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Erica McClure, Jana Mason, and Janet Williams
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Center for the Study of Reading
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Abstract

To study the possibility that sociocultural differences in story schemata affect reading comprehension, a story unscrambling task was given to a large sample of Black, Hispanic, and Anglo students. While the greatest effects were for grade and reading achievement, there were effects that suggest that the three cultural groups have somewhat different strategies for choosing initial and final sentences and for making narratives internally cohesive. No effects were found, however, for social class, sex of student or school location (suburban or inner city).
Sociocultural Variables in Children's Sequencing of Stories

One of the most serious educational problems in the U.S. today is the low reading level of a disproportionately large number of minority students. Many different explanations have been offered for these students' poor performance on standardized reading tasks: lack of motivation (Ogbu, 1974), cultural and linguistic deprivation (Black, 1965; Deutsch, 1963; Engleman, 1970), poor instructional techniques (Gumperz & Hernandez-Chavez, 1972), poor assessment procedures (Hall & Tirre, 1979; Hutchinson, 1972), mismatch between the real world knowledge base of the reader and that presupposed by the text (Steffensen, Jogdeo, & Anderson, 1978), and mismatch between the language of the text and that familiar to the reader (Baratz, 1969; Hall & Freedle, 1975; Stewart, 1969). The diversity in explanatory factors serves to underline the complexity of the problem.

Because of this evident complexity, in this study we have chosen to focus narrowly on one issue of linguistic mismatch, that of diversity among cultures in comprehension of types of story structures. The choice reflects the supposition that significant aspects of poor reading performance may originate from lack of understanding about particular types of structures (a problem Griffon, 1977, refers to as static) or from a preference among cultural groups for one type of structure above others. McClure, Mason, and Barnitz (1979) found, for example, that middle class Anglo children find a setting-first structure much easier to organize than stories.
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beginning with a summarizing statement or question. Further, the type of logical relationships which underlie the structure of any story is thought to have significant effects on the comprehensibility of a story (Mandler & Johnson, 1977; Stein & Glenn, 1979; Stein & Trabasso, 1981). Thus, story tasks given to Anglo children have shown consistently that comprehension is facilitated by story structures that are initiated by a setting statement and continued with a natural event order. No comparable studies have been done with minority culture children.

Many authors have looked at the question of mismatch between a reader's language and text language. Within Standard English the premise that a match between a reader's language and text language facilitates comprehension has been supported by Strickland (1962), Loban (1963), Ruddell (1965), Bougere (1969), and Tatham (1970). However, when one looks at research investigating the effects of a mismatch occasioned when a non-standard dialect speaker interacts with a standard language text, the picture is somewhat obscured. Some of the studies tend to support the position that a mismatch hinders comprehension while other studies indicate that such mismatch does not result in interference. The possibility of both phonological interference and syntactic inference has been investigated. In phonology the studies of Osterberg (1961) and Labov (1969) support the mismatch hypothesis while those of Rystrom (1970), Melmed (1971), and Rentel and Kennedy (1972) do not. In syntax, the studies of Labov (1969), Baratz (cited in Politzer, Hoover, & Brown, 1974), and Brown, Hicks, Lewis, and Politzer (Note 1) indicates interference while
those of Nolen (1972), Sims (1972), Hockman (1973), and Johnson and Simons (1973) do not. Perhaps the ambiguity of the results is due to the confounding of the effects of the linguistic variables studied with the effects of related uncontrolled variables. For example, the majority of these studies have investigated the effects of phonological and syntactic mismatch. The consequences of phonological mismatch could be dependent on instructional method. Alternatively, the effects of syntactic mismatch may be context dependent. It is possible that in artificially restricted texts containing few contextual cues, syntactic mismatch produces comprehension problems; whereas in normally redundant texts such mismatch has a minimal effect.

Another possible reason for ambiguity of results may be that the semantic aspect of language mismatch has pervasive consequences. Williams and Rivers (Note 2, Note 3) have shown that lexical differences affect reading readiness test scores while Hall and Tirre (1979) have found that there are significant social class differences in the exposure of children to the vocabulary found on standardized intelligence tests. Kaplan (1966), Labov (1972), and Nix and Schwartz (1979) have found indications of ethnic differences in preferred rhetorical structures.

In the present study we would like to explore the possibility that there are sociocultural differences in story schemata which affect reading comprehension. The McClure, Mason, and Barnitz (1979) story unscrambling task which has been given to a large sample of suburban middle class Anglo third, sixth, and ninth graders was used for the present study. Here, the
task was given to inner city Black, Anglo, and Hispanic, third, sixth, and
ninth graders from predominantly blue collar backgrounds, enabling compar-
isons across sex, social class, and ethnicity.

Method

Materials

The task consisted of unscrambling six stories by reordering their
sentences. Setting, question, and conclusion versions of each story were
created. Thus there were 18 story forms altogether.

The six setting versions were designed in accord with a story grammar
structure (Stein, 1978; Stein & Glenn, 1979). In these versions one or
two setting or event-initiating statements were followed by a sequence of
event statements and then by a resolution and, in some cases, a statement
of an actor's end state.

Question versions began with a sentence questioning the resolution of
the story; then continued with setting followed by event statements and,
in some cases, a statement of an actor's end state.

Conclusion versions began with the resolution of a story and then pro-
ceeded through setting and event statements and, in some cases, a statement
describing an actor's end state. Examples of the first sentences of the
three versions of a story about a man who jumped from an airplane into
the ocean and lived are as follows:
setting version: After his airplane burst into flames, Cliff Judkins leaped out.

question version: Can a man fall three miles and live?

conclusion version: Cliff Judkins fell three miles and lived.

For each version of a story, sentence length and semantic content remained approximately equivalent. Sentences differed across versions only when necessary because of the manipulation of the initial sentence. Story length was always six sentences. Students received one version of each story. The three versions of one of the stories appear below with sentences listed as they were given to students. The numbers to the left indicate the correct ordering, that is, the ordering we used to score the task.

Insert next page about here.

Subjects

The subjects for this study were third, sixth, and ninth graders from three ethnic groups—Black, Anglo, and Hispanic. Their socioeconomic status, based on self report of parents' occupation, was predominantly working class. These students were enrolled in parochial schools in inner city neighborhoods of a large midwestern city. Reading achievement scores represented by both formal and informal measures indicated that except at grade three Anglos outperformed Blacks and Hispanics and that for all three groups performance, relative to national norms, fell with increasing grade.

Approximately 500 students were tested. However elimination of those who did not complete the task reduced the sample to 455 subjects. Their
Sequencing of Stories

Conclusion version

2 One day, they searched a truck which they thought contained drugs.
5 He sniffed at the truck floor.
4 Then they led a German shepherd to the truck.
6 Pulling it up, the police found a fortune in drugs.
1 The border police have found a new helper that drug smugglers cannot fool.
3 But they did not find anything.

Question version

5 Pulling it up, the police found a fortune in drugs.
3 Then they led a German shepherd to the truck.
4 He sniffed at the truck floor.
6 They had also found a new helper that drug smugglers could not fool.
2 One day they searched a suspicious truck but could not find anything.
1 Can the border police find drugs hidden in a truck?

Setting version

6 They had also found a new helper that drug smugglers could not fool.
5 Pulling it up, the police found a fortune in drugs.
3 Then they led a German shepherd to the truck.
2 The border police searched it but could not find anything.
4 He sniffed at the truck floor.
1 One day a suspicious truck drove up to the border.
Sequencing of Stories

Distribution by grade, ethnicity, SES, and reading achievement is shown in Table 1.3

Insert Table 1 about here.

Procedure

Students were tested in their classrooms. After being shown an example of a scrambled six-sentence story, they were asked to read the sentences and place a 1 next to the sentence that they thought should be the first in a story, a 2 next to the second sentence, and so on to the sixth. They were then asked to reread the sentences in the chosen order to make sure that they were satisfied with that order. They carried out this procedure with six stories, each of which was placed on a separate page. While they worked, they were allowed to request assistance in word identification (such requests occurred very infrequently), but they were given no help on the sequencing task.

Design

Each child was given one of three booklets. In order to provide a partially counterbalanced design, each booklet contained one version of each of the six stories, the versions being arranged in two three-by-three Latin squares with the stories always appearing in the same order. For example, in Booklet A, the first story used the setting version, the second a question version, the third a conclusion version, the fourth a setting version, the fifth a conclusion version, and the sixth a question version. Booklets B and C filled out the Latin squares with other version orders.
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The regression analysis chosen assessed between-subjects effects for grade, booklet, and culture and within-subject effects for story version (structure) and the repeated Latin square (replication of structure). This design was repeated for each of four dependent measures.

**Scoring**

Four methods of scoring were constructed. One was a score for correct ordering of all six sentences, correctness having been determined beforehand based on agreement among skilled readers. Any error in ordering resulted in a 0 score while the correct order received a score of 1. The second was a pairs-correct score. For each story a point was given for any two sentences which were numbered in the correct consecutive order. Since there were six sentences, the score range for each story was from 0 to 5, although for convenience, percent correct scores have been reported. Referring to the example above, a child who placed "... led a German Shepherd to the truck" before "He sniffed . . ." whether ordered 1-2, 2-3, 3-4, 4-5, or 5-6, would receive at least one pairs-correct point. The third score was on initial sentence score; initial sentences were scored as 1 if the correct initial sentence was placed first and a 0 otherwise. The same scoring procedure was used for the fourth measure, a final sentence correct score. While these four measures are positively correlated ($r = .30$ to .85), they provide somewhat different information about students' story sequencing competency. The first suggests whole-text understanding,
the second cohesion of sentence pairs, and the last two an ability to pick initiating and concluding information.

Results

A stepwise multiple regression program (BMR) was run for each of the four dependent variables, once for the between subjects and once for the within subjects analysis. The variables for the between subjects analyses were ordered before running the program as follows: (1) reading achievement, (2) majority versus minority culture, (3) Black versus Hispanic culture, (4) social class, (5) sex, (6) grade, (7) booklet form contrasts, and (8) between subjects two-way interactions. The variables for the within subjects analyses were ordered: (1) canonical (setting) story structure versus other structures, (2) conclusion-first story structure versus question-first story structure, (3) replication (first 3 stories compared with last 3 stories), (4) replication by story structure interactions, (5) between subjects main effects and two-way interactions, and (6) two way within subjects with between subjects interactions.

Significant results presented in Table 2 show that the task effects are explained principally by grade, $F(1,345) = 147$ (for all four measures), $p < .0001$, accounting for from 22 to 39% of between subjects variance. On the pairwise measure, for example, third grade children scored 30% (1.5 out of a possible 5 pairs), sixth graders averaged 48%, and ninth graders 63%. Reading achievement, based on deviations from each classroom mean, also
Sequencing of Stories

contributed heavily, \( F(1,345) = 27, p < .001 \), accounting for 6 to 12% of the variance. As expected better readers at each grade obtained higher scores on the task. The majority/minority culture contrast was significant for the pairwise measure, \( F(1,345) = 4.36, p < .05 \), and nearly significant for the last sentence measure, \( F(1,345) = 3.62, p < .10 \). On the pairwise measure, Anglo children scored 55%, Blacks 42%, and Hispanics 44%. The Hispanic-Black contrast was significant for the last sentence measure, \( F(1,345) = 4.74, p < .05 \), and nearly significant for the pairwise measure, \( F(1,345) = 3.37, p < .10 \) as in both measures Hispanic children outperformed Blacks.

While none of the within subjects variables contributed heavily to reducing variance, several were significant. The canonical versus other story structures contrast was significant for all measures, but particularly so for the first sentence measure (as would be expected since story variations were oriented around changes in the first sentence), with \( F(1,346) = 17, p < .01 \). The percentage of correct first sentence choices was 78 in setting versions, 41 in question versions, and 35 in conclusion versions. In addition, for the total order and first sentence measures, the question-first structure was somewhat easier than the conclusion-first structure, \( F(1,346) = 9, p < .01 \). On the total order measure, the setting version was ordered correctly in 29% of the cases, the question version in 17%, and the conclusion
version in 14%. Repetition of task also had a facilitative effect over all measures, $F(1,346) = 11.2, p < .01$. On the total order measure, the average for the first three stories was 16% and on the last three, 24%. On the pairwise measure it was 43% and 51%, respectively.

Other consistent effects were interactions between grade and structure and grade and repetition. The grade by structure interactions on all measures indicated that performance on the conclusion structure stories improved much less over grade than did the other two structures. The grade by repetition interaction signified that older children made a greater improvement on later stories than did younger children. A nearly significant culture by repetition interaction on the pairwise measure showed that Anglos made a greater improvement over the six stories (from 49% to 60%) than did Hispanics (41% to 47%) or Blacks (40% to 44%), $F(1,346) = 3.81, p < .10$. Also, the Black/Hispanic culture variable interacted with the question/conclusion structure, $F(1,346) = 4.08, p < .05$ on the first sentence measure, with the conclusion version of stories being much harder for Hispanics than the question version (33% and 43% for Hispanics and 35% and 39% for Blacks).

**Discussion**

The largest contributions to explaining between subjects scores variance are made by grade followed by reading achievement. Together they account for from 29% to 51% of between subjects score variance on the four measures used. Additionally both grade and reading achievement enter into two way
interactions with story structure and replication to account for from 1 to 2.3% of within subjects score variance. Clearly of the variables investigated they are the most important in explaining task performance.

By contrast sociocultural variables make only small contributions to explaining variability. In the analyses of the inner city data there were no significant effects of either sex or socioeconomic status. Furthermore, if we compare the performance on the same task of the predominantly middle class Anglo suburban subjects (McClure, Mason, & Barnitz, 1979) with that of the predominantly working class Anglo inner city subjects reported here, we discover that the difference between the scores of the two groups only ranges between one to three percentage points with no consistency in which group's score is higher (see Table 3). This finding appears to reinforce the conclusion that social class is not an important variable in performance on the story sequencing task at issue and also to suggest that neither is inner city versus suburban residence. The analyses of the inner city data do however indicate that ethnicity is a significant variable. There are two significant main effects and several significant or nearly significant interactions of ethnicity with story structure. Taken together these effects seem to indicate that there may be some ethnic differences in the ease with which certain aspects of discourse structure are handled.

For example while it is true that for all ethnic groups the canonical or setting structures are the easiest to unscramble and the conclusion
structures the most difficult, the interaction of ethnicity with story structure on the initial sentence measure may indicate ethnic differences in familiarity with certain story structures. On the initial sentence measure Hispanics outperformed Blacks on the question (43 and 39%) and setting (78 and 73%) versions of the stories but were outperformed by them on the conclusion version of the stories (33 and 35%).

That Hispanics are more likely than Blacks to correctly choose the first sentence of question structure stories may indicate that beginning a story with a question is a rhetorical strategy more frequently used in the Spanish speaking community than in the Black community. An analysis of third graders' errors in the placement of intended initial questions possibly provides an indication that ending a story with a question is also a strategy in use in the Hispanic community. In question structure stories, the question accounts for 33% of such choices by Blacks and 7% by Anglos.

The finding that on the initial sentence measure Blacks outperformed Hispanics on the conclusion version of stories over all grades and, at third grade outperformed the Anglos (Blacks 25%, Anglos 17%), is readily explicable when we note that Blacks frequently employ a strategy of starting oral narratives with an "abstract" or summary (Kernan, 1977; Labov, 1972). Our conclusion format stories started with just such an "abstract." Thus in correctly choosing the initial sentence for these stories, the Blacks could follow a schema they had already, one apparently not culturally salient in the Hispanic community or initially familiar at least up to the third grade to Anglos.
Overuse of this schema by Blacks as well as a question-last scheme among Hispanics could partially account for the finding that Anglos significantly outperformed both Blacks and Hispanics on the last sentence measure (Blacks, 41%; Hispanics, 44%; Anglos, 53%). Use of this schema in question format or setting format stories would lead Blacks to use in initial position the sentences intended for final position. In fact an error analysis indicates that at third grade in setting format stories, the ones at which all groups did best, 32% of Blacks incorrectly began the stories with an abstract as compared to 20% of Anglos and 15% of Hispanics.

Another factor contributing to the better performance of Anglos on the final sentence measure may be different conventions governing placement of information describing the physical state of characters. If we look at stories whose intended final sentences described the physical state of a character at the story's conclusion, we find that at third grade these sentences were placed in the first half of the story by 56% of Black subjects and 54% of Hispanic subjects but by only 44% of Anglo subjects. By sixth grade all Anglo subjects placed these sentences in the second half of the stories while 30% of the Blacks and 40% of the Hispanics still placed them in the first half. A possible explanation for this finding is that young children consider descriptions about the physical state of a character to be more appropriate as setting or orientation information than as concluding information. By sixth grade Anglos may have become familiar with the use of this type of information in the conclusion of a narrative whereas Blacks and Hispanics may retain a tendency to relegate it to story beginnings.
Different conventions governing placement of information might also account for the nearly significant \( (p < .10) \) interaction between ethnicity and replication on the pair-wise measure. Anglo students showed greater improvement on their scores for the last three as opposed to the first three stories than did Blacks or Hispanics. If the stories do not conform to readers' rules for cohesive discourse, learning from the task is much more problematic. Thus if the stories conform more closely to the Anglo subjects' rules than to those of the Blacks or Hispanics one would expect Anglos to profit more by repetition of a structure than Blacks or Hispanics.

**Conclusion**

We began this study in an attempt to discover whether there are ethnic, social class, or inner city vs. suburban location differences in the ability to sequence narratives. The largest effects we found were for grade and reading achievement. There was no evidence of an effect of social class, sex, or inner city versus suburban location. We did however find effects involving ethnicity. Our data indicate that Anglos, Blacks, and Hispanics have somewhat different strategies for choosing initial and final sentences and for making narratives internally cohesive.

To the extent to which reading is a "psycholinguistic guessing game" (Goodman, 1967) facilitated by the reader's semantic and pragmatic knowledge as well as by his syntactic and phonological knowledge, it is important to be aware of what the reader knows about narrative structure. Whether we wish to construct texts which follow more closely readers' preferred text
structures, introduce the reader to new structures, or both, we should be aware that the match between readers' narrative schemata and the narrative schemata underlying school texts will affect reading comprehension.

Although the ethnicity effects we found are not as large as the reading achievement and grade effects, it is apparent that minority children diverge to some extent from majority children in the way in which they handle various text structures. Consequently we think that researchers need both to devote more time to uncovering principles of text structures evident in school texts and to examining the text schemata of nonmainstream children so that we can ensure that children acquire the knowledge requisite to a mature level of reading comprehension.
Reference Notes


References


Engleman, S. How to construct effective language programs for the poverty child. In F. Williams (Ed.), *Language and poverty: Perspectives on a theme*. Chicago: Markham, 1970.


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mandler, j. m., & johnson, n. s. remembrance of things parsed: story structure and recall. cognitive psychology, 1977, 9, 111-151.

mcclure, e., mason, j., & barnitz, j. an exploratory study of story structure and age effects on children's ability to sequence stories. discourse processes, 1979, 2(3), 213-248.


nix, d., & schwartz, m. toward a phenomenology of reading comprehension. in r. freedle (ed.), new directions in discourse processing (vol. 2). norwood, n.j.: ablex, 1979.

nolen, p. reading nonstandard dialect materials: a study at grades two and four. child development, 1972, 43, 1092-1097.


osterberg, r. bilingualism and the first school language. umea, sweden: vastenbottens togeker ab, 1961.

politzer, r. l., hoover, m. r., & brown, d. a test of proficiency in black standard and nonstandard speech. tesol quarterly, 1974, 8, 27-35.

rentel, v., & kennedy, j. effects of pattern drill on the phonology, syntax, and reading achievement of rural appalachian children. american educational research journal, 1972, 9, 87-100.
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Where the occupational status of the parents differed, the higher status was assigned to the child. Occupations reports were classified as professional if they required college training (e.g., teacher, nurse, lawyer), as blue collar if they involved skilled or unskilled manual labor (e.g., truck driver, janitor, assembly line worker), and otherwise as white collar. Individuals who were unemployed were classified as blue collar unless qualification for or previous employment in a white collar or professional position was indicated.

2 The formal measures included the following tests: Stanford Achievement, Stanford Diagnostic, SRA Achievement, and Iowa Basics. The informal measures were teacher judgements.

3 An attempt was made to have at least 60 students of each ethnicity at each grade level. In addition, to ensure relative homogeneity of class background, all subjects were obtained from similar inner city neighborhood parochial schools. Unfortunately there were many fewer Anglos than Blacks or Hispanics enrolled in these schools.

4 Since reading tests and administration dates varied among the eight schools from which we drew our subjects, we constructed standard scores within each classroom.
### Table 1
Distribution of Students by Grade, Ethnicity, Social Class and Reading Achievement

<table>
<thead>
<tr>
<th></th>
<th>Third grade</th>
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<th>Sixth grade</th>
<th></th>
<th>Ninth grade</th>
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<td></td>
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<td>A</td>
<td>H</td>
<td>B</td>
<td>A</td>
<td>H</td>
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<td><strong>Number of Subjects</strong></td>
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<td>32</td>
<td>55</td>
<td>54</td>
<td>21</td>
<td>49</td>
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<tr>
<td><strong>SES - %</strong></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Professional</td>
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<td>6</td>
<td>4</td>
<td>4</td>
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<tr>
<td>White Collar</td>
<td>23</td>
<td>30</td>
<td>24</td>
<td>19</td>
<td>26</td>
<td>16</td>
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<tr>
<td>Blue Collar</td>
<td>67</td>
<td>61</td>
<td>68</td>
<td>72</td>
<td>67</td>
<td>78</td>
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<tr>
<td>No Report</td>
<td>8</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>7</td>
<td>4</td>
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<tr>
<td><strong>Reading Achievement - %</strong></td>
<td></td>
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<td>At or Above Grade</td>
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<td>75</td>
<td>86</td>
<td>70</td>
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<td>64</td>
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<td>Below Grade*</td>
<td>24</td>
<td>25</td>
<td>14</td>
<td>30</td>
<td>10</td>
<td>36</td>
</tr>
</tbody>
</table>

*Note. B = Black, A = Anglo, H = Hispanic

*A reading score was considered below grade level if at third grade it was below 3.0, at sixth grade below 6.0 and at ninth grade below 9.0. Testing was done at mid-year.*
Table 2

Significant Effects from Stepwise Multiple Regression Analyses of Four Dependent Measures

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Whole Story</th>
<th></th>
<th>Pairwise</th>
<th></th>
<th>First Sentence</th>
<th></th>
<th>Last Sentence</th>
<th></th>
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<tr>
<td></td>
<td>$R^2$</td>
<td>$F$</td>
<td>$R^2$</td>
<td>$F$</td>
<td>$R^2$</td>
<td>$F$</td>
<td>$R^2$</td>
<td>$F$</td>
</tr>
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<td><strong>Between Subjects Analyses</strong></td>
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<tr>
<td>Reading achievement</td>
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<td>47.4</td>
<td>.12</td>
<td>61.1</td>
<td>.06</td>
<td>28.0</td>
<td>.06</td>
<td>31.8</td>
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<td>--</td>
<td>.01</td>
<td>4.4</td>
<td>--</td>
<td>--</td>
<td>.01</td>
<td>3.6</td>
</tr>
<tr>
<td>Black/Hispanic culture</td>
<td>--</td>
<td>--</td>
<td>.01</td>
<td>3.4</td>
<td>--</td>
<td>--</td>
<td>.01</td>
<td>4.7</td>
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<tr>
<td>Grade (3,6,9)</td>
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<td>200.8</td>
<td>.39</td>
<td>376.0</td>
<td>.26</td>
<td>172.1</td>
<td>.22</td>
<td>147.3</td>
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<td>2.4</td>
<td></td>
<td></td>
<td>.003</td>
<td>2.1</td>
<td>.004</td>
<td>2.6</td>
</tr>
<tr>
<td>Grade by maj/min culture</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Within Subjects Analyses</strong></td>
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<td>Canonical structure/other</td>
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<td>.01</td>
<td>63.9</td>
<td>.14</td>
<td>697.4</td>
<td>.01</td>
<td>17.7</td>
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<td>Question/conclusion structure</td>
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<td>9.3</td>
<td>--</td>
<td>--</td>
<td>.004</td>
<td>18.5</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Repetition of task</td>
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<td>32.7</td>
<td>.01</td>
<td>46.3</td>
<td>.002</td>
<td>11.2</td>
<td>.01</td>
<td>27.2</td>
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<tr>
<td>Canonical/other by grade</td>
<td>.005</td>
<td>20.2</td>
<td>.004</td>
<td>18.6</td>
<td>.003</td>
<td>15.8</td>
<td>.002</td>
<td>5.2</td>
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<td>Question/conclusion by grade</td>
<td>.002</td>
<td>9.3</td>
<td>.002</td>
<td>7.2</td>
<td>--</td>
<td>--</td>
<td>.004</td>
<td>11.8</td>
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<tr>
<td>Repetition by grade</td>
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<td>18.3</td>
<td>.007</td>
<td>34.8</td>
<td>.004</td>
<td>18.8</td>
<td>--</td>
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<tr>
<td>Repetition by maj/min culture</td>
<td>--</td>
<td>--</td>
<td>.001</td>
<td>3.8</td>
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<td>.001</td>
<td>2.6</td>
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<tr>
<td>Ques/concl by Black/Hispanic culture</td>
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Note. $F = 2.74, p < .10$
$F = 3.89, p < .05$
$F = 6.76, p < .01$
### Table 3

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<th>Total Order</th>
<th>Sentence Pairs</th>
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<tr>
<td>Suburban Anglo Students</td>
<td>.30</td>
<td>.56</td>
<td>.58</td>
<td>.51</td>
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<tr>
<td>Innercity Anglo Students</td>
<td>.26</td>
<td>.55</td>
<td>.58</td>
<td>.53</td>
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Adams, M., & Bruce, B. *Background Knowledge and Reading Comprehension* (No. 13), January 1980. (ERIC Document Reproduction Service No. ED 181 431, 48p., PC-$3.65, MF-$0.91)

Anderson, R. C., & Freebody, P. *Vocabulary Knowledge and Reading* (No. 11), August 1979. (ERIC Document Reproduction Service No. ED 177 470, 52p., PC-$5.30, MF-$0.91)

Anderson, T. H. *Another Look at the Self-Questioning Study Technique* (No. 6), September 1978. (ERIC Document Reproduction Service No. ED 163 441, 19p., PC-$2.00, MF-$0.91)

Anderson, T. H., Armbruster, B. B., & Kantor, R. N. *How Clearly Written are Children's Textbooks? Or, Of Bladderworts and Alfa* (includes a response by M. Kane, Senior Editor, Ginn and Company) (No. 16), August 1980. (ERIC Document Reproduction Service No. ED 192 275, 63p., PC-$5.30, MF-$0.91)

Armbruster, B. B., & Anderson, T. H. *Content Area Textbooks* (No. 23), July 1981.

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