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ABSTRACT

A study investigated the relationship between reading achievement and predictive abilities for narrative text structure of 90 fourth grade and 70 sixth grade readers. The subjects (1) silently read incomplete stories and then told the rest orally, and (2) silently read stories that had parts deleted and then orally gave information they thought could fit in the blank sections. The degree to which readers expected particular story structures was revealed by the extent to which their responses matched the story parts predicted by the J. M. Mandler and J. S. Johnson grammar. The major finding was that, on the whole, at each grade level, there was a positive relationship between reading achievement and the ability to anticipate narrative text structure during reading. The relationship was consistent across grades. In addition, there was no significant difference between fourth grade and sixth grade readers in the extent to which particular story structures were expected. (Author/FL)

The Relationship between Reading Ability and Expectations for Story Structures

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Abstract

The present study investigated the relationship between reading achievement and readers' predictive abilities for narrative text structure. Ninety-six fourth graders and 70 sixth graders completed two tasks: 1) subjects silently read incomplete stories and then told the rest of the stories orally; and 2) subjects silently read stories that had parts deleted and then orally gave information they thought could fit in the blanks. The degree to which readers expected particular story structures was revealed by the extent to which their responses matched the story parts predicted by the Mandler and Johnson grammar. The major finding was that, on the whole, at each grade level, there was a positive relationship between reading achievement and ability to anticipate narrative text structures during reading. The relationship was consistent across grades. Also, there was no significant difference between fourth and sixth graders in the extent to which particular story structures were expected.

The Relationship between Reading Ability and Expectations for Story Structures

Recent exploration of characteristics of discourse such as text structure, anaphora, and inference has prompted interesting questions about the relationship between reading ability and individuals' use of various discourse characteristics (e.g., Dungan, 1977; Eamon, 1978-79; Hildyard & Olson, 1978; Lesgold & Perfetti, 1978; Marshall & Glock, 1978-79; McGee and Niles, 1981; Meyer, 1977; Meyer et al., 1980; Smiley et al., 1977; Spiro, 1980; Taylor, 1979, 1980; Tierney et al., 1978-79; Vipond, 1980; Weaner & Dickinson, in press). With some exceptions (cf., Dungan, 1977; Tierney et all, 1978-79), it frequently has been found that better readers tend to be more sensitive than do poorer readers to the various facets of discourse being investigated.

Most of the investigations on individual differences in sensitivity to discourse characteristics have focussed on tasks requiring understanding and recall of text, that is, tasks generally requiring memory of the text just heard or read. An aspect of individual differences in readers' sensitivity to discourse features that has not been rigorously explored is expectations for forthcoming information in text. The main purpose of the present study was to investigate the relationship between reading success and ability to anticipate narrative text structures during reading.

Expectations, predictions, and hypotheses about forthcoming information in text are considered important components of the reading process (cf., Brown, 1977; den Uyl & van Oostendorp, 1980; Goodman, 1967; Graesser, 1981; Leondar, 1977; Meijsing, 1980; Olshavsky & Kletzing, 1979; Rumelhart, 1977; Rumelhart & Ortony, 1977; Schank, 1978). It has been posited that readers may anticipate a wide range of text characteristics, including characteristics such as text organization or structure (cf., Kintsch, 1977; Mandler & Johnson, 1977).

Studies on structural expectations for text fall into two broad categories: ones that use recall and recognition tasks and then infer back to subjects' prior expectations (e.g., Mandler, 1978; Mandler & Johnson, 1977; Mosenthal, 1979a; Stein, 1979; Stein & Glenn, 1977b; van Dijk & Kintsch, 1978) and investigations that use tasks other than post-reading, -listening, or -picture viewing tasks such as reordering scrambled sentences or telling stories orally (e.g., Applebee, 1978; Botvin & Sutton-Smith, 1977; Glenn & Stein, in press; Leondar, 1977; McClure et al., 1979; Stein & Glenn, 1977a; Sutton-Smith et al., 1976; Trabasso et al., in press; Whaley, 1981). Results of the studies (with occasional exceptions /e.g., Mosenthal, 1979a/) tend to support the belief that, on the average, individuals have an idealized internal representation of text elements and their relations which they use as sets of expectations while reading or listening to text. That is, individuals tend to expect common structures or patterns in stories and other texts. Also, developmental differences indicate that as children grow older, their expectations become more detailed, more complex, and more elaborate.

Notably, some of the studies investigating expectations with tasks other than post-reading, -listening, or -picture viewing suggest that individuals have sets of expectations that are broader and more variable than those revealed by other tasks (cf., Glenn & Stein, in press; Stein & Glenn, 1977a). It is of particular relevance to the present study that only a few prior investigations of individuals' structural expectations for text used reading tasks (cf., Mosenthal, 1979a; van Dijk & Kintsch, 1978; McClure et al., 1979; Whaley, 1981). When reading has been used in studies of individuals' structural expectations, the relationship between task performance and reading ability has not been looked into.

It would appear to be important now to explore the relationship between reading achievement and expectations for structures in text. If sensitivity to forthcoming facets of text structure is associated with reading achievement, then instruction in structural prediction might be of particular benefit to poorer readers.

The present study was an outgrowth of a prior investigation which examined average and above average readers' expectations for story structures (Whaley, 1981). In the prior study, the subjects were third, sixth, and eleventh grade students. The Mandler and Johnson (1977; Johnson and Mandler, 1980) story grammar was used to represent readers' structural expectations. For one task (a prediction task), students read parts of stories (for example, Setting or Setting plus Beginning or Setting, Beginning, and protagonist's Reaction) and told aloud what should or could come next. For the second task (a macro-cloze task), students read stories that had missing parts (for example, missing Settings or missing Beginnings) and then orally gave information that should or could fit in the missing part. It was concluded that readers expected particular structural elements and sequences of elements in stories. Readers at all three grade levels appeared to have similar structural expectations but the third graders tended to use structural expectations less frequently than did the other students.

The present investigation used the same procedures as the prior study, but fourth and sixth graders were the subjects, and a broader range of reading ability levels was represented by including children who were reading below grade level. The major purpose of the present study was to investigate the relationship between reading ability and expectations for story structures. The degree to which prior findings were replicated was also of interest.

The major research hypothesis of the study was that if reading ability is related to story structure expectations, then at each grade level, better readers' responses to the two tasks should tend to conform to categories defined by the Mandler and Johnson (1977; Johnson and Mandler, 1980) grammar to a greater extent than poorer readers' responses. Two other main hypotheses were that the relationship between reading ability and story structure expectations would be consistent across grades, and that if there were developmental differences, then on the average, sixth graders' responses would tend to conform to the categories defined in the grammar to a greater extent than fourth graders'.

Methods

The Story Grammar

Story grammars are often interpreted as representations of individuals' expectations for structures in stories (Johnson and Mandler, 1980; Mandler and Johnson, 1977; Stein, 1979; Stein & Glenn, 1979). The Mandler and Johnson grammar (Johnson & Mandler, 1980; Mandler & Johnson, 1977) was used in the present study to represent the set of expectations readers might have for story structures. The grammar consists of a set of definitions of the major story components and phrase-structure rules which delineate ways that components may be combined. Briefly, the major story components described by the Mandler and Johnson grammar are Setting, Beginning (a precipitating event), Reaction (the protagonist's Reaction to the Beginning and setting a Goal), Attempt (the effort to achieve the Goal), Outcome (the success or failure of the Attempt), and Ending (the long-range consequence of the action sequence or the added emphasis). The Beginning through the Ending constitute the main constituents in an

Episode. A Setting plus an Episode form a simple story. Complex stories can occur through options such as embedding of Episodes, one or more within another. Transformation rules also contribute to variety in stories by allowing for optional deletion or movement of story components under certain conditions.

Subjects

Ninety-six fourth graders (42 males and 54 females) and 70 sixth graders (37 males and 33 females) in one school in a county school district participated in the study.

The Achievement Measure

Total Reading percentiles from the California Achievement Test (CAT) (CTB/McGraw-Hill staff, 1978) were used as the primary indicator of reading achievement. The Total Reading score is derived from both vocabulary and comprehension subtests. The vocabulary subtest measures knowledge of word meanings in three ways: same and opposite meanings and multimeaning words in sentences. The comprehension subtest includes literal and interpretive items and also measures critical reading. A recent test reviewer (Schell, 198) referred to the vocabulary subtest as "laudatory" and the comprehension subtest as "generally admirable and of high quality, sometimes even awesome." Test-retest reliability estimates for the Total Reading score given by the test authors for the two grades respectively are .89 and .87. It would appear that the CAT Total Reading score provides a reliable and valid estimate of reading ability, defined in a relatively broad manner.

One fourth grade student originally selected for the study was excluded because he was reading below second grade level (according to teacher judgment and the Total Reading grade equivalent on the CAT). It was felt that a second grade reading level was a minimal prerequisite

to assure adequate word recognition on the story materials.

A broad range of reading achievment levels was represented at each grade, but the mean scores tended to be above grade level. For fourth graders, the mean percentile was 62.59, and the standard deviation was 21.88. The mean grade equivalent for the fourth graders was 4.37, with a standard deviation of 1.13 and range of 2.10 to 7.00. For the sixth graders, the mean percentile was 68.76 with a standard deviation of 24.49. The mean grade equivalent for the sixth graders was 7.44, with a standard deviation of 2.27 and range of 2.80 to 12.20.

Materials

Stories. Materials for the study were made from four simple stories. One of the stories is shown in Table 1. Three of the stories were used in studies by other investigators, and one was developed by the investigator. All of the stories were used in the investigator's prior study on good readers' expectations for story structures. The readability levels (Spache, 1974) of the four stories ranged from 2.4 to 3.4. It was important to maintain a low readability level as one means of controlling for word recognition difficulties.

Each story was initially divided into statements. Statements roughly corresponded to sentences (cf., propositions in Mandler & Johnson, 1977; propositions in Thorndyke, 1977; statements in Stein & Glenn, 1979). Among two doctoral students and the investigator, interrater reliability for identifying statements across all four stories was .98.

Next, using the Mandler and Johnson story grammar, each of the stories was parsed so that the six major story parts were identified in each story. An example of a completed story parsing is shown in Table 2. Among two doctoral students and the investigator, interrater reliability for parsing across all four stories was 1.00.

Insert Tables 1 and 2 about here.

Literal questions. It was considered important to control for students' comprehension of the stimulus stories read at least at the literal level. One means of controlling for literal comprehension was to have stories that were relatively simple. A second way of controlling for literal comprehension was to ask questions designed to tap literal comprehension after the stories were read.

For each story, literal questions were written following procedures outlined by Bormuth (1969). There were five to ten questions for each complete story. Since subjects read differing portions of the stories, they were asked only the questions that went with the particular portion of the story they read.

Procedures

The students silently read two stories (or parts of stories) in each of two types of tasks (four stories per subject): predicting orally what should or could come next in incomplete stories (Task 1, prediction) and supplying information for a missing part of stories (Task 2, macro-cloze). Order of task and story presentation was counterbalanced. For Task 1, each student read two stories in one of five conditions to which the student was randomly assigned. The conditions were differentiated by how much of the story was read: Settings, only; Settings and Beginnings; Settings, Beginnings, and Reactions; Settings, Beginnings, Reactions, and Attempts; and all parts except Endings. The same two stories (stories 1 and 2) were manipulated across all five conditions. All students read the same two stories. They were asked individually to read the stories and then to tell aloud what should or could come next in the stories.

For Task 2, there were again five conditions with two stories in each condition. Subjects were randomly reassigned to one of the five conditions in Task 2. In the first condition, subjects read stories in which Settings were deleted. In the remaining four conditions, the Beginning, the Reaction, the Attempt, and the Outcome were each systematically deleted, making one condition for each kind of deletion. The same two stories (stories 3 and 4) were manipulated across all five conditions. All students read the same two stories. Lines drawn in the stimuli showed that material had been deleted. Students were asked individually to read the stories and then to tell aloud what they thought should or could fit in the blanks.

At the beginning of a session, subjects were given directions and told to ask the examiner for help on any unknown words. They were also told that when they were done the examiner would ask questions. So that the memory factor could be controlled, subjects were told they could look back at the material at any time. During the task, a standard set of prompt questions was used to encourage reluctant subjects to respond. Care was taken to use the prompts solely as inducements to talk, not to reinforce particular responses. When students appeared to be done with a task, the examiner said "Anything else?" After the students completed the task for a story, the examiner asked the literal comprehension question(s) for the portion of the story that was read. The number of questions subjects were asked after each story ranged from one to nine. Children answered the questions orally. All responses throughout the session were tape recorded and later transcribed.

Scoring

Subjects' responses to the tasks. For each of the four stories, each subject's response was scored one or zero. A score of one indicated information given by the subject matched the category (story part)

predicted by the grammar. A score of zero meant the subject gave information that did not match the category predicted by the grammar. (Reactions were scored one if either the Simple Reaction or Goal or both were stated.) The rules and definitions in the Mandler and Johnson (1977; Johnson and Mandler, 1980) grammar were used for scoring decisions. Interrater reliability (between the investigator and a doctoral student) for statement divisions in 80 stratified (by task and condition) randomly selected protocols was .90. Interrater agreement between the same two raters for final score assignment for the same protocols was .92.

Literal comprehension questions. The literal questions were scored twice, once using a strict right-wrong (1,0) criterion and once allowing partial credit (scores 3 to 0). Each child was then assigned a mean strict literal comprehension score and a mean lenient literal comprehension score for each story. The mean scores were the averages of the item scores per story.

The literal questions posed special problems with respect to judging reliability that are similar to the problems posed by criterion referenced measures. Traditional statistical estimates of reliability would not be pertinent (Carroll, personal communication, 1981; Stanley, 1971). The literal comprehension questions were not devised as a measure of comprehension in the traditional sense of measurement development. The items were not intended to form a test which would differentiate individuals according to their true ability to make literal sense of text in general. They were developed to ascertain individuals' literal understanding of the particular stimuli in the present study only. Because the readability level of the stories was low, and because the stories were quite simple, it was anticipated that all or nearly all of the children would have a high level of literal understanding. As anticipated, in general, the children did extremely well on the questions, and there was very little variance

among subjects' scores. (The four story mean strict literal scores for fourth and sixth graders ranged from .85 to .94 with standard deviations from .11 to .26. The mean lenient literal scores ranged from 2.64 to 2.93, with standard deviations from .22 to .73.)

There were, however, some indicators of ease in scoring the items and of internal consistency of the items. For the strict scores, interrater reliability (between the investigator and a doctoral student) for a random sample (stratified by task and condition) of 80 subjects was .98. For the same subjects, for the lenient score, interrater reliability was also .98.

Item reliability was probed by devising scales wherein the number of subjects responding to common sets of items was maximized. When there was some minimal variance in the scales, the reliabilities per item were quite high. For example, for fourth graders, for five strict score scales in Task 1, the reliabilities per item ranged from .12 to .46. The respective estimates for Task 2 were .12 to .26. (Item reliability of .13 is considered strong in most test situations (Stanley, 1971). Also, as items were added to a scale, the item reliability tended to increase. Thus, when there was enough variance present, the items appeared to function in a predictable manner and in a manner that would suggest that, for the purpose of the present study, they were reliable indices of literal comprehension of the stimulus material.

Results

The major interest in the study was the relationship between reading ability and expectations for story structures. Readers' expectations for narrative structures were revealed by the extent to which the first part of their story productions in Task 1 and their cloze responses in

Task 2 tended to conform to categories defined by the Mandler and Johnson (1977; Johnson and Mandler, 1980) grammar.

Because the dependent variables were dichotomous and consequently assumptions for parametric analyses were not met, the main analyses were categorical logit analyses (also referred to as logistic regressions). Procedures outlined in Anderson et al. (1980) were followed. Logistic regressions using iterative maximum likelihood procedures (performed in LOGIST in SAS (/1980/) were done on a series of models. The four main models each consisted of one dependent variable (score on story 1, 2, 3, or 4), and three independent variables (condition /with five levels/, grade /four or six/, and reading ability /percentile on the CAT/). The main effect models were validated by exploring additional logistic regression models which included interactions and by assessing interactions of stories with other variables using other non-metric procedures (contingency table randomization tests /Koch et al., 1980/). Importantly, with one minor exception (discussed in the section on preliminary analyses), the interactions were not significant.

Prior to performing the logistic regressions, correlation analyses indicated a need to explore the effect of controlling statistically for literal comprehension of the stimulus materials. Correlations were examined for percentile on the CAT with responses to the literal comprehension questions for the materials read in the study. There were no significant correlations for sixth graders (correlations ranged from -.19 /$p = .06$/ to .14 /$p = .13$/); but, for fourth graders, for three of the four stories, there was a very slight but significant tendency for better readers to have better literal understanding of the stimulus material (strict score correlations with CAT percentile ranged from .07 /$p = .25$/ to .30 /$p < .01$/ and lenient score correlations with CAT percentile

ranged from .10 [p = .17] to .36 [p < .01]).

Consequently, to assess the effect of controlling for literal understanding of the stimuli, additional logistic regression models were explored first with the mean strict literal comprehension score as a covariate and then with the mean lenient score as a covariate. Again, the main effect models were validated; there were no differences in any findings when the covariates were in the models as compared to when they were removed. Only the statistics from the main effects models will be presented in the following sections.

Preliminary Analyses of Readers' Expectation in General

The proportions shown in Table 3 indicate that overall, except for Reactions,[1] there was a strong tendency for readers, on the average, to expect the categories predicted by the grammar. Results were highly consistent across tasks one and two. Notably, on the average, readers' expectations did not vary across stories (McNemar Sign Test [Conover, 1980]: for fourth graders, for story 2 versus story 1, $p = .18$, and for story 4 versus 3, $p = .12$; for sixth graders, for story 2 versus story 1, $p = .21$, and for story 4 versus 3, $p = .19$).

Insert Table 3 about here.

The proportions in Table 3 show some variability in expectations for different categories. However, the results of the logistic regression analyses (given in Table 4) indicated that only the Reaction conditions in each task were significantly different from all other conditions. Readers tended to expect the protagonist's reaction to a precipitating event or the Goal to be explicitly stated less often than they expected other categories.

Insert Table 4 about here.

The finding of no difference in expectations between categories other than that Reactions were expected less often than all others was highly consistent across stories. Only one of the four mean score tests of association (cf., Landis et al., 1978) between condition and story differences, controlling for achievement, was significant (for grade 4, mean score test statistic Q_4 for story 4 minus 3 = 11.21, p = .02). Table 3 shows that the locus of the single significant partial association appeared to be in the Reaction category where there was a particularly large difference between fourth grader's expectations for explicit statements of Reactions in story 3 and story 4. Given that there were abundant potential sources of condition by story interactions, the single significant one appeared to be relatively unimportant.

The Relationship Between Reading Ability and the Extent to Which Particular Categories Were Expected

On the whole, there was a relationship between reading achievement and the extent to which readers expected particular narrative structures. As Table 4 shows, there were significant relationships for three of the four stories. The tendency was for better readers to expect particular categories more often than poorer readers. Table 5 depicts the marked tendency for readers classified in the top third (on reading achievement) of the total group to expect particular story structures proportionately more often than the rest of the readers, and for the readers classified in the middle third to expect particular structures proportionately more often than the readers in the bottom third of the sample. The tendency is even more striking if only the high and low groups are contrasted.

Insert Table 5 about here.

The Relationship Between Reading Ability and Qualitative Aspects of Structural Expectations for Narratives

There were some very minimal indications that the quality (richness and complexity) of individuals' expectations varied slightly with reading ability. In order to look at qualitative aspects of individuals' expectations, all of the scored responses were coded to specify the actual category the subject expected and to specify some added details about the category given. Some examples of the 21 coded categories are: Beginning, simple statements: Attempt, simple statements; Attempt followed by Repeated Development; Outcome, simple statements; Outcome expressed as an Episode; Outcome followed by Repeated Development; and Ending expressed as an Episode with one or more embedded Episodes in it.

At each grade level, using the 21 coded categories, patterns of responses for the top third ranking readers (using the CAT percentiles) were compared to those of the bottom third ranking readers. Unless otherwise noted, the results discussed below were tallied across Tasks 1 and 2.

For some of the analyses (especially for analyses involving appropriate responses of poorer readers), the number of subjects was very small. Consequently, the findings ought to be considered suggestive and tentative at best, and therefore interpreted cautiously.

Types of appropriate responses. When responses matched categories predicted by the grammar, at both grade levels, there were two minimal indications of greater variability in complexity of expectations for two story categories as reading ability increased: 1) In the Reaction conditions, there was a tendency for better readers (fourth grade, 33

percent, and sixth grade, 57 percent) to expect explicit statements of both the Simple Reaction and Goal to a greater extent than poorer readers (fourth grade, 25 percent, and sixth grade, zero percent). 2) There was a tendency for better readers (fourth grade, 36 percent, and sixth grade, 27 percent) to expect more complex forms of Attempts such as Attempts followed by Repeated Developments to a greater extent than poorer readers (fourth grade, six percent, and sixth grade, eight percent).

For two other story categories, but for sixth graders only, there was a tendency towards greater variability in expectations as reading ability increased: 1) For outcomes, there was a slight tendency for better sixth grade readers (47 percent) to expect a variety of more complex forms such as Outcomes expressed as Episodes proportionately more often than poorer sixth grade readers (20 percent). 2) For Endings, (in Task 1 only), the sixth grade better readers (18 percent) showed only slightly more variability in complexity of expectations such as Endings expressed as Episodes when compared to sixth grade poorer readers (zero percent).

Types of inappropriate responses. In both tasks, for both poorer and better readers, most responses that did not match the category predicted by the grammar were paraphrases of or elaborations on the stimulus material that was read. The second most common alternate response was in the Reaction condition in Task 1, where both poorer and better readers tended to skip the Reaction altogether and state an Attempt of some form.

In Task 1 only, there were extremely minimal indications that poorer readers in both grades might have been slightly more inclined to expect inappropriate categories of information than better readers. Other than when Attempts were given in the Reaction condition, there were only nine occasions, spread across the Reaction, Attempt, and Outcome conditions,

when appropriate responses were recognizable as story categories. All cases were expected by poorer readers.

Incidence of appropriate responses expected later. Generally, when not given immediately, the categories predicted by the grammar were rarely given later. (The data were analyzed for Task 1 only.) There were no emerging pattern differences by reading ability in whether the category predicted by the grammar was expected later in a story.

Extent of Grade Level Differences in Expectations

Surprisingly, on the whole, there were no differences between grades in the extent to which readers expected particular story structures. Table 4 shows that grade was not significant for three of the four stories. Furthermore, the finding of no significant grade effect was maintained even when achievement and condition were eliminated from the logistic regression model (Q_1 = .57 /$\bar{p}$ = .45/, 1.08 /$\bar{p}$ = .30/, .93 /$\bar{p}$ = .34/, and 2.62 /$\bar{p}$ = .11/, for stories 1 through 4, respectively). Thus, even though the marginal proportions in Table 3 indicate a consistent tendency for sixth graders to expect particular narrative structures proportionately more often than fourth graders, the magnitude of the differences was not large enough to be significant.

Incidence of Qualitative Differences in Expectations by Grade Level

To probe qualitative differences in expectations by grade level the data for the 21 coded categories described in a previous section were used, and overall patterns between grades were studied for variations in types of appropriate responses, types of inappropriate responses, and occasions of appropriate responses occurring later in protocols. For all of the analyses, the only indication of qualitative differences between grades was that when expectations matched the category predicted by the grammar, there was a tendency for sixth graders to give more

complex forms of Outcomes (30 percent versus 17 percent respectively, for Tasks 1 and 2 combined) and Endings (42 percent versus 16 percent, respectively, for Task 1 only).

Discussion

The findings of the present study support the following major conclusions. 1) On the whole, there was a consistent relationship across fourth and sixth grade levels between reading success and ability to anticipate narrative text structures during reading. At each grade level, better readers tended to expect particular story structures more often than did poorer readers. 2) Indications of individual differences in qualitative aspects of structural expectations were minimal. There was a slight tendency towards greater variability in complexity and richness of structural expectations as reading ability increased. 3) There were no differences between fourth and sixth graders in the extent to which particular story structures were expected. 4) Qualitative differences between fourth and sixth graders for structural expectations were minimal.

The findings should be interpreted in light of a particular limitation of the study. The validity of the tasks used in the study as indicators of readers' expectations has not been rigorously explored. Oral productions and macro-cloze responses may not be complete and accurate manifestations of readers' actual cognitive expectations. In fact, there are indications that different research tasks using story grammars may vary in the extent to which they reveal individuals' knowledge of story structure (e.g., Omanson et al., 1978; Stein & Glenn, 1979; Stein and Nezworski, 1978).

Several points can be made about the major finding of the study, i.e., that there was an overall relationship between reading ability and expectations for story structures. The finding suggests that better

readers tended to be more sensitive than poorer readers to at least one macro-level characteristic of text, i.e., narrative structure. The finding is consistent with results from many previous studies investigating structural variables in narrative and expository text, using recall and/or importance ratings (Eamon, 1978-79; Marshall & Glock, 1978-79; McGee & Niles, 1981; Meyer et al., 1980; Palmer et al., 1980; Smiley et al., 1977; Taylor, 1980; Vipond, 1980; Weisberg, 1978). Collectively, these studies underscore the importance of structural variables in text processing in general and as sources of individual differences in reading in particular.

The finding of an overall relationship between reading ability and expectations for story structure may be contrasted, however, to results of another study (Weaver and Dickinson, in press) in which dyslexic boys aged 9.00 to 11.11 tended to recall information in conformity with story grammar categories to the same extent as good fifth grade readers in another study (Stein & Glenn, 1979). The proportions of responses that matched the categories of the Stein and Glenn (1979) grammar were strikingly similar for the two samples. The discrepant results between the present study and the Weaver and Dickinson (in press) study are difficult to explain. Since other studies using recall tasks have also found individual differences in sensitivity to text structure, the divergent results cannot be attributable to tasks focussing on expectations versus recall. Perhaps the variant findings may be related to slight differences in the ages of subjects in the samples.

With respect to the relative importance of structural facets in text processing, two additional observations can be made. First, because lower level sources of individual differences (i.e., word recognition and literal comprehension) were controlled in the present study, it would appear that structural expectations were important in the reading process

above and beyond the lower level factors. Such an interpretation is consistent with results from at least one other study (Vipond, 1980) using reading time and recall measures, respectively, in which micro- and macro-level variables were found to be separate factors in reading comprehension. It is inconsistent with findings from other studies of comprehension and recall (cf., Fredericksen, 1980; Perfetti & Lesgold, 1977) which suggest that some higher level individual differences in discourse processing may be attributable to lower level reading skills. Reasons for disparity in results are not immediately evident.

Second, some investigators believe structural facets of text processing are relatively unimportant (Weaver & Dickinson, cited in Stein, in press) or are exaggerated in importance (Spiro & Taylor, 1980). Similarly, some recent theorists have criticized story grammars, sometimes on the grounds that they are predominantly concerned with syntactical or structural aspects of text, and they do not account for important narrative characteristics that produce readers' responses such as feelings of suspense or surprise (cf., Black & Bower, 1980; Black & Wilensky, 1979; Brewer & Lichtenstein, in press; Bruce, 1980; de Beaugrande & Miller, 1980; Mosenthal, 1979a, 1979b; Thorndyke & Yekovitch, 1980; Weaver & Dickinson, in press). Results of the present study indicate that retention of the structural aspect, i.e., the syntactic aspect, of story grammars is essential. Rather than abandoning the study of structural facets of stories (and text in general), investigating the conditions under which both structural and specific content expectations arise and are deployed (cf., den Uyl & van Oostendorp, 1980; Graesser, 1981; Meijsing, 1980) would appear to hold greater promise for a richer understanding of the reading process (cf., Mandler & Johnson, 1980; Wildman & Kling, 1978). In the future, tasks such as the ones used in

the present study might profitably be paired with others designed to probe readers' expectations for specific content (cf., Graesser, 1981; Meijsing, 1980; Olshavsky & Kletzing, 1979) in order to obtain simultaneous multiple perspectives on individuals' expectations.

A secondary interest in the present investigation was the degree to which overall findings of prior story grammar research were replicated. When compared to four previous studies that used related procedures with listening and/or oral productions (Glenn & Stein, in press; Stein & Glenn, 1977a, 1977b; Trabasso et al., in press) and to the prior study that used good readers (Whaley, 1981), the results commonly indicate that, on the average, individuals do expect particular categories of information in narratives. In fact, when the sixth graders' responses in the present study were compared to those of the sixth grade good readers in this investigator's prior study, overall, the proportions of responses that matched the categories predicted by the grammar were remarkably similar. (For Tasks 1 and 2, the proportions were .67 and .71 versus .75 and .67, respectively.)

Other findings in common with prior studies were that, with at least one notable exception (Mandler & Johnson, 1977), patterns of responses tended to be consistent across ages (cf., Mandler, 1978; Mandler et al., 1980; Stein, 1979) and Reactions did not need to be explicitly stated (cf., Mandler, 1978; Mandler & Johnson, 1977; Stein & Glenn, 1977b, 1979; Whaley, 1981). Although Reactions have been deleted regularly in production and recall tasks, they also have been judged highly important when subjects were asked to tell what was the most important information in a story (Stein & Glenn, 1979). Apparently, even though Reactions do not need to be stated at a surface structure level, they are important features at a deep structure level.

Three results in the present study were at odds with findings in some previous investigations. First there were no overall story differences, and category differences in expectations were unusually consistent across stories, with only one relatively minor instance surfacing in which fourth graders' expectations for categories (apparently for Reactions) varied between stories within Task 2. Although many previous story grammar investigations have used two or more stories (e.g., Chodos & Mosenthal, 1978; Glenn, 1978, 1980; Glenn & Stein, in press; Haberlandt, 1980; Mandler, 1977; Mandler & Johnson, 1977; Mandler et al., 1980; Nezworski et al., 1979; Stein & Glenn, 1977b, 1979), few investigators have attempted to assess statistically the extent to which responses to categories depend on the story being used. However, in the prior investigation with good readers (Whaley, 1981) and in a story grammar study using recall (Nezworski et al., 1979), relatively complex story by category interactions surfaced, indicating that individuals' expectations for and recall of particular categories were somewhat dependent upon the particular story being read.

The presence of complex interactions would seem to be the more predictable result. One would expect that if redundancies were plentiful and inferences were strong, a particular category might not need to be explicitly stated in a given story. The differences between studies in findings may be related to the absence or presence of poorer readers. Since, in the present study, poorer readers tended to be insensitive to appropriate structural characteristics of narratives, the existence of redundancies and inferences would have little meaning for them with regard to category prediction. Thus, their responses may have washed out potentially complex story by category interactions.

A second finding that contradicted results of previous studies was the finding of no difference in the extent of expectations for various categories except that the Reaction was expected to be stated to a lesser extent than all other categories. With rare exceptions (cf., Nezworski et al., 1979; Whaley, 1981), many investigators have concluded that some categories were better recalled than others, and consequently, those categories were considered more salient or more important in the story (Glenn, 1978; 1980; Haberlandt, 1980; Mandler, 1978; Mandler & Johnson, 1977; Mandler et al., 1980; Chodos & Mosenthal, 1978; Stein & Glenn, 1977b, 1979). The meaning of the differences among studies is not clear. It is possible that some of the differences may be due to task effects, or to mode of presentation (reading versus listening). It is also possible that prior to reading or listening, individuals expect various categories to be equally important, but that during or after reading or listening, the semantic content weights the categories so that certain of them become more important than others (cf., Nezworski et al., 1979).

The third and the most surprising divergent result was the absence of a significant developmental effect. Findings of developmental differences in the extent of structural expectations (Whaley, 1981), and in story recall are extremely common in prior studies (cf., Mandler, 1978; Mandler & Johnson, 1977; Stein, 1979; Stein & Glenn, 1977a, 1979). The absence of striking grade level differences in the present study may be due in part to inappropriate respresentation of developmental stages. For example, a third to sixth grade contrast might be more appropriate. The cognitive development that takes place between fourth and sixth grade may be quite gradual, whereas the development between third and fourth grade may be quite rapid. Also, inconsistent grade difference

findings between the present study and prior investigations may be due in some unknown way, when reading was involved in the tasks, to presence or absence of poorer readers.

In summary, the present research used a unique set of tasks for revealing readers' expectations for structures in stories. It was found that, on the whole, predictive ability for structural facets of narratives was related to reading ability. One especially significant direction of research suggested by the present findings would entail exploration of the means by which children's structural predictive abilities might be enhanced. Direct instruction in structural facets of narratives might be particularly beneficial to poorer readers.

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Footnotes

[1]In the remainder of this paper, conditions are labeled using the category title for responses predicted by the grammar.

Table 1

"The Tiger's Whisker" Story[a]

1	Once there was a woman who lived with her husband in the woods.
2	One day, her husband got very sick.
3	The woman was very upset by her husband's illness
4	and wanted him to get well.
5	She tried everything she could think of
6	but nothing worked.
7	At last she remembered that medicine made from a tiger's whisker would help him get well.
8	So the woman set out to get a tiger's whisker.
9	She went to a tiger's cave and put some food in front of the opening to the cave and sang soft music.
10	The tiger came out, ate the food, and thanked the woman for the food and music.
11	The woman quickly cut off one of his whiskers
12	and ran home.
13	The tiger was lonely and sad,
14	but the woman's husband got well.

[a]This is a condensed version of "The Tiger's Whisker" used by Stein and Glenn (1979).

Table 2

Diagram of "The Tiger's Whisker"

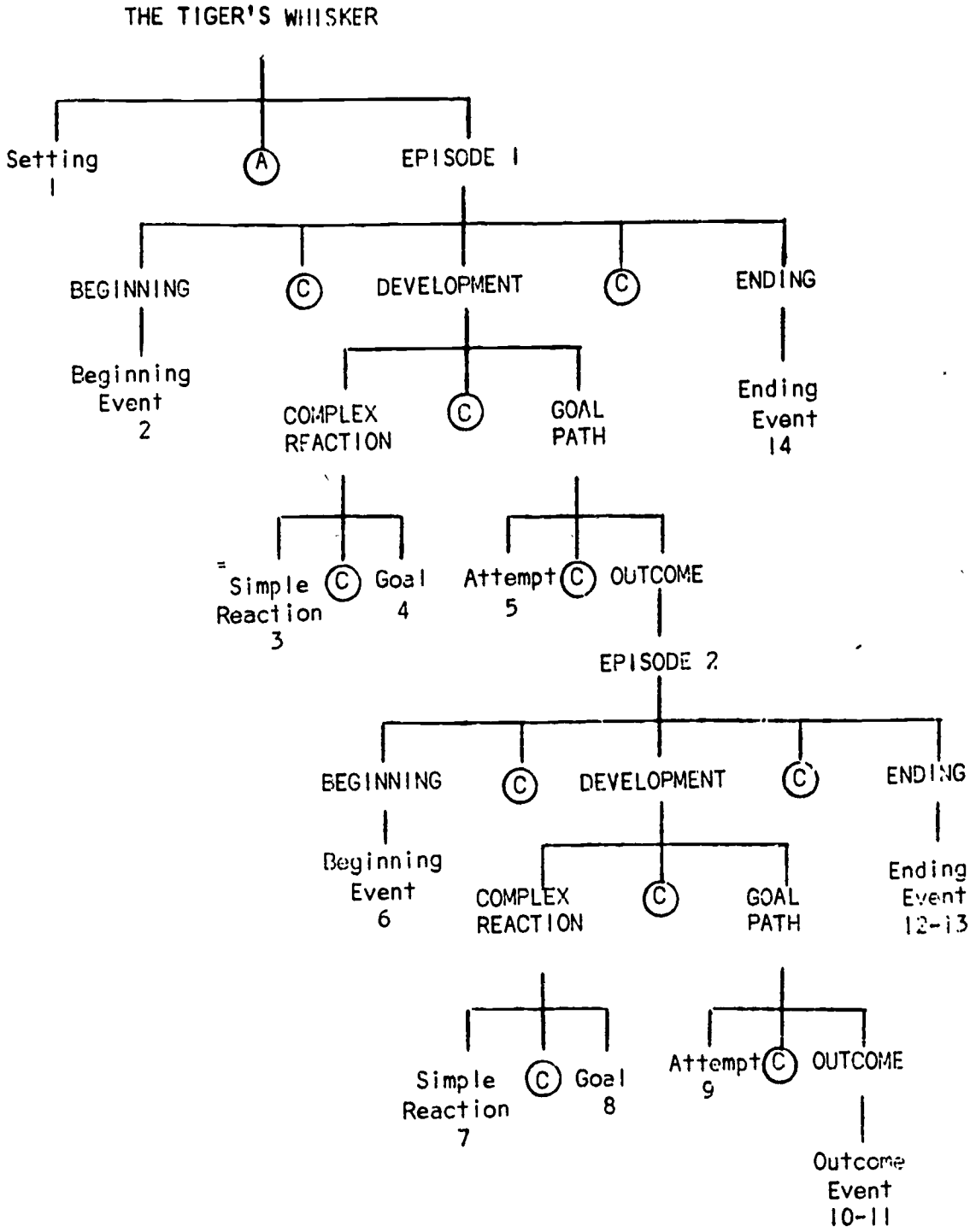

Table 3

Proportions of Times Readers' Expectations Matched Categories Predicted by the Grammar

Condition	Grade 4			Grade 6			Marginal Proportion
	Story 1	(N)	2	Story 1	(N)	2	
Task 1							
Beginning	.62	(21)	.76	.75	(15)	.80	.73 (36)
Reaction	.15	(20)	.10	.10	(15)	.05	.08 (35)
Attempt	.80	(20)	.70	.71	(14)	.93	.79 (34)
Outcome	.75	(20)	.75	.91	(11)	.82	.81 (31)
Ending	.56	(18)	.83	.73	(15)	1.00	.78 (33)
Marginal Proportion	.57	(99)	.63	.63	(70)	.72	
Task 2							
	Story 3	(N)	4	Story 3	(N)	4	
Setting	.68	(19)	.63	.86	(14)	.86	.76 (33)
Beginning	.70	(20)	.85	.77	(13)	.92	.81 (33)
Reaction	.45	(20)	.00	.36	(14)	.21	.23 (34)
Attempt	.65	(20)	.60	.86	(14)	.57	.67 (34)
Outcome	.75	(20)	.80	.73	(15)	.87	.79 (35)
Marginal Proportion	.65	(99)	.58	.71	(70)	.70	

Table 4

Results of the Logistic Regressions

	Task 1				Task 2			
	Story 1		Story 2		Story 3		Story 4	
	Q (df=6)	p= [b]	Q (df=6)	p= [b]	Q (df=6)	p= [b]	Q (df=6)	p= [b]
Intercept	.81	.37	.00	.96	.52	.47	3.07	.08
Condition 2 [a]	17.75	<.01	25.59	<.01	.04	.85	3.52	.06
Condition 3 [a]	.90	.34	.03	.86	7.68	<.01	21.55	<.01
Condition 4 [a]	1.66	.20	.00	.98	.04	.85	1.44	.23
Condition 5 [a]	.20	.65	1.72	.19	.01	.93	1.52	.22
Grade	.56	.23	2.00	.08	.65	.22	2.93	.05
Achievement	5.00	.02	3.24	.04	1.24	.14	10.39	<.01

[a] The first condition in each task is included in the intercept.

[b] Probabilities given for intercept and conditions are for two-tailed tests. Probabilities for grade and achievement are for one-tailed tests.

Table 5

Proportions of Times Readers' Expectations Matched Categories Predicted by the Grammar by Grade and Trichotomized Achievement Level

	Grade							
	4				6			
	Story				Story			
Achievement Level[a]	1	2	3	4	1	2	3	4
Low	.47	.53	.68	.50	.59	.68	.64	.55
Middle	.55	.62	.55	.52	.55	.73	.77	.82
High	.69	.72	.69	.69	.73	.73	.73	.73

[a]For fourth graders, CAT percentile ranges for Low, Middle, and High achievement levels were: ≤53, 54 to 68, and 69 to 99, respectively. For sixth graders, the respective breakdowns were: ≤56, 57 to 82, and 83 to 99.