

# Micro-linguistic Features in the Narratives of English SLI Teenagers

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## ABSTRACT

This study investigated the language sample of adolescent narrative language, focusing on the analysis of the differences in the use of micro-linguistic feature between adolescents with specific language impairment (SLI) and typical language development (TLD) adolescents. The corpus is collected by storytelling, which is transcribed into text, and then segmented into t-unit as the unit of analysis. This article uses ANOVA analysis to figure out the differences between SLI and normal subjects. The results show that the number of t-units and the average length of t-units used by SLI teenagers are lower than those of TLD teenagers, and the frequency of noun phrases and clauses employed by SLI teenagers is lower than that of TLD teenagers. Among them, the frequency of nominal clauses exhibits the largest difference. Therefore, a conclusion can be drawn that the TLD group produces more complex sentences in narratives than those with SLI, including more subordination and some vocabulary, such as nouns, adverbs, metalanguage verbs, metacognitive verbs and conjunctions. In sum, compared with TLD peers, SLI adolescents show a significant reduction in narrative discourse output, which is reflected in poor performance in lexical level and syntactic level.

**Keywords:** *Specific language impairment, Micro-linguistic features, Adolescent*

## 1. LITERATURE REVIEW

### 1.1. Specific Language Impairment

SLI can also be called developmental language disorder or language delays without hearing loss, nerve damage and intellectual impairment. Compared with other disorders like hyperactivity and ADHD (attention deficit hyperactivity disorder), SLI is viewed as a kind of common language developing disorder. According to statistics, there are seven percent pre-school children get this impairment [3], and the proportion tends to increase in recent years. Almost fifty one percent SLI children find learning difficulties and reading problems at different intense [6], but they can be well-cured if they accept early diagnosis and intervention [9]. According to literature, adolescents with SLI have the following common characteristics and differences:

(1) Common features:

a. There may be different defects in language ability of patients with SLI.

b. Language ability is lower than the average level of peers.

c. Patients with SLI are not good at morphological transformation.

(2) Differences about the degree of defects:

a. Patients may have problems with different aspects of lexical transformation.

b. SLI children also have deficiencies in grammatical knowledge.

c. SLI children also have deficiencies in the use of verbs.

d. Voice defects.

e. There may be barriers in understanding and expressing.

Previous studies mainly focused on the linguistic features of children with SLI. This study focuses on the SLI adolescents to enrich the previous literature.

### 1.2. Micro-linguistic features

Starting from the definition of micro linguistics, it is found that the research content of micro-linguistics features can be the specific characteristic of semantic

units in articles, such as vocabulary, clause, tense, voice and other linguistic features.

Foreign micro-linguistic research is not limited to a specific aspect. Carl and Richard [1] proposed that adult traumatic brain injury (TBI) narrative discourse has micro language defects. TBI patients have fewer propositions than participants with non-traumatic brain injury. At the same time, adolescents with traumatic brain injury (TBI) may show minor cognitive communication deficits. Marilyn & Tracy [4] pointed out that the syntactic complexity of explanatory text is higher than that of conversation. In Nippold and Lei [5] research on complex morphological words, it was found that adolescents are better than children in using derivative words.

There is also a lot of research on micro-linguistics in China. In order to promote the development of English Teaching in our country, Guo Yanhong [8] studies English language from the micro level, especially English language teaching. Some research results have revealed for the first time the impact of genre on the use of literary vocabulary, but the length of dialogue and the density of clauses have no effect [7].

This study will comprehensively demonstrate the micro-linguistic features of SLI adolescents from two aspects: vocabulary and syntax. The lexical level includes nouns, adverbs, metalanguage verbs, metacognitive verbs and conjunctions. The syntactic level includes relative clause, adverbial clause and nominal clause.

## 2. RESEARCH PROCESS

This study analyzed the micro-linguistic features of 19 teenagers diagnosed with SLI and 19 TLD teenagers while producing oral narratives. The average age of 19 SLI adolescent was 14.3 years old, and that of TLD adolescents was 14.5. TLD group attends middle schools in central England. Their mother tongue is English and they only speak English, which means they have not studied other languages and they have not received language therapy. The data for this study come from the Children’s Language Data Exchange System (CHILDES), which was created by Carnegie Mellon University in the United States and is currently the only internationally used corpus of pediatric chapters for psychological research. This study selected the story of the silent picture frog in the system [10], analyzed the storytelling of two groups (SLI and TLD group), and compared the number of coding elements in the t-units. The coding principles were referred to Xiangyu et al. [7] and the following rules.

(1) T-units: Each narrative language sample is divided into T-units, and Hunt [2] defines the t-unit as a main sentence (MC), with any accompanying subordinate sentences (SC).

(2) Vocabulary: To encode vocabulary, contain all noun phrases (ENP), adverbial phrases (ADV), metacognitive verbs (MCV), metalinguistic verbs (MLV) and conjunctions (CONJ).

To be specific, metacognitive verbs are used to represent speakers’ thoughts and mental states, such as decide, forget, know, think and remember. Metalinguistic verbs or rather speech verbs refer to various kinds of speaking, such as say, call and tell.

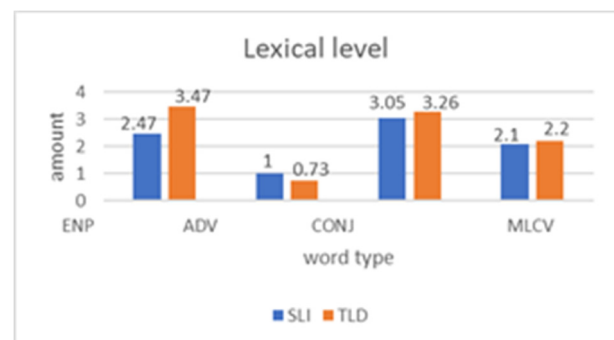
(3) Clause: The coding of relative clause (RC), adverbial clause (AVC) and nominal clause (NOM) can obtain the number of clauses used in each sample, and also can calculate the percentage of clauses occupied by the number of t-units (Tsum).

(4) Density ratios: Two density ratios (RATIO 1 and RATIO 2) for each sample, RATIO1 is obtained by dividing the sum of the number of MC and SC in one sample by Tsum. RATIO 2 is obtained by dividing the total number of clauses (MC + RC + AVC + NOM) by Tsum. For each narrative language sample, this article will calculate the total number of t-units (Tsum), average t-unit length (ATUL) and total words (TS), then encode each language sample and analyze the micro-language features.

## 3. RESULTS AND DISCUSSION

### 3.1. Lexical Level

Lexical Level focus on four types of vocabulary: nouns, adverbs, conjunctions and verbs. From Figure 1, it is obvious that the average number of nouns used by adolescents with SLI is far lower than TLD adolescents. However, the difference between conjunctions and verbs is not obvious. But in the case of the use of adverbs, the result is opposite. Although the difference in data is not distinct, it can be seen that the use of adverbs by SLI teenagers is more than TLD teenagers. For vocabulary output, a statistically significant main effect was obtained for SLI and TLD group only in the use of ENP,  $F=4.06$ ,  $p<0.01$ .



**Figure 1** Vocabulary output by SLI and TLD group.

The study reflects that young people with SLI are weaker in vocabulary knowledge, and they tend to use

fewer conjunctions. In addition, young people with SLI have insufficient ability to use metaverbs in context. And compared with TLD adolescents, SLI adolescents produced fewer nouns evidently. In contrast, adolescents with SLI use adverbs more frequently. In short, in the narrative language, from the perspective of vocabulary level, the ability of SLI teenagers to use vocabulary is defective.

**3.2. Syntactic Level**

In terms of clause production, this paper studies the three main types of clauses used by participants: nominal clauses, adverbial clauses and relative clauses, which is a measure of complex grammar. In terms of clause density, we calculate the RATIO1 and RATIO2 of each sample. A statistically significant main effect was obtained for group, RATIO1,  $F=0.93$ ,  $0.01 < P < 0.05$ . However, they had no differences in the use of AVC, NOM and RC clauses.

Table 1 shows the lexical and syntactic comparison between two groups including mean (M), standard deviation (SD), F and p value by SPSS software, and the data in the table is retained to two decimal places. The current research results support the hypothesis that compared with adolescents with typical language development, patients with SLI produce fewer clauses within each T-unit, and they show lower productivity in the narrative process. In other words, compared with adolescents with TLD, the syntax complexity of patients with SLI is significantly reduced.

**Table 1:** Statistical comparison of micro-language characteristics of SLI group and TLD group

	SLI M(SD)	TLD M(SD)	F	P
<b>Lexical Level</b>				
ENP	2.47 (1.87)	3.47(2.08)	4.06	0.01
ADV	1 (1.30)	0.73(1.30)	0.34	0.54
CONJ	3.05 (2.16)	3.26(3.64)	0.21	0.83
MLCV	2.10 (1.70)	2.20(2.00)	0.28	0.37
<b>Syntactic Level</b>				
TUS	37.89(12.68)	43.68(16.30)	5.94	0.82
ATUL	10.54(2.65)	14.57(1.89)	3.71	0.74
RATIO1	2.32(0.34)	2.36(0.59)	0.93	0.02
RATIO2	1.71(0.28)	1.84(0.39)	0.70	0.88
AVC	1.58(2.76)	1.84(1.28)	0.21	0.71
NOM	1.32(1.45)	1.89(2.00)	0.58	0.33
RC	0.47(0.82)	0.74(1.01)	0.36	0.40

**3.3. Narrative Ability of SLI Adolescents**

Adolescents with SLI usually have deficiencies in oral narrative abilities which can impede the lives and development of adolescents. What is more, in terms of language acquisition, it can be seen from Table 1, ENP in SLI group,  $M(SD)=2.47(1.87)$ , and ENP in TLD group,

$M(SD)=3.47(2.08)$ , research shows that SLI teenagers will have more difficulties in using complex nouns than TLD teenagers, and there will be distinctions in the narrative ability of common things. Moreover, SLI group exhibited fewer variance compared with TLD group, indicating that they showed less heterogeneity in the use of complex noun phrases. The same result can be obtained from the standard deviation of other elements, except that SLI teenagers show stronger heterogeneity in ATUL and AVC.

In the use of grammar, Table 1 obviously displays that SLI group used nominal clauses, adverbial clauses and relative clauses less frequently than TLD teenagers did, even though no statistical significance was obtained.

For young TLD people, the quantity of expression and the quality of narrative are higher than those SLI teenagers. Narrative processing involves grammar, vocabulary and syntactic structure. SLI teenagers usually show defects in the narrative process, and these processes seem to be manifested in the production of discourse.

**4. CONCLUSIONS**

The study compared adolescents with SLI and TLD adolescent peers. This comparison was made at the micro level. At the microstructure level, narrative analysis focuses on the language features of language samples. Microstructure measurements include average length of t-unit, total number of t-units, clause density and frequency of compound sentences as well. In terms of lexical level, TLD groups produced more noun phrases. While for clausal density, a statistically significant result was obtained, which indicated TLD group produced more complicated sentences with more subordinate and main clauses. However, they did not differ in the use of three types of clauses.

**4.1. Research Limitations and Future Development**

Future research should expand on language types, including comparing conversational and descriptive discourse in the language ability and micro-language characteristics of SLA adolescents to control possible order effects. In addition, this paper has a relatively small sample size, future studies can enlarge the group size.

In future research, it is also important to measure how well each participant understands the scenarios. In the current study, the scenes are fairly simple and clear, requiring each participant to accurately retell each scene after looking at the picture. These procedures help ensure that participants focus on the task. Therefore, another limitation of this study is that no formal, objective tools are used to check the understanding of the scene.

## 4.2. Clinical Significance

Although there are increasingly more literatures on SLI, there is little relevant experience to show the micro-linguistic features in the narratives of adolescents with SLI. And patients with SLI have high heterogeneity, and their ability to organize and integrate information is different. Clinically, it can improve clinicians' understanding of micro-linguistic disorder of SLI, developing strategies for improving discourse performance, and applying these strategies to new situations.

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