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ABSTRACT

An investigation examined student-generated texts in terms of both traditional and more theoretically valid readability to determine what factors influence comprehension when children read their own, peer, and adult-written texts. Seventy dictated stories created in an earlier study, along with 4 first-grade level stories from the "Reader's Digest Skill Builder" series, served as the pool for various analyses. Factors of traditional readability, interest, story structure, and reality were examined to learn why children infer better on student-generated texts than on adult-generated texts. Analyses showed that interest, natural language leading to longer sentences, and social and conceptual schema matches hold higher explanatory power than traditional measures of readability and story structure. Teachers who may have been reluctant to use student-generated texts because they are not "controlled" can be assured that strong factors support the readability of such texts. When children have a real-life connection with the author of their text and they read interesting material written in the language of children, they have a better chance of getting the whole message, including the part "written between the lines." (DF)

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FACTORS INFLUENCING THE READABILITY
OF STUDENT-GENERATED TEXTS

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FACTORS INFLUENCING THE READABILITY OF STUDENT-GENERATED TEXTS

In classrooms where reading and writing are integrated in meaningful literacy programs, such as writing process classrooms and language experience classrooms, much of what students read has been composed by other students. Researchers have become increasingly interested in connections between reading and writing processes. (Calkins, 1983; Goodman & Goodman, 1983; Graves & Hansen, 1983; McGee, Ratliff, Sinex, Head, & LaCroix, 1984). They are observing connections between writing for someone else to understand and understanding what someone else has written. Young writers develop a sense of option about stating or implying information, which enables them to "understand stories when authors write implied messages" (Graves & Hansen, 1983, p. 180).

Concurrently, much work is being done to look at various factors influencing text readability. Easily measured text characteristics such as sentence length and syllables per word are still (although debatably) employed by some. However, other text factors such as structure (Baker & Stein, 1981; McGee et al. 1984, Whaley, 1981), cohesion (Freebody & Anderson, 1983), aphoric devices and cognitive density affect text comprehensibility. Perhaps more importantly, we are learning that no text is easy or difficult in and of itself. It is the interplay between reader and text that determines comprehension. Reader/text variables that have been studied include the match between the reader's schemas for both content and structure and the author's schemas (Durkin, 1981; Freebody & Anderson, 1983; Hansen, 1981; Stein & Trabasso, 1981); purpose for writing and for reading; the reader's prior knowledge of the topic (Marr, 1982; Pearson, Hansen, & Gordon, 1979); and the reader's interest in the text (Anderson, Mason, & Shirey, 1983).

In a study presented earlier (Allen, 1984), I reported that children in first, second, and third grades drew more text-based, relevant inferences on their own stories and on peer stories than on adult-written stories. The purpose of the present investigation was to examine these student-generated texts in terms of both traditional and more theoretically valid readability. What factors influence comprehension, specifically inferential comprehension, when children read their own, peer, and adult-written texts?

Method

In the original study (Allen, 1984), 70 children representing a range of decoding abilities dictated stories. They were instructed to, "Tell me something interesting that

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happened to you, that your friends might like to read." These 70 student-generated texts, along with four first-grade level stories from the Reader's Digest Skill Builder series (Berke, 1977), served as the pool for various analyses. Words per sentence, characters per word, syllables per word, and Spache readability were determined using a computer program. Interest was assessed by having 21 second-grade students not otherwise involved in the study rate pairs of adult/child stories. Stories were read aloud in pairs with order of presentation rotated. Students were instructed to mark the title of the story they thought more interesting on a sheet containing corresponding pairs of titles. Again, the order effect was controlled. For analysis of story structure, four children's stories were chosen randomly to compare with the four adult stories using van Dijk's (1977) macrostructure of exposition, complication, and resolution. Schema was explored theoretically, based on information gleaned from children during the interest assessment. As part of this exploration, the children who did the interest ratings were asked which of the stories were "real."

Results

Traditional readability. According to the Spache (1953) readability formula, the adult-written texts were at the 1.3 level and the child-generated texts were at the 1.8 level, for half a grade-level difference. Characters per word and syllables per word were almost identical for the two sources. The most dramatic difference was for words per sentence: adults averaged 5.25 words per sentence, while children averaged 9.6 words per sentence.

Interest. Second grade children found the child-authored stories more interesting than the adult-authored stories four to three.

Story structure. Each adult-written story had a clear structure in the expected order. Each began with an exposition that introduced setting, character(s), and/or background information; proceeded to complication through something "surprising, remarkable, or at least interesting" (van Dijk, 1977, p. 38); and ended with resolution of the problem. In contrast, of the four child-generated stories, there was only one such complete series. There were five incomplete structures: for example, Mary said, "I went to Colorado and I saw horses. We went up these big mountains. My dad had to go to the bathroom, and there wasn't no bathroom. We found this big thing that was a bathroom, but there was a big, long line. And we went down to this one place and there was a whole lot of people who camped there." There were five sections that were simple exposition. Children tended to include several episodes in their stories, while adult authors told single-episode stories.

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Reality. Second grade children knew with 92% accuracy that the child-generated stories were "real." They knew, with 98% accuracy that the adult-written stories were not "real." They had not been given any information about the authors of any of the stories.

Discussion

Factors of traditional readability, interest, story structure, and reality were examined in order to get a clearer picture of why children infer better on student-generated texts than on adult-generated texts. Just as comprehension depends on varied interactions of reader and text, studying readability demands that complex interactions be included as part of any meaningful explanation. As each area of investigation is considered separately in the following discussion, it is important to remember that they did not occur in isolation; rather, they are some of the threads woven intricately between reader and text which provided the fabric of 70 reading experiences.

Traditional readability. While readability formulas have frequently been subject to heated debate (Anderson & Fry, 1983), they are still widely used (Lange, 1982). Their popularity is due in part to how easily they can be applied (especially with the use of computer programs), and the fact that they are familiar measures (Davison, Lutz, & Roalef, 1981). Opponents stress that they are theoretically unsound, have a questionable empirical base, and have had a "baleful" influence on the writing and editing of school texts (Anderson & Fry, 1983; Bruce, Rubin, & Starr, 1981).

In the present study, traditional measures of readability provided no clue to why subjects might have inferred better on student-authored texts when interpreted traditionally. According to the Spache formula, the adult-written texts were half a grade easier. Sentences were nearly twice as long in the student's texts, which should have made student-generated texts more difficult. However, the children's stories may have been easier to comprehend because they had longer sentences. Children may have left empty slots less often than adults. Pearson (1976) and others have argued that artificially constructed "low readability" materials, such as the Reader's Digest series used in this study, leave out important connectives to produce shorter sentences. The following examples illustrate the point:

Adult Story: The squirrel pushed. It pulled. The pancake would not move. The pancake was too big.

Child Story: My uncle heard that the trailer court had got hit by the tornado. And we were worried because that's where my mom lived and she was there at the time.

In the present investigation, the use of the readability formula was not helpful; however, awareness of one contrasting surface feature, words per sentence, led to a closer examination of the text sources. It seems quite probable, from examining the previously mentioned examples, that sentence length did contribute to readability: longer sentences probably made the texts easier to understand.

Interest. Sadoski (1984) noted that "the concepts of affect and interestingness exist presently only in common sense form and are in need of further thought and clarification" (p. 52). His study failed to support the positive effect of interest on recall. However, in an extensive study of various factors influencing recall, Anderson, Mason, and Shirey (1983) found that "interest accounted for 33.8 times as much variance in sentence recall as readability" (p. 48). When interactive and derivative effects were removed, interest still explained four times as much variance as the traditional measures of readability.

The children in the present study found student-generated stories more interesting than adult-generated stories by a margin of four to three. It is important to keep in mind that these judgements were of inherent interest: the listeners did not know that they were hearing stories written by other children. In the first part of the study (Allen, 1984), interest was heightened by the knowledge that children were reading their own stories, and stories of identified classmates. During testing, it was common for children to greet the examiner with, "Did you get my story typed?" or "Whose story am I going to read?"

One explanation of why the children found student-generated texts more interesting is that topics may have been more familiar to the reader. Freebody and Anderson (1983) found that when other textual factors were controlled, "the more familiar version was better recalled" (p. 293). Marr (1982) found that familiarity "was the strongest predictor of the student's ability to draw inferences" (p. 89). This hypothesis was not tested in the present study; however, some spontaneous comments support the explanation. When reading about the Aquahawks, one boy remarked, "My sister is on the swim team, too." Such comments were common on student-generated stories, but did not occur spontaneously for any adult-written story.

Story structure. Basic story structure was also investigated as a possible factor. Researchers have shown that young children seem especially affected by changes in expected story structures (Baker & Stein, 1981). Mandler (1978) and Stein (1976) found that primary grade children's correct recalls were reduced when story sequence was disrupted in some way. Examination of the two story sources in the present investigation revealed that student-generated texts were very poorly structured, at least in terms of

van Dijk's (1977) macrostructure.

While it is possible that story structure was outweighed by other factors, an alternative explanation is that readers accepted structures used in student-generated stories. Although several researchers have found that younger children do not have story schema as well developed as do upper-grade children (McGee, 1982; McGee et al., 1984; Whaley, 1981), McGee and her associates hypothesized that younger children may "believe that some nonnarrative forms are appropriate organizational forms for stories" (McGee et al., 1984, p. 270). If so, children in the present study may have read their own and each others' stories as if they were appropriately structured (and who are we to say they are not!) Further credence is given this explanation by Work Kintsch and Greene (1978), reported. They found that readers are more likely to comprehend when stories match familiar cultural patterns. Surely the reporting of interesting events in their lives is a familiar cultural form for primary grade children.

Schema. In her discussion of inference, Hansen (1981) explained that "in order for an idea in a text to be understood, it has to instantiate a schema (a general knowledge structure) in the reader's long-term memory" (p. 393). A schema includes all previously-accumulated knowledge about a topic as well as an organization, or connecting network, of the knowledge. Rather than consider both existing topic knowledge and its organization in memory as a whole, it may be helpful to an understanding of text-source differences to think about various facets of schema.

Adams and Bruce (1982) made three distinctions about the reader's accumulated knowledge that seem especially helpful in describing the role schema played in the present investigation. They described conceptual knowledge, social knowledge, and story knowledge as being necessary for successful communication between author and reader. They state that "a major determinant of a text's comprehensibility is the goodness of the match between the knowledge the author has presumed of the reader and that actually possessed by the readers" (p. 3).

Although background knowledge and schema are not always interchangeable terms, it may be helpful for the present discussion to consider the categories of Adams and Bruce as facets of schema. Conceptual schema includes knowledge about the topic gathered from previous reading, conversations, and experiences. Social schema is the context of the written communication, including the author's purpose and the knowledge of the writer's intentions on the part of the reader. Story schema includes knowledge about the expected structuring of information, such as narrative.

When children in the present study read their own stories, they had complete schemas in every sense. They were familiar with the concepts, remembered their reason for telling the story, and could follow the structure because they had more complete representations in their heads. When they read the adult-authored stories, two dynamic facets were incomplete. Children probably had a general conceptual schema for a parade; however, there was not the same one-to-one match as when they read their own stories. There was only a vague notion of the social schema, or why the author wrote the story, as demonstrated by one subject's question before reading the adult-authored story: "Did he write about something that really happened to him like we did?" Children probably did have a well-developed story schema (Mandler & Johnson, 1977), especially for the highly-structured stories used.

Children had more difficulty inferring on peer stories than on their own, although not quite so much difficulty as on the adult stories. Story schema was discussed in a previous section: if there was a match between the reader's schema for story structure and the peer-writer's structure, it was because children were familiar with the unstructured narratives of other children. Certainly there was no formal narrative structure. Conceptual schemas may have been better matched, as will be argued, but they certainly were not one-to-one matches.

In spite of questionable story schema match and imperfect conceptual schema match, children inferred somewhat better on peer stories than on adult stories. As children read their classmates' stories, they knew the context in which the stories had been produced: the social schemas matched. Peer authors were telling about personal experiences, just as the readers had done. It is at this point that the reality ratings reported earlier provide insight. Since children knew they were reading about real events, they were able to instantiate more specific schemas. Rather than a general schema for parade in the adult story, they had a specific schema for Show Biz Pizza in Jennifer's story. For these readers, there was the "dynamic give and take between author and reader" (Harste & Carey, 1979) that enables comprehension.

Conclusion

It appears that interest, natural language leading to longer sentences, and social and conceptual schema matches hold higher explanatory power than traditional measures of readability and story structure. Teachers who may have been reluctant to use student-generated texts because they are not "controlled" can be assured that there are strong factors supporting the readability of such texts. When children have a real-life connection with the author of their text, when they read interesting material written in the language of children, they have a better chance of getting the whole message, including the part written between the lines.

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