C h a p t e r   Twelve

EFFECTS OF COHESION AND COHERENCE
IN WRITTEN DISCOURSE ON COMPREHENSION*

These examinations of reading comprehension are based on the
theoretical distinction between cohesion and coherence in written
discourse (Halliday and Hasan, 1976). Cohesion is defined as the
language elements which link explicitly expressed ideas between
and within sentences in a text, e.g., referential, conjunctive,
and lexical elements. Coherence is defined as the language ele-
ments which relate a text to the reader´s world, e.g., the form
and order in which ideas occur.

The first study discussed in this chapter attempted to find
the answer to the following question: Which has a greater effect
on the reading comprehension of foreign language learners: the
language complexity (cohesion) or the culturally determined back-
ground of a text (coherence)?

The sample for this study consisted of 46 intermediate advan-
ced Iranian ESL students and (to compare performance) 19 native
English speakers, all subjects in their first year of   academic
study on the university level. The reading passages, a   Mullah
Nasr-el-Din story from Iranian folklore and a Buffalo Bill story
from American folklore, were equivalent in narrative plot con-
struction, containing similar but culturally distinct motifs. The
stories were balanced for number of sentential complements, rela-
tive clauses, compound and complex sentences and for number of
low-frequency vocabulary words and figurative expressions.   Each

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text was also adapted, based on a contrastive analysis of the Farsi and English language (which predicted the English relative clause to be difficult for comprehension by Iranian students) and on an error analysis of these subjects' production in English structure tests.

Both Iranian and American students were randomly assigned to two groups. Group 1 read the unadapted texts of stories from their own culture and the foreign culture. Group 2 read the adapted texts. The order of passages was counterbalanced. After reading the passage, subjects were tested for reading comprehension by recalling the story in written form without reference to the passage.

The dependent variables in the linguistic analysis of data were the number and types of propositions or idea units and the relation between propositions contained in the subjects' recall of the passage in comparison to those in the reading passages. This model of propositional analysis of text used as the basis for scoring was adapted from the models of Kintsch [1978] and Grimes [1972], the latter as adapted by Meyer [1975].

The data obtained from the linguistic analysis of the subjects' recall protocols were computer analyzed using a one--between one-within factorial multivariate analysis of variance design. The independent variables were the physical social context (foreign vs. native) and the language complexity (unadapted vs. adapted) of the reading passages, constituting the within-subjects factor (repeated measurement) and the between-subjects factor, respectively.

Multivariate analysis of variance indicated that the level of syntactic and semantic complexity of the text had a lesser effect than the cultural origin of the story on the reading comprehension of the Iranian ESL students. Only the recall of total events and/or actions of the characters showed interactive effects of language complexity and cultural origin, $F(1,45) = 4.30$, $p < .05$; more events were recalled from the adapted text of the American story than from the unadapted text ($p < .05$, Scheffé test; for details on the Scheffé test, see Hatch and Farhady, 1982: 143-146). There was no such recall difference between the adapted and unadapted texts of the Iranian story. Explicit top-

-level propositions in the description of the situation in the story, $F(1,45) = 15.77$, p < .01, as well as supportive or explanatory middle-level propositions, $F(1,45) = 4.52$, p < 05, were all better recalled from the story of native cultural origin. More errors were made in the recall of the story of foreign cultural origin, $F(1,45) = 4.19$, p < .05. There were no significant differences in recall of bottom-level propositions and the correct sequence of events across both stories and both text versions.

In contrast to the ESL learners, the reading comprehension of the native language readers was affected by both the language complexity and the cultural origin of the text. While they recalled more top level propositions describing plot situation from the story of native cultural origin, $F(1,18)=8.32$, p < .01, they recalled more supportive and explanatory middle level propositions from the unadapted texts across both stories, $F(1,18)=6.77$, p < .01. The recall of total events, $F(1,18)=6.49$, p < .01, and the correct sequence of events $F(1,18)=5.17$, p < .01, was better in the recall of the unadapted text of native cultural origin. There were no significant differences in recall of bottom--level propositions across both stories and both texts, although there was a tendency to make more errors in recalling the adapted texts.

As for the rhetorical relation between propositions in the text, the ESL students recalled more from the story of native cultural origin than from the story of foreign cultural origin, $F(1,45)=10.80$, p < .05, with no effect of language complexity. The native language readers recalled more relation between propositions from the unadapted texts than from the adapted texts, $F(1,18)=5.81$, p < .05, with no effect of cultural origin of the stories.

This study on the comprehension of ESL readers in comparison to that of native speakers of English led to the following question: Does cohesion or coherence in written discourse have a greater effect on the comprehension of teacher/readers in determining the quality of a composition?

In the second study discussed in this chapter, there were three groups of teachers who participated: (a) Malaysian tea-

chers of the Malay language and (b) American teachers of English to native and (c) to non-native English speakers. There were three sample groups, each containing ten compositions evaluated holistically as "good" and ten compositions evaluated holistically as "weak" in quality, a total of sixty compositions. All the sample compositions were written under pressure and supervision in a specified time length. Compositions written in Malay were part of a final examination upon completion of a Malay medium secondary school. Malaysian teachers first rated the quality of the compositions in their classes. The compositions were then pooled and rated by all the teachers to obtain an overall comparative standing. The compositions submitted by the American teachers were part of an examination to place students in the correct college composition course. A committee of instructors rated the compositions individually according to a preset scale and double checking was done in cases of questionable ratings.

The compositions were first analyzed for cohesion (adapted from Halliday and Hasan, 1976). Ties or cohesive relation between sentences were identified as syntactic (reference or conjuction) or semantic (reiteration or collocation). Distance, or the number of intervening sentences separating the linguistic item from its referent, was also calculated . There were three participants in this analysis: two native English speakers and one native Malay speaker.

T-tests were performed on the data obtained from the analysis of cohesion. For all three groups of compositions, there were no differences in means between compositions evaluated as "good" or "weak" in quality for the quantity of cohesive items (number of cohesive items per sentence or per composition) or for the distance (number of intervening sentences) between cohesive items and referents (syntactic and semàntic ties).

As for the type of cohesion, semantic ties make up approximately three fourths of the total cohesive ties in both "good" and "weak" compositions in the three groups.

Analysis of cohesion of the essays written in the Malay language indicates that "good" essays contain a greater use (p. $<$ .05) of semantic cohesive ties (mean=48.56, s.d.=46.31) than "weak" essays (mean=38.81, s.d.=18.45). This greater use of se-

mantic cohesive ties (reiteration and collocation) may be linked to the organization of content as topics of essays given by the Malaysian teachers call for descriptive or persuasive writing. In the analysis of the coherence patterns of the "good" compositions, descriptions and arguments are developed with the use of opinions and abstract references to the writer's feelings and thoughts. "Good" compositions tend to end with an exhortation of advice to the reader or the use of figurative language or exaggeration.

Analysis of cohesion of the essays written in English by native speakers indicates a greater use (p < .05) of syntactic ties in the "good" essays (mean=9.88, s.d.=4.39) than in the "weak" essays (mean=4.93, s.d.=2.32). This use of syntactic cohesive ties (conjunction and reference) may also be linked to the organization of content as topics given by American teachers elicit expository writing. An analysis of the coherence patterns in the "good" essays indicated a greater use of supporting details and concrete examples. The final general summary was a reiteration of ideas introduced at the beginning or a restatement of the thesis.

The essays written in English by Malay speakers exemplified a developmental stage in the use of language and in the organization of content. There was no difference between "good" (mean= =57.33, s.d.=30.95) and "weak" (mean=56.45, s.d.=44.40) essays for the amount of cohesion. Although the topic given to the Malaysian ESL writers should have elicited expository writing, coherence patterns found in the sample "good" essays of both native speakers of Malay and of English can be identified in the "good" essays written in English as a Second Language by these Malaysian students.

Further research could confirm and extent the results in this exploratory study. If the sample groups were larger, an analysis of variance could reveal the effect of topic on cohesion and coherence patterns, as seems to be indicated in this text analysis. If all subjects had written on the same topic, a topic which would elicit either descriptive or expository writing, it could be determined if semantic ties are typical of descriptive writing and if syntactic ties are typical of expository writing, no mat-

ter the language of the essay. If essays in the Malay language of the ESL students in this study had been examined, the existence of a rhetorical style or coherence pattern already developed in Malay and transferred to essays in English could be determined. Further research could also determine if the developmental stage of the ESL subjects in this study is characteristic of all students learning expository writing, native or non-native English speakers.

The theoretical distinction between cohesion and coherence in written discourse is supported by both of these studies.

In the first study, the foreign language learners tended to understand the adapted texts better than the unadapted texts of the story of foreign cultural background, while no such differences seem to exist in the comprehension of the story of native cultural background. This result implies that they may have problems reading unadapted texts of materials for which they have no background knowledge. However, the lack of cohesion in the adapted versions of both stories had an effect on the comprehension of the native English speakers. These readers could not recall the adapted versions of the stories as well as the unadapted versions, which seems to indicate that adapted English may not be coherent for native speakers.

The cultural origin of the story had more effect on the readers' comprehension that the language complexity. Both Iranian and American readers understood the story from their own cultural background better than the story of the other culture. In other words, the coherence of the stories for the readers' comprehension depended on their culturally determined background knowledge. This result implies the necessary consideration of the culturally determined background of a text as a criterion in the selection of reading materials and in the evaluation of the reading comprehension of foreign language readers.

The lack of difference in the quantity of cohesion between compositions evaluated as "good" or "weak" by teacher/readers suggests that quality must depend on the coherence pattern or organization of content, as exemplified in the "good" compositions.

The crucial textual cues for reading comprehension for learners of English in the first study and for teacher/readers of compositions in the second study seem to be semantic cues. In the first study, semantic cues signal the relation of the text to the shared background knowledge of the readers, resulting in better comprehension of the story of the same cultural background. In the second study, writers use semantic cohesion more than syntactic cohesion, for linking sentences. In summary, lexical cues seem to play an important role for the coherence of a text in constructing meaning for a passage while reading or in communicating meaning while writing. Thus vocabulary development seems equally important in teaching both reading comprehension and composition writing.