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READING COMPREHENSION DIFFERENCES
BETWEEN SPANISH AND ENGLISH
SPEAKERS

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This paper reports an investigation of reading comprehension differences between Spanish and English speaking university students. We first became interested in investigating differences in comprehension while tutoring several Latin American students. Although these students were obviously bright, had experienced considerable academic success in their own countries and spoke sufficient English to adequately understand their English texts (one student was even an experienced professional translator), they consistently had more academic struggles than equally prepared Anglo-American students. A common complaint was expressed by all: "We study and study, think we understand the material and do poorly on tests because we've always studied the wrong thing."

The study habits of these students appeared to follow a pattern. They placed greater emphasis on the expression of personal ideas and opinions than on the empirical evidence thought by the teacher to be most important. Often these students failed to see what the professor thought was the purpose or main idea of a passage.

For example, one student in a beginning health class was studying a section in which a number of major diseases were discussed and their cures outlined. When asked what was important in the section she replied, "that the diseases of . . . have now been completely eliminated." She was prepared to answer a question such as "What diseases are now completely curable?" Her Anglo-American teacher would more likely ask her to outline the specific cures for several of these diseases. When the teacher's perspective was explained to her, she easily learned the cures, and passed the test. She never could quite understand, however, why her teacher would ask for such "foolish information"--information useful for doctors but not anyone else.

Numerous similar experiences convinced us that a careful examination of intercultural differences in comprehension could lead to information helpful in making foreign students as successful in an Anglo college as their prior success and general intelligence deserved.

The desire to investigate comprehension differences increased while we were working on a literacy project in Mexico City. The purpose of the project was to enable marginally literate adults to read and understand the scriptures. It rapidly became apparent that the academic, Anglo concept of "understand" was inadequate in this culture. For example, many women "understood" the writings of Isaiah on such a personal level that they wept when they read those poetic passages and expressed desires to change their lives. However, they were generally unable to repeat with exactness the "meaning" of the passage that had so touched them. In general they seemed well prepared to feel the power of figurative language and to understand and personally apply the stories of the scriptures. It was a struggle, however, to get them to understand any principle in the abstract when they could so adequately understand it on another level.

We recognized additional sources of intercultural differences while trying to design tests to measure the comprehension of the students in Mexico. The Anglo-developed tests all seemed to measure an objective and detached kind of comprehension, while the students' understanding of what they read seemed more personal and integrated. The form and administration of those tests also seemed to violate some of the students' most basic assumptions. For example, despite the teacher's best efforts to ensure that everyone do his own work, many parents still received help from their better-educated children. When one woman was told to do her own work, she said simply, "I am; my daughter is helping me."

Fixed time limits presented a similar problem. Some native teachers would not adhere to the time restrictions outlined by the tests. They felt such limits humiliated adult students by not allowing them to finish. No amount of persuasion could convince them otherwise.

Teaching the students to "choose the best answer" on a multiple choice test was more difficult than teaching them to understand the passage in the first place. For example, despite repeated instructions, many students added their own answers to the questions because, according to them, "the right answer isn't here."

Based on these observations and experiences, a small pilot study was designed to investigate the following questions: Do intercultural comprehension differences in fact exist? If so, can they be measured? What instruments best delineate the differences?

To answer these questions, the content of the passages, the order in which the students read the passages, and the instruments used to measure the students' comprehension were varied.

The passages selected for the study were designed to determine the effect of two different kinds of content on intercultural comprehension differences. Passage A was taken from an introductory psychology textbook. It consisted of 791 words in English (Spanish, 788) and eight paragraphs organized according to the typical textbook structure: each paragraph had an easily identifiable topic sentence which could be shown to have a direct relationship to the other topic sentences.

Passage B was taken from the scriptures. It consisted of 704 words in English (Spanish, 863) and twenty verses. The organization was looser than that of Passage A. There were very few topic sentences and the relationship of one verse to another was not so easily identifiable. Passage B also contained a considerable amount of figurative language; passage A had none.

Both passages were originally written in English. Passage B was taken from the Spanish translation of the scriptures. Passage A was translated by a member of the American Translator Association, who also translated all the test questions and instructions.

Eighteen BYU students participated in the study: nine English-speaking students enrolled in an English 114 class, and nine Spanish-speaking students enrolled in an intensive English class for foreign students. The Spanish-speaking students had been in the United States less than six months and were all applying for admission to BYU.

Three tests were given: a free recall test (scored by means of discourse structure analysis, which will be explained later), a test which required the students to select the five sentences they thought were most important to the meaning of the passage, and a multiple choice test.

The multiple choice test was designed to measure recognition of exact information (literal recall), recognition of accurate summary statements, recognition of accurate inferences, and the author's purpose.

The identification of the five most important sentences was designed to measure the correlation between information recalled and judgment of what was most important in the passage. The open-ended free recall test was designed to measure the tendency to recall exact information (literal recall), to make correct summary statements, to make false statements, to make correct inferences, to recall information in its relationships to other information (as defined by discourse structure analysis), to construct relationships (as defined by discourse structure analysis), the total amount of information recalled, and to remember main ideas or supporting ideas (as defined by discourse structure analysis). The number of summary, inferential and false statements were counted according to a set of rules. The literal recall and relationships between main and supporting ideas were measured by a method of discourse structure analysis.

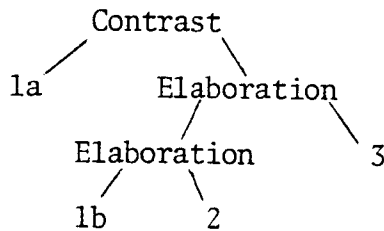
Discourse structure analysis was used as a way of measuring comprehension because other studies had shown it to be effective in measuring qualitative differences in comprehension not measured by other tests. (Meyer, 1974; Hansen, 1976) Discourse structure analysis is a general term used by grammarians and linguists to describe the analysis of written language above the word and phrase level. Its basic aim is to represent a body of discourse in such a way that all the ideas and their relationships to each other can be seen clearly.

The method of analysis used was an adaptation of a model developed by Dennis Packard. (Packard, 1975) Packard divided a body of discourse into clauses and used a series of rules to identify the relationships between those clauses. He categorized the relationships as coordination, temporal, elaboration, comparison/contrast, reason or emphasis and used a tree diagram to represent his analysis. For example, consider the following passage:

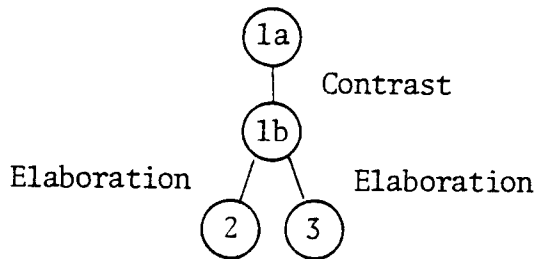
- 1a Groups vary widely in size, intimacy, and formality,
- 1b but all of them, from the nuclear family to the large corporation involve some relative degree of interdependence between two or more people.

- 2 That is, group members are affected or influenced by one another in significant ways.
- 3 Interdependence generally comes about through direct communication or a feeling of group belonging (or both).

According to his analysis the relationships between the clauses are represented like this:



In other words, clause 1a is related to 1b by a contrast relationship and clauses "2" and "3" are elaborations of clause "1b". We changed Packard's diagram to represent this structure a little more simply and to allow one clause to be related to a series of clauses rather than to only one clause.



The student's free recall was compared to a discourse structure analysis of the passages according to a pre-established set of rules. (A complete set of rules are available from the authors.) The recalls were scored for the number of clauses and the number of clausal relationships recalled.

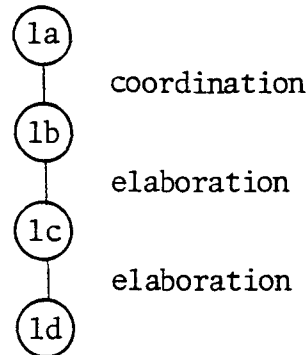
In applying the method to Spanish we noted that translation often makes relationships explicit which were only implicit in the original passage. For example in English the following passage is only one clause and therefore contains no relationships.

By adding his advertising slogan to its list of possibilities, the morning conference group suggested to Ralph that his thinking was along approved lines.

The Spanish translation, however, created 4 clauses and three relationships.

- 1a Cuando el grupo de la reunión de negocios aceptó las sugerencias de Rafael (when the business meeting accepted Ralph's suggestions)
- 1b y las incluyó en la lista de posibilidades (and included them in the list of possibilities)

- 1c lo que en realidad estaba haciendo fue sugerir que Rafael estaba pensando dentro de las pautas (in reality, what they were doing was suggesting that Ralph was thinking along lines)
- 1d que ellos habían aprobado. (that they had approved.)



It was decided to simply recognize that this problem existed and compare the percentage of possible relationships recalled rather than the total number. The number of relationships constructed by the students that were not made explicit in the passage were counted under a separate heading.

After collecting the data from these three tests a multi-variate analysis of variance and a difference of proportions test were used to determine statistically significant differences between the scores of Spanish and English speaking students. Although the variables of sex, age, years in school and time taken to read the passages were considered in the analysis, they were found to have no statistical significance. The data for the three tests is summarized below.

Multiple choice tests--English speaking students generally performed better on the multiple choice tests than Spanish speaking students. English speaking students scored significantly higher when the scores for both passages were considered together ($p = 0.0024$). English students also performed much better on the multiple choice test on the scripture passage ($p = 0.097$). On the multiple choice tests of the psychology text, both groups performed equally well.

TABLE 1
AVERAGE NUMBER OF MULTIPLE CHOICE QUESTIONS ANSWERED CORRECTLY

	Spanish	English
Psychology (A)	5.7	6.2
Scriptures (B)	3.7	5.6
Combined (A & B)	4.7	6.0

N = 18

Total possible = 7

We expected the Anglo students to do better on multiple choice tests for several reasons: (1) They are more familiar with this type of test, although all the foreign students had taken multiple choice tests in their own countries. (2) The multiple choice test was constructed by an Anglo who probably imposed some cultural biases on the questions. (3) The review of literature indicated that Spanish speakers tended to focus more on figurative language and analogy than on the factual information required by the multiple choice test.

The large difference between Spanish performance on passages A and B, where no large differences existed for English speakers, however, was not expected. The fact that the Latin students did much worse on the passage that was open to the most ambiguity of meaning indicates that the multiple choice test may have imposed an interpretation of the passage that those students could not relate to. It is also possible that the Spanish speaking students were simply less familiar with the content, style, and syntax of the scriptural passage.

Statistically neither English nor Spanish speakers identified as important different parts of the passage than were recalled although an examination of the raw data showed that a discrepancy between what was recalled and what was rated as important occurred twice as often in English as it did in Spanish. The raw data also indicated that students tended to recall the same sentences they identified as being important more often in scriptural passages than in the textbook passage.

While the Spanish speaking students scored significantly lower on the multiple choice tests, the data showed them to be equal to the English speaking students in amount and accuracy of information written in the free recalls. They also made an equal number of summary, inferential and false statements.

Spanish and English speakers differed, however, in the kinds of relationships recalled, although not to the extent anticipated. No significant differences were found for either passage with regard to coordination, emphasis, comparison/contrast, elaboration or temporal relationships recalled. Little differences in temporal and emphasis relationships were expected because none of the passages had very many of these relationships. It was, however, a complete surprise that no differences in the number of elaboration relationships constructed was found. The review of literature and our experience indicated that Spanish speakers tended to elaborate both verbally and written more than English speakers. At this point it is impossible to tell if this is a fallacious assumption about Spanish speakers or if the data simply is not representative. It is likewise not known why there were no differences between coordination and comparison/contrast relationships.

The data dealing with the number of reason relationships recalled and constructed, however, clearly supports the original hypothesis that Spanish and English speakers recall and/or construct different relationships. English speakers constructed and recalled more reason relationships from the psychology passage than did Spanish speakers. Spanish speakers, however, tended to construct more reason relationships from the scriptures. This is possibly due to the fact that the scriptures contain many implicit moral directives which the Spanish speakers chose to identify and which the English speakers either ignored or thought irrelevant to the purpose of this test.

TABLE 2
AVERAGE PERCENT OF REASON RELATIONSHIPS CONSTRUCTED

	Spanish	English
Psychology (A)	.05	1.0375
Scriptures (B)	1.25	.8375

TABLE 3
AVERAGE PERCENT OF REASON RELATIONSHIPS RECALLED

	Spanish	English
Psychology (A)	0.0	12.25
Scriptures (B)	3.75	5.25
Combined (A & B)	1.75	8.75

The preceding data supports the personal experiences cited earlier. We found that these Spanish speaking students did not perform as well on multiple choice tests as English students although they performed equally well on the open-ended recall. A possible explanation for this is that multiple choice tests tend to focus on reason relationships that Spanish speaking students don't pick up. If it's true that Spanish students don't recognize reason relationships that Anglo teachers think are important it would be a fairly easy thing to teach them these relationships and significantly improve their performance in Anglo schools.

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