Discourse Features of Chinese College Students' Argumentative Essays

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Abstract. This article reveals some developmental characteristics of discourse structure in Chinese college students' L2 writings based on an empirical study. Four measures were found significantly and positively correlated with Jacob's rating groups (low, intermediate and high groups), although the correlation was not very high. These findings presented the developmental routes of Chinese college students' L2 writing and the role of discourse structure in L2 writing.

1. Introduction

Written discourse consists of sentences or sentence groups chosen and organized together by certain logic relationship. In recent years, discourse structure analysis has been paid special attention to. In general, micro-structure, would accordingly study the basic connective devices and the cohesion system used to maintain intersentential relationship of sentences, which have been regarded as the mechanism to realize cohesion. This cross-sectional study was undertaken hoping to reveal some developmental features of discourse micro-structure in learners' writings.

2. Literature Review

2.1 The previous study

Qin & Karabacak (2010) have stated that it is vital to exam the structures of argumentative writings produced by EFL learners, because the structure in their writing can inform the construction of instructional materials and the planning of L2 writing instruction in class. The research of discourse structure started very early.Some researches focused on the comparison between English and other languages. In addition, the problems of learners' argumentative structure were also investigated. Nahla Nola Bacha (2010) shows that EFL students find difficulties in producing argumentative writing. He suggested in his research an explicit instructional method in teaching the academic argument.

In sum, apart from a limited number of possible structures within the sentence, or any similar unit, which define the relations among the parts, we have to present how sentences, which are structurally independent of one another, may be linked together through particular features of their interpretation; and accordingly micro-level structure of discourse should go further.

2.2 Classification of Discourse micro-structure

In the research of first language reading, Meyer (1983) applied a proposition tree to analyze the organization of argumentations. He put forward three components of argumentations' organization: microproposition, macroproposition and top-level structure. Micropropoition is the subordinate viewpoint of argumentation, which is the extension of macroproposition. Microproposition with macropropostion together forms the main idea of articles. Top-level structure is the discourse development organization principle of argumentation, which incarnates the logical relation within an article. To well show the percentages of micro-structure measures used by each student in his argumentation, measures were counted for the times applied in each discourse. Besides, in order to analyze how participants develop paragraphs by each micro-structure measure, the times of each measure applied counted in the first step, were compared with the number of paragraphs consisted in the discourse. The formula is: Percentage of each measure= Times/ Number of paragraphs.Specifically, the study attempted to address the following questions:

1. What are the features of discourse micro-structure in the English argumentative writings of the Chinese EFL students?
2. Is there any difference in terms of discourse micro-structure in the English argumentations of Chinese EFL students across different grade levels? Or what is development tendency across levels in terms of discourse micro-structure?
3. Is there any relationship existing between writing quality of L2 texts written by the Chinese EFL students and discourse micro-structure of the texts? If there is, what is the relation?

3. Methodology

3.1 Participants

All subjects, aged from 18-21, were randomly selected EFL students from a key university in China. The participants come from three different grade levels: 43 freshmen, 46 sophomores, and 40 juniors.

3.2 Data collection

To describe the features and development tendency of discourse structural features in Chinese EFL students' writing, compositions were collected within a class period (45 minutes). All subjects were required to write an argumentation on the

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same topic. In order to ensure all the participants could finish writing the essays carefully and seriously, they were told that the scores of the writing would be a part of the final score of the course.

3.3 Data analysis

All the compositions were coded and analyzed for micro-structure defined by the researcher. In order to avoid the mistakes in counting, the above jobs were undertaken by two experienced EFL instructors, with the researcher together. Discrepancies were resolved through discussions until the three raters came to agreement. All the data collected at the first step were typed into computer and analyzed in SPSS.

4. Results

4.1 Descriptive data of all participants

Table 1 Means and standard deviations of measures for all

Variable	Means	MD
Comparison/Contrast	1.84	1.36
Cause-Effect	2.73	1.72
Example	3.19	1.87
Definition	.87	1.00
Description	.66	.96
Classification	.19	.41
Sequence of events	.20	.47

For the overall participants, Table 1 shows that students in present study when writing prefer to apply *Example, Cause-Effect,* and *Comparison* to develop their writing structure. Less application was found in *Definition, Description, Classification* and *Sequence of events* measures. It represents that all participants' compositions are featured mainly by three developing micro-structure measures—*Example, Cause-Effect*, and *Comparison/Contrast,* rather than all.

4.2 Descriptive data for each grade level

In order to give a full-scale investigation on the discourse micro-structure, the means, standard deviations of micro-structure measures per composition produced by three different groups are also analyzed.

Table 2 Means and standard deviations of measures by three goups

Variable / Level	Comparison/ Contrast		Cause-effect		Example		Definition		Description		Classification		Sequence	
	M	MD	M	MD	M	MD	M	MD	M	MD	M	MD	M	MD
Freshmen	1.72	1.55	3.12	1.97	3.30	1.67	0.60	0.82	0.49	0.86	0.21	0.41	0.19	0.55
Sophomores	1.74	1.29	2.57	1.70	3.57	2.10	0.80	1.09	0.57	0.96	0.30	0.51	0.24	0.48
Juniors	2.10	1.22	2.50	1.41	2.63	1.67	1.23	0.97	0.95	1.01	0.02	0.16	0.18	0.38

The data displayed in Table2 shows that *Comparison/Contrast, Definition,* and *Description* measures used per composition are linearly picking up from freshmen to juniors. The number of *Cause-Effect* used per composition shows a constantly decrease from freshmen to juniors, while that of *Example, Classification* and *Sequence of events* used per composition climbs from freshmen to sophomores, and drops at juniors.

4.3 Comparison for different grade levels

With the purpose to investigate whether there are any significant differences or tendency in the discourse micro-structure of the EFL learners' argumentations at three different grade levels, the discourse mirco-structure measures used by three groups of students were compared by One-way ANOVA and/or nonparametric test (Kruskal-WallisH Test). The results are presented as the following two sections with tables and figures in which the means, standard deviations, one-way ANOVA tests and/or Kruskal-Wallis H tests of each measure as well as the multiple comparisons of the means are displayed, followed by detailed description about the tabulated data.

Table 3 Test of Homogeneity of Variances, Anova and Kurskal-Wallis H Test Data: Micro-Structure Measures By Three Grade Levels

Variable	Levene's test for Equality of variances		One-way ANOVA for Equality of means		Kruskal-Wallis H Test	
	Levene statistic	Sig	F	Sig.	Chi-Square	Asymp. Sig
Comparison/ Contrast	1.397	.251	1.021	.363	/	/
Cause-effect	.010	.990	1.667	.193	/	/
Example	.064	.938	2.928	.057	/	/
Definition	3.018	.052	4.395	.014*	/	/
Description	2.492	.087	2.838	.042*	/	/
Classification	12.359	.000	/	/	139.488	.000*
Sequence	1.304	.275	.228	.797	/	/

From Table 3, only three out of seven micro-structure measures discriminate significantly (P< .0001) among the three groups. They are *Definition, Description* and *Classification* measures. In addition, there is no significant difference in *Contrast/Comparison, Cause-Effect, Example* and *Sequence of events* measures among the three grade levels.

In order to determine the distribution of differences among the groups, Post hoc multiple comparisons are made by using Tamhane's T2 testing, as Table 4 displays.Shown as Table 4, difference at .001 and 0.04 level between freshmen & juniors and between sophomores & juniors respectively in terms of *Definition* measure. As to *Description* measure, there are differences at .015 and .016 level of significance between freshmen & juniors and sophomores & juniors respectively. The *Classification* measure used by freshmen is significant different (α=.006) from those by juniors, but no significant differences occur between freshmen & sophomores and sophomores & juniors.

Table 4 Multiple comparisons of micro-structure measures by three groups

Dependent Variable	Group (I)	Group (J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Definition	1.00	2.00	-.17	4.53	.614	-.15	5.76
		3.00	-4.79	4.69	.001*	-.28	6.12
	2.00	1.00	-.12	4.53	.614	-5.76	.15
		3.00	.17	4.62	.040*	-.24	1.49
	3.00	1.00	4.79	4.69	.001*	-6.12	.28
		2.00	.12	4.62	.040*	-1.49	.24
Description	1.00	2.00	-.14	4.79	.758	-.14	6.53
		3.00	-3.75	4.97	.015*	-.27	2.22
	2.00	1.00	-.11	4.79	.758	-6.53	.14
		3.00	3.75	4.89	.016*	-.24	2.77
	3.00	1.00	3.14	4.97	.015*	2.22	.27
		2.00	3.11	4.89	.016*	-2.78	.24
Classification	1.00	2.00	2.68	3.04	.853	-6.42	.12
		3.00	7.72	3.15	.089	-8.65	.16
	2.00	1.00	-2.67	3.04	.853	-.12	6.42
		3.00	5.05	3.10	.006*	-1.19	8.90
	3.00	1.00	-7.72	3.15	.089	-.16	8.65
		2.00	-5.05	3.10	.006*	-8.90	1.19

* The mean difference is significant at the .05 level.

4.4 The inter-rater reliability among the scores

Because the total scores were used in the final correlation analysis of the present study, the results of writing scores should be treated with caution. Table 5 shows descriptive statistics for the total scores and subscores of Chinese EFL students' compositions. Reliability estimates for the composition scores are inter-rater reliability estimates based on the coefficient alpha formula.

Table 5 Reliability estimates for composition scores

Measure (total possible)	M	SD	Range	Corrected Item-Total Correlation	Reliability estimates
Content (30)	21.53	2.27	15-27	.89	.91
Organization (20)	14.65	1.42	11.33-19	.86	.91
Vocabulary (20)	15.47	1.55	10.67-18.33	.86	.91
Language use (25)	14.15	1.24	10.67-22	.90	.90
Mechanics (5)	3.84	.28	3-4.67	.56	.96
Total (100)	72.95	6.82	56.67-91.33	/	.89

From the table, for those subscores, all inter-rater reliability values from .90 to .96, beyond .70, are acceptable. And the reliability for the total scores .89 (beyond .70), is also acceptable. The results indicate a good inter-rater reliability for both total scores and subscores of Chinese EFL students' compositions, which make the present research reasonable, reliable and meaningful.

4.5 Comparison for different proficiency levels

With the aim to investigate whether there are any significant differences or tendency in discourse micro-structure of the participants' writings at three different grade levels, the discourse micro-structure measures used by three groups of students were compared by One-way ANOVA and/or nonparametric test (Kruskal-WallisH Test). The results are presented as the following two sections with tables in which the means, standard deviations, one-way ANOVA tests and/or Kruskal-Wallis H tests of each measure as well as the multiple comparisons of the means are displayed, followed by detailed description about the tabulated data.

Table 6 Means and standard deviations of micro-measures by three groups

variable / level	Comparison /Contrast		Cause-effect		Example		Definition		Description		Classification		Sequence	
	M	MD	M	MD	M	MD	M	MD	M	MD	M	MD	M	MD
Low	.31	.32	.52	.47	.54	.38	.15	.20	.07	.14	2.09	5.91	4.16	.10
Intermediate	.44	.30	.63	.42	.73	.43	.19	.24	.10	.29	3.95	9.77	4.63	.11
High	.51	.64	.68	.40	.79	.36	.20	.21	.16	.21	9.75	.23	6.32	.18

Table 6 indicates that all the measures of micro-structure units linearly increase from low score group to high score group. Strong writers seemed to apply more *Comparison, Cause-Effect, Example, Definition, Description, classification* and *Sequence of events* measures to develop their compositions[1-3].

In order to examine whether there are differences among the three groups based on writing scores, one-way ANOVA testing and/or nonparametric testing were made. All the statistically significant results are displayed in Table 7.

As shown in Table 7, there are significant differences in some of micro-structure measures, such as *Contrast, Example, Definition, Description* and *Classification*. However, no significant differences were found in the application of *Cause-Effect* and *Sequence of events* measures. Furthermore, to examine the relationship of discourse micro-structure to writing quality, correlation analyses was made. The results are in the following table.

Table 7 Test of homogeneity of variances, anova and kurskal-wallis h test data: micro-structure measures by high, intermediate and low score groups

Variable	Levene's test for Equality of variances		One-way ANOVA for Equality of means		Kruskal-Wallis H Test	
	Levene statistic	Sig.	F	Sig.	Chi-Square	Asymp. Sig
Contrast	.562	.572	2.046	.033*	/	/
Cause-effect	.148	.863	2.046	.262	/	/
Example	.220	.803	7.023	.001*	/	/
Definition	.700	.499	.456	.035*	/	/
Description	7.935	.001	/	/	5.435	.006*
Classification	9.374	.000	/	/	3.824	.048*
S. E.	.789	.456	.279	.757	/	/

Furthermore, with the purpose to examine the relationship of discourse structure to writing quality, correlation analysis was made. The results are in the following table.

Table 8 Correlations between discourse organization measures and jacob's rating

Variables		Correlation	Sig. (2-tailed)
Jacob's Rating Groups	Comparison/contrast	.169*	.046*
	Cause-effect	.121	.172
	Example	.292*	.001*
	Definition	.142*	.010*
	Description	.201*	.022*
	Classification	.167	.059
	Sequence of events	.127	.151

As presented in Table 8, four measures of discourse micro-structure are significantly and positively correlated with Jacob's rating groups (low, intermediate and high groups), except that *Cause-Effect, Classification* and *Sequence of events* show no significant correlation to the rating. The r-values are no more than .40, representing that the correlation of discourse micro-structure to writing quality is not very high[4-7].

5. Discussion

5.1 The general features and development tendency of micro-structure measures across levels

According to Table 2, based on the means for each grade levels in terms of *Contrast/Comparison, Cause-Effect, Example* and *Sequence of events* measures, we can find a linear increase for the use of *Contrast/Comparison* (M=1.72; 1.74; 2.10 respectively for each grade), and a slight increase from freshmen to sophomores; a decrease from sophomores to juniors in terms of *Example* (M=3.30; 3.57; 2.63 respectively for each grade) and *Sequence of events* measures (M=0.19; 0.24; 0.18 respectively for each grade).

As to *Cause-Effect*, the table shows a constantly decline from freshmen to the other two grade levels (M=3.12; 2.57; 2.50 respectively for each grade). Herein, the statistics shows a tendency for the three grade levels that with the development of their English proficiency, they apply more *Contrast/Comparison* measure and less *Cause-Effect* measure to develop their composition. For *Example* and *Sequence of events* measures, there is a climb up when they know more about English language, while when they get to junior level, they tend to use less.

Referring to *Definition*, freshmen & juniors and sophomores & juniors show great differences. According to Means, 0.60, 0.80, 1.23 for each grade level respectively, a linear increase trend could be found from freshmen to higher-grade level[7-9].

In terms of *Description measure*, there are significant differences between freshmen & juniors and sophomores & juniors. The means for each grade (M=0.49; 0.57; 0.95 for each grade respectively) also show a slight rise from freshmen to sophomores and a sharp climb up from sophomores to juniors. The *Classification* measure only differing between freshmen and junior, with the means of 0.41, 0.51, .016 for each grade respectively, presents a pick-up from freshmen to sophomores and a rough drop from sophomores to juniors.

Therefore, *Comparison/Contrast, Definition*, and *Description* measures used per composition are linearly picking up from freshmen to juniors. The number of *Cause-Effect* used per composition shows a constantly decrease from freshmen to

juniors, while that of *Example*, *Classification* and *Sequence of events* used per composition climbs from freshmen to sophomores, and drops at juniors[10-12].

5.2 Reliability estimates for composition scores

Inter-rater reliability values based on the coefficient alpha formula for all subscores—content, organization, vocabulary, language use and mechanics, from .90 to .96 (beyond .70), are all acceptable. And the reliability for the total scores .89 (beyond .70), is also acceptable. The results indicate a good inter-rater reliability for both total scores and subscores of Chinese EFL learners' compositions, which make the present research reasonable, reliable and meaningful.

6. Conclusion

The study presents the micro-structural features and development tendency of Chinese EFL students' L2 writing. These findings can help promote the understanding of the development of L2 writing proficiency of Chinese EFL learners and provide insights into the role of discourse structure in L2 writing. Theoretically, this study corroborates earlier research findings on the development of discourse organization by examining undergraduate EFL students in China, a type of research across levels seldom studied. The findings show that learners can develop their ability to use micro-structural elements and vary in application during the school years. From practical perspective, teachers can make use of the findings in relation to the process of discourse construction to promote English writing teaching in China.

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