

**WRITING ACROSS
LANGUAGES
AND CULTURES**
**Issues in
Contrastive Rhetoric**

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10

Academic and Ethnic Background as Factors Affecting Writing Performance

YOUNG MOK PARK

The purpose of this chapter is to follow up aspects of Carlson's study reported in this volume. More specifically, this study investigates:

- (a) whether the different assignments testing college-level students affect judged performance;
- (b) whether the assignment variables interact with different writer groups such as a student's major field and native language on the performance of writing;
- (c) whether the different scoring scales leads to different interpretations of the effect of the assignment variables on the writing performance.

This report presents some data related to the first and third questions but concentrates on the second.

The original writing sample in this study consists of 424 essays written by 212 upper level college students. The sample includes 96 native speakers and 116 nonnative speakers of English (Carlson, Bridgeman, Camp & Waanders, 1985). In addition to the writing sample, the following information was available: the student's native language, major field, GRE scores, and holistic (general impression) score for the two different topics. (Use of the data was granted by the Educational Testing Service [ETS]).

From the original ETS data, 96 student writing samples were selected for this study-among these were 24 students, native speakers of English, with a major in a hard science; 24 students, native speakers of English, with a social science major in a hard science; and 24

TABLE 10.1
Topic Comparison in Relation to the Elements of Writing Assignment

	<i>"Space" Topic</i>	<i>"Farm" Topic</i>
instruction type	topic and content	topic and content
stimulus (information type)	one paragraph with general information	one paragraph with specific information using graphs
cognitive demand	invent/generate/evaluate	invent/generate/evaluate
purpose	to convince/inform	to inform/convince
audience	unspecified (general)	unspecified (general)
mode	argument/exposition	argument/exposition

students, native speakers of Chinese, with a social science major. Since each student wrote two essays on two different topics, the total number of writing samples for this study is 192.

Characteristics of the essay topic. Each student wrote two essays on two different topics. For the "Space" topic, students were required to compare and contrast the advantages of space exploration and to take a position. In the "Farm" topic, students were required to interpret the relationships among three graphs showing the change in farming patterns over a period of 40 years in the United States. These two topics are distinctive in regard to the type of information provided in the assignment (see Table 10.1).

Quality of the Essays. Three different kinds of scoring methods were used: analytic score, holistic score, and syntactic characteristics. The analytic scores were generated by four raters using Purves's analytic scoring scheme as described by Carlson. For the "Space" topic, four raters rated all essays, whereas for the "Farm" topic, two raters rated the odd numbered essays, and another pair of raters rated the even numbered essays. To minimize the rater effect on the comparison of the two topics, the average scores of the two rater groups' rating for both the "Space" topic and the "Farm" topic were used in the investigation of the topic effect on students' writing performance. The interrater reliability estimates were consistent (interrater reliability coefficient alpha for "Space" topic = .90, and for "Farm" topic = .84). Consequently, it is assumed that the rater variable does not significantly affect the quality measure of these

writing samples when the average score is used as the quality measure of the writing sample.

The holistic scores were generated on a six-point scale. In the holistic scoring method, the raters independently rated students' essays by evaluating where the paper fits within the range of essays written for the given assignment. The raters were trained to read the essay quickly and to score it as a whole without considering the several dimensions of writing skill (Breland &

Griswold, 1981). The interrater reliabilities were consistent (interrater reliability coefficient alpha for "Space" topic =.81, and for "Farm" topic =.87).

In addition to the analytic scores and general impression scores, two kinds of syntactic characteristic measures-length of elaboration measures and syntactic complexity measures-were used as dependent variables. For the length of elaboration measures, the total number of words, total number of T-units, total number of free modifiers (openers, interrupters, and closers) were counted, using several reference materials (Christensen, 1968; Christensen & Christensen, 1978; Dixon, 1970; Hunt, 1970, 1977; O'Hare, 1973; Tibbetts & Tibbetts, 1984; Wolk, 1970). For the syntactic complexity measures, the mean T-unit length and the ratio of free modifiers (ratio of openers, interrupters, and closers) were counted. The T-unit (a group of words that constitute a main clause in addition to all subordinate clauses attached to it) and the ratio of free modifiers were used for determining syntactic complexity or maturity in English because it is widely accepted that the mean T-unit length increases with maturity and a mature style has a relatively high frequency of free modifiers, especially in the final position (Christensen, 1968; Christensen & Christensen, 1978; Hunt, 1977). According to Wolk (1970), the initial free modifier (opener) includes all words, phrases, and clauses that precede the noun phrase that serves as the subject. The medial free modifier (interrupter) is set off by punctuation and should occur neither initially nor finally. The final free modifier (closer) is set off by punctuation, and appears after the last word of the bound predicate.

SUMMARY OF RESULTS

The principal results of the investigation for the topic effects are summarized in conjunction with the three major questions of this

study. (For a full account of the results, see Park, 1986.)

Task differences. Significant topic effects were found in the elaboration-length measures, the analytic content/thinking scores, and the holistic scores. However, in the syntactic complexity measures and all the analytic scores except the content/thinking scores, the topic effects were not significant. The following is a brief summary of the findings on the topic effects (in order of significance):

- (1) The students generated significantly longer elaboration for the writing task with general information provided (the "Space" writing task) than for the writing task with narrowly defined specific information provided (the "Farm" writing task).
- (2) The essays for the "Space" task received significantly higher scores in the analytic content/thinking main criteria than the essays for the "Farm" task. Of the seven subcriteria of the content/thinking dimension, significant topic effects were found in richness of information, evaluation, and alternatives.
- (3) The essays for the "Space" task received significantly lower scores in the holistic rating than the essays for the "Farm" task.
- (4) In the syntactic-complexity measures, the essays for the "Space" task were similar to the

essays for the "Farm" task.

- (5) In the analytic organization, style/tone, and total analytic scores, both sets of essays received almost the same level of ratings.

The interaction of topic, language, and major. The major findings related to the interaction effect of the native-language groups (NL) and topics, the interaction effect of the academic-major groups (MG) and topics, the interaction effect of the analytic main criteria and topics, and the interaction effect of the scoring methods and topics are as follows:

- (1) The NL×topic interaction effects were significant only in the two elaboration-length measures: the total number of words and the number of words in free modifiers. This result indicates that the native-English language group used a significantly larger number of words for the "Space" task than for the "Farm" task; whereas, the native-Chinese language group used a similar number of words for both the tasks.
- (2) However, in the syntactic complexity measures, all the analytic scores, and the holistic scores, the NL×topic interaction effects were not significant, indicating that the topic effects are parallel across the two different native-language groups.

Young Mok Park

265

- (3) The MG×topic interaction effect was significant only in the holistic scores. This indicates that the hard-science major group received significantly higher scores on the "Farm" task than on the "Space" task, whereas the holistic scores of the social-science major group were not significantly different in the two different writing tasks.
- (4) The nonsignificant MG×topic interaction effects in the writing skill measures, except the holistic scores, indicate that different academic backgrounds do not significantly affect writing performance (in elaboration-length, syntactic complexity, and analytic scores) for the two writing tasks.
- (5) The interaction effect of the three analytic main criteria and topic was significant. This result indicates that the content/thinking score is significantly higher than the style/tone score in the "Space" task; whereas, in the "Farm" task, the style/tone score is significantly higher than the content/thinking score.
- (6) The interaction effect of the two scoring methods and topics was significant, indicating that the essays for the "Space" task are rated highly by the analytic scoring method; whereas, the essays for the "Farm" task are rated highly by the holistic scoring method.

Task effects. The most significant effect of the topic was found in the elaboration-length variables. This result supports the notion that the amount of elaboration in writing may be related to the information types. For example, in the "Space" topic (general information provided), writers can draw information from their own knowledge and experience on the advantages and disadvantages of space exploration; whereas, in the "Farm" topic (specific information provided), writers have to rely heavily on the specific information given in the assignment. Therefore, the results suggest that a writing task requiring writers to draw more upon their previous knowledge facilitates more elaboration as measured by the total number of words and number of words in

free modifiers. This result indicates that the findings of the learning and memory research on reading comprehension can be applicable to writing research. Several researchers (Anderson & Reader, 1978; Benton & Blohm, 1986; Bransford, Franks, Morris, & Stein, 1978; Stein & Bransford, 1979) reported that reading comprehension tasks requiring subjects to draw on previous knowledge resulted in higher levels of text recalls than did reading comprehension tasks not requiring extensive use of previous knowledge.

The nonsignificant effect of the information types on the syntactic

266

Rhetorical Patterns

complexity variables supports several researchers' findings that the T-unit length and the ratio of free modifiers are stable indices of syntactic complexity and maturity (Christensen, 1968; Christensen & Christensen, 1978; Hunt, 1965, 1983; Wolk, 1970). Some researchers (Crowhurst & Piche, 1979; O'Donnell, 1976; Watson, 1983) reported that syntactic complexity in written composition is significantly affected by different discourse modes and different intended audience variables. However, the results of this study provide evidence that the syntactic complexity measures (T-unit length and ratio of free modifiers) are stable across different types of writing tasks within the same discourse mode and audience.

The significant effect of the information types on the analytic content/thinking scores suggests that the general writing task obligates students to produce more extensive information, more explicit judgments, and more alternative views of thinking than the specific writing task. The nonsignificant effects of the information types on the analytic organization and style/tone scores suggest that the different information types do not significantly affect judgments of the organization of the essay and of the degree to which style matches the conventions of academic English. This result indicates that the latter two analytic criteria are not sensitive to the information types provided in an assignment.

Why do the information types significantly affect the analytic content/thinking scores but not the analytic organization scores and the style/tone scores? One reason may be that the content/thinking criterion focuses on declarative knowledge (knowledge of facts or ideas); whereas, the organization and style/tone criteria focus on procedural knowledge (automatized knowledge of how to do something). The significant topic effect on the holistic scores contrasts with the topic effect on the analytic scores. The holistic scores for the specific writing task are significantly higher than for the general writing task, whereas the analytic scores for the specific writing task are lower than the general writing task. One of the problems in interpreting the above results has to do with the characteristics of the holistic scoring method. The major function of the holistic scoring method is to separate the better performers from the poor performers by rank ordering the essays; hence the holistic scores provide little information about the "intrinsic" quality (Hirsch, 1977, p. 189) of an individual student's writing.

However, one of the reasons for this difference can be explained by

Young Mok Park

267

the results of the investigation of relationship between the holistic scores and the syntactic characteristic variables and the relationship between the holistic scores and the analytic subcriteria scores. Holistic scoring focuses less on essay length variables compared to the analytic scoring,

although the essays on the general writing task are significantly longer than the essays on the specific writing task. This means that holistic scoring focuses less on the number of ideas (more expensive ideas and alternative views of thinking) than the analytic scoring. The holistic scores correlate more highly with the analytic organization subcriteria (the unity subcriteria for the general writing task and the framing subcriteria for the specific writing task) than with the analytic content/thinking subcriteria. In addition, the holistic scoring method used in this study considered mechanical errors of students' essays, whereas the analytic scoring method used in this study did not deal with mechanical errors.

The language and academic major group differences. In exploring the differences between the two language groups and the two major groups in more detail, certain findings emerge. In terms of the sentence level scores, the significant NL main effect shows that the native-Chinese language group produces a less complex style of written discourse than does the native-English language group.

The significant NL main effect suggests that the native-English group uses a significantly higher ratio of free modifiers and closers than does the native-Chinese group. This finding also supports Christensen's (1968) claim that a large percentage of free modifiers is the mark of the skillful writer. One interesting result is the significant interaction effect of NL×MG×topic. Because of the small sample size of this study, the result can not be generalized. As shown in Figure 10.1, in the native-English group, the hard-science major group students use a higher percentage of free modifiers in the "Farm" topic than in the "Space" topic, whereas in the native-Chinese group, the hard-science major group students use a higher percentage of free modifiers in the "Space" topic than in the "Farm" topic. This result may indicate that the use of free modifiers can be affected by students' academic background, which may, in turn, affect interest or prior experiences with the task.

Holistic scores. Table 10.2 presents the mean and standard deviation of the holistic scores for each group and for the total group. The means of the "Space" topic holistic scores are lower than those of the "Farm" topic in the total group and for each of the native-

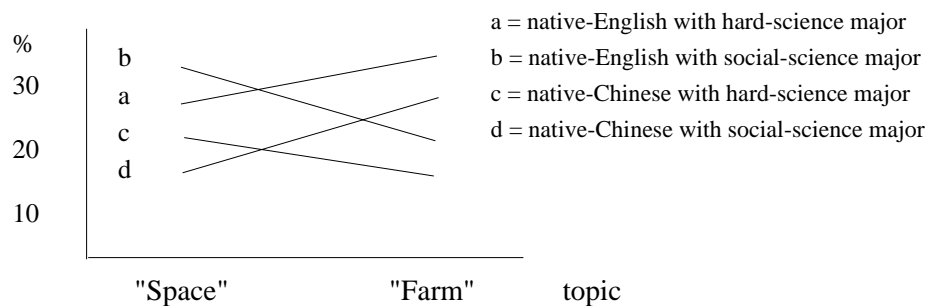


Figure 10.1 NL×MG×Topic Interaction Effect for Percentage of Words in Free Modifiers

TABLE 10.2
Mean and Standard Deviation of Holistic Scores

	<i>"Space" Topic</i>	<i>"Farm" Topic</i>
total group	4.27 (1.55)	4.46 (1.55)
native-English group	5.52 (.76)	5.79 (.50)
native-Chinese group	3.02 (1.05)	3.13 (1.01)
hard-science group	4.04 (1.54)	4.41 (1.40)
social-science group	4.50 (1.55)	4.51 (1.71)

language group and major group. This result is clearly different from of the analytic score in which there were no significant nces. In the major group, the mean of the social-science group her than the mean score of the hard-science group.

The results of the investigation for the topic effects on the holistic provide the following four major points:

- (1) The holistic scores are significantly affected by the different types of topics. Students received significantly higher scores for the "Farm" topic than they did for the "Space" topic, and the significant topic effect is clearer in the native-English language group.
- (2) The pattern of topic effect on the holistic scores contrasts with the opic effect on the analytic score. The analytic score of the "Space" opic is generally higher than the "Farm" topic score; however, the holistic score for the "Space" topic is significantly lower than the "Farm" topic score.
- (3) The two major groups' holistic scores are significantly affected by the two different topic types. The holistic score difference between he two topics is significant in the hard- science group, whereas the difference is not significant in the social-science group. This result indicates that the holistic scores can be affected by students' academic background, interest, and experiences to the given topic.
- (4) The two native-language groups' essay quality scores are significantly affected by the two different scoring methods. The difference between the two groups' scores are more significant when their says are rated by the holistic scoring method.

The results of an ANOVA show a significant topic main effect ($F=1,92$ $p=.0194$), NL main effect ($F=284.70$ $df=1,92$ $p=.0001$), and $MG \times topic$ interaction effect ($F=5.07$ $df=1,92$ $p=.0267$) for the scores. However, MG main effect ($F=3.26$ $df=1,92$ $p=.0741$), $NL \times topic$ interaction effect ($F=.93$ $df = 1,92$ $p=.3372$), and $NL \times topic$ interaction effect ($F = .69$ $df = 1,92$ $p = .4351$) are not

significant. The significant topic effect indicates that when the quality rating is conducted by a holistic scoring method, the quality of student essays can be significantly affected by the different topics in regard to the types of information provided in the assignments. The significant $MG \times topic$ interaction effect indicates that the hardscience major group students receive a significantly

higher holistic score on the "Farm" topic than on the "Space" topic; while the holistic scores of the social-science major group students are not significantly different across different types of topics. They received slightly higher scores for the "Farm" topic than they did for the "Space" topic.

The above results may be further clarified by the characteristics of the holistic scoring method itself. In the holistic scoring method, student essays are rated globally according to what the student has been able to perform compared with what the other students have been able to perform. The major function of the holistic scoring method is to separate the better performers from the poor performers by rank ordering the essays; hence holistic scoring provides little information about the quality of an individual student's writing against a specified criterion.

Such a conclusion does not diminish the fact that native-language teachers appear to judge more harshly students who are not speakers of that language and students who are in a discipline quite distinct from that of the teachers, particularly when the students are asked to write a composition on a topic that draws on their general knowledge. It may be the case that students in the sciences have more practice with the more "limited" task and thus appear to master it. Based on raters' holistic judgments, however, the contrast between languages may be supplemented by a contrast between disciplines, which are themselves rhetorical communities.

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