

The Variation of Syntactic Complexity in Writing of Primary and Secondary School Students

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Abstract: To explore the variation characteristics of the complexity of primary and secondary school students' written sentences, this paper collected students' compositions from every grade. It used eight measurement indexes: mean length of terminable TC-unit, complex terminable TC-unit/all the terminable TC-units, complex terminable TC-unit/simple terminable TC-unit, syntactic structure grade, mean length of single TC-unit, single TC-units per terminable TC-unit, the density of the modifiers and coreferential zero. The finding is that the syntactic complexity of primary and secondary school students' compositions increases continuously, with inflexion points and fluctuations at certain stages.

1. Introduction

Keywords: Syntactic complexity, Tc-unit, Primary and secondary school students, Written language

2. Introduction

Syntactic complexity, that is, syntactic maturity, refers to the range of formal changes and their complexity in the process of language production (Ortega, 2003)[6]. Hunt (1965) first proposed the index of T-unit when studying the syntactic complexity of children's mother tongue. In this research, he used T-unit to measure the development of eight first languages, including English, Korean and Chinese. The results showed that except for Chinese, T-unit measurement could effectively reflect the differences in L1 acquisition of children of different ages[1]. Other scholars have also proved through many studies that it is reliable to use the length of T-unit as the evaluation standard of syntactic complexity, reflecting the mastery of the target language by many different language learners (Larsen Freeman, 1978; Wolfe-Quintero et al., 1998)[5]. Since then, this index has been widely used to measure L2 syntactic complexity

However, due to the incompatibility between T-unit and Chinese syntactic complexity, this index is difficult to apply to Chinese, providing a space for domestic scholars to explore more appropriate evaluation indexes. Different from Indo European languages, Chinese is a topic-prominent language (Yu Qiaona, 2016)[8]. Through experiments, many scholars have also proved that T-unit is not suitable for Chinese (Wu Jifeng, 2016)[7]. Therefore, there was a growing demand for effective indexes to measure Chinese syntactic complexity. Jin (2007) introduced two indexes - Topic-Comment unit and coreferential zero in the process of studying the measurement of syntactic complexity of topic language[4]. Wu Jifeng (2016) also tested the number of T-unit, the length of T-unit, the number of clauses per T-unit, the length of TC-unit, the number of TC-unit, the number of clauses per TC-unit and the number of forms of coreferential zero by collecting time-limited compositions on the same topic of 68 Chinese learners (including native speakers and non-native speakers) as corpus. The result is that only the last three are valid among the seven indexes, and the other four are invalid[7]. Based on previous studies, Yu Qiaona (2016) finally proposed using TC-unit as the measurement index, which includes the mean length of terminable TC-unit, the value of complex terminable TC-unit/all the terminable TC-units, the mean length of single TC-unit (both independent or dependent) and the number of single TC-units (independent or dependent) per terminable TC-unit (both simple and complex)[8].

To sum up, although the academic research on the syntactic complexity has been relatively

mature, the research objects of foreign scholars are mainly English, while the research objects of domestic scholars are mainly CSL and CFL, and there is little research on the syntactic complexity of Chinese as L1. Hence, based on the above research, this paper will use TC-unit, syntactic structure grade, the density of modifier and coreferential zero as the measurement indexes of Chinese syntactic complexity. A total of 120 compositions of primary and secondary school students in Guangzhou (except the first grade students of primary school) were collected as the corpus to explore the variation characteristics of syntactic complexity in writing of teenage Chinese native speakers.

3. Research Method

3.1 The Collection and Processing of Corpus

The research corpus of this topic comes from students in 13 different primary and secondary schools in Guangzhou. There are ten samples in each grade, a total of 120 samples. The original texts from students were collected directly or indirectly through the method of stratified random sampling. The corpus does not include the compositions of the first grade students in primary school because of the students' limited writing ability, and the sample may lack reference. Therefore, the collected corpus only ranges from the second grade of primary school to the third grade of senior high school.

3.2 Research Steps

The first step is to collect corpus. Students' compositions from different levels of primary and secondary schools in Guangzhou were collected, and 120 samples were randomly selected.

The second step is the analysis of the syntactic complexity index. Analyzed the indexes of each sample one by one and sorted out and summarized the obtained data.

The third step is data processing. Input all original data into excel, calculated the average value of various indicators in each grade, then compared the change trend.

3.3 Measurement Indexes

Referring to the measurement indexes proposed by Yu, Qiaona (2016), this study analyzed eight indexes from four levels, including:

4. Global Level

- 1) Mean length of terminable TC-unit (MLTTCU)
- 2) Complex terminable TC-unit / all the terminable TC-units (CTTCU / ATTCU)
- 3) Complex terminable TC-unit / Simple the terminable TC-units (CTTCU / STTCU)
- 4) Syntactic structure grade

5. Clausal Level

- 1) Mean length of single TC-unit (MLSTCU)
- 2) Single TC-units per terminable TC-unit (STCU / TTCU)

6. Phrasal Level

Density of modifiers

7. Specific Form

Coreferential zero

8. Research Result

8.1 The Variation Characteristics of Syntactic Complexity in Global Level

From the second grade of primary school to the third grade of senior high school, the syntactic complexity at the global level generally shows an upward trend. MLTTCU rises gently with the change of grade, and CTTCU / STTCU rises rapidly from the second grade of junior middle school to the third grade of senior high school, while CTTCU / ATTCU and syntactic structure grade fluctuate slightly from the third grade of junior middle school to the first grade of senior high school.

Primary school students can produce TC-units with a relatively long mean length in second grade, while in second grade to third grade, the length of TC-units produced by students increases rapidly, and a large gap between the two grades emerges.

Through the sample analysis, the author found out that compared with the third grade students in primary school, the second grade students prefer to use a large number of single sentences, few forms of correferential zero and more pronouns, showing the characteristic of the prominent subject. In the third grade, the number of complex sentences used by students is significantly increased, the number of Complex TC-units is increased, and the length of TC-units is longer.

In primary school, the average value of the four global indexes does not change significantly in fifth grade and sixth grade. Through the sample analysis, I found out that fourth grade is the development period of these indexes. At this stage, the sentence components in students' compositions are in the transition period from less to more.

Unlike the primary school stage, the MLTTCU produced by junior middle school students increases with the grade change, mainly due to the more complex modifiers in sentences and the rise of the number of complex TC-units, so CTTCU / ATTCU and CTTCU / STTCU also increase.

Compared with the situations in primary school and junior middle school, the MLTTCU of senior high school students' compositions is still increasing year by year, while CTTCU / ATTCU is stable from second grade to third grade. Through the sample analysis, I found out that in the third grade stage in senior high school, students will quote more poems or longer famous sayings in their compositions, while in second grade, the number of quoted poems is slightly less and the famous sayings are relatively simple. Third grade students often use more citations in writing and remember some long and challenging sayings to polish the articles better.

8.2 The Variation Characteristics of Syntactic Complexity in Clausal Level

During the second grade of primary school to third grade of senior high school, MLSTCU increases steadily in junior middle school and senior high school but decreases slightly from third grade of junior middle school to first grade of senior high school. Likewise, STCU / TTCU generally increases with grade change, and the rising speed is faster in senior high school grade.

The MLSTCU produced by primary school students increases slightly from second grade to third grade. Most of the single TC-units produced by students in second grade are only simple SVO structures without too many complex modification components, while students in third grade begin to produce relatively long single TC-units.

From the development trace of STCU / TTCU in primary school, the index increases significantly from third grade to fourth grade, indicating that at this stage, the complex TC-units in students' composition are mainly composed of more and more dependent single TC-units, and the number of independent TC-units is decreasing.

In the stage of junior middle school, the modified components in the single TC-unit produced by students are increasing, and the use of coreferential zero is becoming more and more frequent. In addition to the rise of MLSTCU, the number of independent single TC-units contained in the complex TC-unit is also decreasing. That is, STCU / TTCU is increasing. Furthermore, the TC-units in junior middle school students' composition are more complex, which are composed of dependent single TC-units.

In the senior high school stage, the MLSTCU and STCU / TTCU of students' compositions are rising. When analyzing the corpus, I found out that with the increase of grade, senior high school students will use more idioms in their compositions, which increases the value of STCU / TTCU. In

the meanwhile, other single TC-units, such as poems and famous sayings, also improve MLSTCU.

8.3 The Variation Characteristics of Syntactic Complexity in Phrasal Level

In general, the density of modifiers in students' writings develops rapidly in primary school, while in junior middle school and senior high school stage, the development speed is slightly slow. At the same time, the average value of this index also fluctuates in junior middle school and senior high school.

The density of modifiers in primary school students' compositions increases rapidly from third grade to fifth grade. At this stage, students will consciously add modifiers such as simple attributives, adverbials and complements in sentences.

The density of modifiers in junior middle school students' compositions increases with higher grades and changes rapidly from second to third. Through sample analysis, I found out that students will use more adverbial components in third grade, while the adverbial components of students in first and second grades are relatively few and simple, and the modifiers in their articles are main attributes.

With the increase of grade, the density of modifier in senior high school students' composition is also higher and higher, and the number of modifying components such as attributives, adverbials and complements in their composition also become more.

8.4 The Variation Characteristics of Syntactic Complexity in Specific Form

The average value of this index has a peak in the third grade of primary school. Since then, it rises gently from the fourth grade of primary school to the third grade of senior high school until it becomes stable.

In the primary school, the coreferential zero of students' outputs increases continuously, but there is a peak in third grade. Through sample analysis, I found out that third grade students produce more coreferential zero because, at this stage, students will mistakenly use coreferential zero in writing and excessively use these forms to replace topics. The existence of the forms of coreferential zero is one of the characteristics of Chinese and is the most commonly used way of reference in Chinese (Chao, 1968; Chen Ping, 1987). Personally, the above phenomenon is a transition stage from less to more in the process of students trying to use the forms of coreferential zero. There are errors because they have not fully mastered the correct use methods of such form. However, this situation takes a favourable turn and stabilizes in the fifth grade.

9. Conclusion

Based on the theories of syntactic complexity, this paper uses a variety of indexes to measure the syntactic complexity of students' compositions in every grade and concludes the variation characteristics of writing of primary and secondary school students.

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