the noun phrase "a term paper" was the least acquired.

It was also found that most of the non-English majors had at least the following problems in assigning stress to phrases: high pitch, high intensity and multiple stresses. These problems can have undesirable consequences when phrases are read aloud; for example, too high a pitch can have an exaggerated effect and appear unnatural (Quirk, 1985; Chen, 2008).

3.2 Implications and Suggestions

The findings from these studies highlight the necessity of improving learners' phrase stress. The author offers the following recommendations for teaching English phrasal stress:

Firstly, Chinese EFL learners and teachers should recognize the gaps in learners' use of English phrase stress. Teachers should first identify these gaps and incorporate their understanding of phonological differences between English and Chinese—such as rhythm, accent, intonation, and stress constraints—into their teaching.

Secondly, Teachers should introduce easier stress patterns first, such as the rules for noun phrase stress, earlier in the curriculum. More complex aspects, like non-stressed syllables, can be taught later, with a focus on in-class explanations and extended practice.

Thirdly, integrating modern technology into English language teaching can be effective. By using computers and software to visualize accentuation, teachers can help Chinese EFL learners become more aware of English stress patterns.

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