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Individual Differences That Influence Reading Comprehension

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Theories about reading have moved away from viewing the reader as a passive recipient of textual input, as a *tabula rasa* on which the author sketches his or her message. Under this view, reading comprehension is easily explained by the success of the textual input entering and staying intact within the mind of the reader. Adopting this view, some character educators can assert that reading moral stories to children will build moral literacy and moral character due to the nature of the stories themselves. That is, as long as the children “hear” the stories, they will absorb the story messages. This is the view promulgated by former secretary of education William Bennett in his wildly popular book, *The Book of Virtues*. Bennett (1993) contends that hearing moral stories will develop moral literacy, which then leads to moral character. There is no evidence for his claims. William Kilpatrick (1993) agrees with Bennett, saying that “good books do their own work in their own way” and “it is not necessary or wise for adults to explain the ‘moral’ in each story” (p. 268). In fact, recent research has disconfirmed a “passive reader” theory and the claims made by Bennett, Kilpatrick, and others. These findings are reviewed in this chapter.

We find that readers are active comprehenders. They use their knowledge and strategies to construct meaning from a text (Pressley & Afflerbach, 1995). The reading process resembles more closely the interaction of a breeze on a landscape. The breeze has an influence on the features, moving dirt and debris about and shaping erosion, but only so far as the structures of the landscape allow. Constructivist reading theory takes into account the nature of the reader (the landscape) in response to the textual input.

Constructivist reading research tells us that at least five things about the reader matter in reading comprehension: reader skills, reader knowledge, reader cognitive development, reader culture, and reader purpose. Leaving the discussion of general reading comprehension skills to others, this chapter address the influence of (1) reader expertise in the knowledge domain of the text, (2) the sociomoral cognitive development of the reader,

(3) the degree to which the cultural assumptions of the text match those of the reader, and (4) the reader's purpose for reading (e.g., for fun or to study). All four factors concern elements that the reader brings to the reading situation and that affect the reader's processing of the text.

READER KNOWLEDGE

Individuals who read or view the same text often end up with different mental models or understandings of the text. For example, a 16-year-old gunslinger named "Doug," who had performed nine drive-by shootings over the previous year in his hometown of Omaha, Nebraska, considered the films *South Central* and *Boyz 'n the Hood* to be affirmations of his aspirations and lifestyle (Hull, 1993). In contrast, most viewers of either one of these films created a mental model with an explicit moral lesson about which behaviors and life choices *to avoid*. What are the factors that lead to these radically different comprehensions of the same text?

Traditionally, reading researchers have studied the causes of individual differences in the comprehension of texts along two lines, reader skill and reader knowledge. Reader skill concerns basic reading and language abilities, including essential decoding skills such as word recognition, vocabulary, and memory, as well as higher level skills such as reading strategies and forming inferences. Readers with more of these skills are better at comprehending texts (e.g., Cunningham, Stanovich, & Wilson, 1990; Palmer, MacLeod, Hunt, & Davidson, 1985). "Doug"'s misunderstanding of an antigang movie may have been influenced by poorly developed text comprehension skills. But there are other sources for reader misunderstanding.

A second type of individual difference that researchers study is differences in the specific knowledge brought by the reader to the text. Constructivist theory generally assumes that an individual processes or interprets experience based on previous experience or knowledge. Cognitive schema theory (CST) suggests that when an individual is presented with information, a schema or knowledge structure is activated to interpret the information. Derry (1996) suggests that there are three types of schemas or knowledge structures that can be activated in an individual: memory objects (specific small units of related characteristics), cognitive fields (an activated set of memory objects), and mental models (an overall meaning structure of a particular situation or experience). Such mental activations occur during reading. If the reader lacks the knowledge (and therefore the activations) requisite for interpreting the information in the text, the reader will misunderstand or misinterpret the text.

In general, as a reader reads and remembers text, he or she attempts to create a coherent mental representation by integrating text information and by elaborating on the text with prior knowledge about the world (van den Broek, 1994). Prior knowledge often comes in the form of general knowledge structures. General knowledge structures, such as specific scripts (e.g., Brown, Smiley, Day, Townsend, & Lawton, 1977; Schank & Abelson, 1977) and schemas (e.g., Anderson & Pearson, 1984; Bartlett, 1932; Bobrow & Norman, 1975; Rumelhart, 1980; Rumelhart & Ortony, 1977), have been shown to affect how readers comprehend a particular text. For example, due to extensive familiarity with grocery stores, a reader likely has a general knowledge "script" (or cognitive field) of the type and order of events that occur in grocery stores (a grocery store script) that af-

fects the reader's recall of a text about a grocery store visit. When a reader familiar with grocery stores reads a text such as the following, a grocery store script may be activated: "Carol had a long list of food to get, so she went to the store. After she got inside, it took over an hour before she was finished." The reader might add details (memory objects that were activated in the cognitive field) at recall that were not in the text, such as: "Carol parked the car in the parking lot. She entered the store and took a grocery cart, which she pushed through the store collecting her food. After everything on her list was placed in her cart, she went to the checkout line, and so on." Such additions suggest the existence of a grocery store script that influenced recall. Such scripts, schemas, or knowledge structures provide a means by which to understand the text.

A single word or event in the text may evoke a whole knowledge structure (such as a restaurant script or beach schema). Not only does the schema or knowledge structure help with current understanding, but related memory objects are also activated (i.e., a cognitive field). Later events in the text are interpreted according to the activated cognitive field. For example, "After she got inside, it took over an hour before she was finished" is an ambiguous sentence that is interpreted according to the grocery store schema activated by the previous sentence: "Carol had a long list of food to get, so she went to the store." Schemas provide a top-down tool for interpreting events in texts.

Sophistication in domain-specific schemas (more and better organized knowledge) often distinguishes experts from novices in that experts have more tools for interpreting the text. Domain knowledge generally refers to a specific, "studied" domain (Alexander, 1992) for which expertise may take an estimated 10,000 hours of study (Simon & Chase, 1973). Differences between experts and novices have been examined in many domains, for example, chess (Chiesi, Spilich, & Voss, 1979), dinosaurs (Chi & Koeske, 1983), baseball (Spilich, Vesonder, Chiesi, & Voss, 1979), and medical diagnosis (Johnson, Hassebrock, Duran, & Moller, 1982; Rikers, Boshuizen & Schmidt, 1997). Although it is still unclear what kind of knowledge and skill advantages the expert has, some have suggested that experts are distinguished by such things as (1) the ability to perceive larger, more complex, meaningful patterns in given information (Chase & Simon, 1973; Chi, Glaser, & Farr, 1988); (2) having better schema selection, as well as schema availability (Spiro, 1980); (3) the ability to immediately transfer information to or activate a larger long-term memory network (Charness, 1976; Ericsson & Kintsch, 1995; Frey & Adelman, 1976); (4) the ability to derive a set of retrieval cues that facilitate the recall of meaningful information later (Chase & Ericsson, 1981); and (5) the ability to efficiently suppress inappropriate associations (Gernsbacher & Faust, 1991). Many of these suggested mechanisms operate when experts read domain-relevant texts.

When researchers have looked at domain expertise in the context of reading, several findings have emerged. For example, greater comprehension of a text is related to (1) reader familiarity with the text topic (e.g., Chiesi et al., 1979; Fincher-Kiefer, Post, Greene, & Voss, 1988; Spilich et al., 1979; see also reviews by Alexander, 1992; Roller, 1990); (2) congruity between reader background and specific text content (e.g., Ohlhausen & Roller, 1988); and (3) a greater amount of knowledge considered analogous to subject matter knowledge (Alexander, Pate, & Kulikowich, 1989; Hayes & Tierney, 1982; Kulikowich & Alexander, 1990; Walker, 1987). Differences in comprehension between domain experts and nonexperts when reading domain-relevant text may reflect differences in schema activation that affect the ability to make inferences and to construct relevant schematic and conceptual models of text events.

When readers read, they apply prior knowledge in order to build a coherent mental model (overall meaning structure) of the text (McNamara, Miller, & Bransford, 1991; van Dijk & Kintsch, 1983). Texts are cognitively modeled or represented in several ways. In a vein similar to cognitive schema theory, van Dijk and Kintsch (1983) proposed three types of mental representations built in the process of reading: the surface structure (which words are presented in which order), the propositional text base (which propositions are presented in which organization), and the situation or mental model (what the text is depicting). Whereas the propositional text base is based primarily on the text itself, the *mental model* of a text tends to be knowledge dependent (e.g., van Dijk & Kintsch, 1983). Moravcsik and Kintsch (1993) found that high-knowledge readers achieved a deeper level of understanding, enabling them to construct an appropriate situation or mental model that allowed them to elaborate texts correctly. Low domain knowledge prevented readers from forming an adequate mental model, which led to erroneous elaborations and inferences during recall. When texts are inconsistent with the reader's activated knowledge structures and mental model, readers understand poorly (Bransford & Johnson, 1972), recall wrongly (Steffensen, Joag-Dev, & Anderson, 1979), and even distort memory to fit with their schematic structures (Bartlett, 1932; Narvaez, 1998; Reynolds, Taylor, Steffensen, Shirey, & Anderson, 1982). Inadequate schema activation or inappropriate mental modeling may explain "Doug's" response to the antigang films. Inadequate schema activation is characteristic of differences in moral text comprehension.

THE SOCIOMORAL COGNITIVE DEVELOPMENT OF THE READER

Generally, research in sociomoral development has focused on moral judgment (i.e., reasoning used to advocate a certain action choice in a moral dilemma). In this tradition, researchers recognize that people conceptualize moral problems differently, based on developmental age and education (e.g., Kohlberg, 1984; Rest, 1986). As individuals develop in moral judgment, transformations occur in how they construe their obligations to others. These transformations can be viewed as changing moral schemas (memory objects and cognitive fields) about how it is possible to organize cooperation (Rest, Narvaez, Bebeau, & Thoma, 1999). As moral judgment matures, an individual's concerns expand, and he or she is able to consider the welfare of more and more "others" when conceptualizing ideal forms of cooperation (e.g., at the lowest schema, one is primarily concerned for self, whereas in the most developed type of schema, one includes concern for strangers). Perhaps "Doug's" misunderstanding of the antigang message was influenced by developmentally limited moral judgment schemas.

The effect of moral judgment development on reading has been examined in several studies. Narvaez (1998) studied the effects of moral judgment development on the recall of narratives. Real-life, complex narratives were used with embedded moral reasoning at different stages of moral judgment. Moral arguments were presented in a stream of contextual detail. As in real life, the narratives intertwined events with people's rationalizations and interpretations of those events. Participants were asked not only to recall what actions generally occurred in the narrative but also what the protagonist was thinking about in the narrative. As in real life, the participant had to think over a decision situation while trying to sort out the reasoning and reconstruct what happened.

After reading the narratives, middle school and college students were asked to recall the narratives. Differences in recall corresponded to differences in moral judgment development as measured by the Defining Issues Test (DIT). Persons with higher scores in moral judgment on the DIT not only better recalled the texts and the high-stage moral arguments within them, but they also distorted their recall differently. Although all readers tended to distort the text in their recall, high-stage moral reasoners were significantly more likely to add new *high-stage* reasons to their recall of the narratives in comparison to lower stage reasoners. Explained by cognitive schema theory, those with higher levels of moral judgment had a larger and better organized set of memory objects activated (i.e., a different type of cognitive field) of both higher and lower moral judgment schemas, whereas those with lower levels of moral judgments had a more limited set of activations. Thus it was found that distortions were common, yet the type of distortion varied according to cognitive developmental structures.

In order to examine whether or not there is an expertise aspect to moral judgment development, Narvaez (2001) examined moral text comprehension between more expert and less expert groups in moral judgment. Three tasks were used: recall of moral narratives as in Narvaez (1998), giving advice after listening to a personal moral dilemma on tape, and thinking aloud while reading a narrative. Think-aloud protocols, in which a continuous record of thoughts is produced while reading aloud, have been used to study individual differences among readers (e.g., Whitney, Ritchie, & Clark, 1991), including both domain novices and experts (e.g., Lundeberg, 1987; Wineberg, 1991). In some studies, more skilled comprehenders generated more explanatory inferences while thinking aloud during reading (e.g., Chi, de Leeuw, Chiu, & LaVancher, 1994; Graesser, Singer, & Trabasso, 1994; Trabasso & Magliano, 1996; van den Broek & Lorch, 1993; Zwaan & Brown, 1996). Similarly, readers with expert background knowledge do more explaining (e.g., Chiesi et al., 1979), analysis of the text (e.g., Lundeberg, 1987; Wineberg, 1991), and evaluation (Wyatt et al., 1993).

Those with more moral judgment expertise exhibited superior performance: They were better at recalling higher stage moral arguments from narratives; they were more active in reading aloud domain-relevant texts, especially in terms of predictions, explanations, evaluations, text-based coherence breaks and responses to higher stage items; and they exhibited a more complex mental model after listening to a moral dilemma situation, recalling and advocating more high-stage reasons in their advice giving. Those with less expertise, on the other hand, did not recall as much from the moral texts, especially the high-stage reasoning; they were less active in reading aloud, reacted less to high-stage items, and exhibited less complex representations during advice giving, providing fewer high-stage reasons.

In another set of studies (Narvaez, Bentley, Gleason, & Samuels, 1998; Narvaez, Gleason, Mitchell, & Bentley, 1999), we examined developmental differences in the comprehension of themes in moral stories. We created well-constructed (i.e., with a beginning, middle, and end), nonreligious, literary, moral stories. A "moral story" has a theme about a specific aspect of getting along with others, such as being honest with strangers. The stories reflected the complex notion of moral behavior as theorized by Rest's four component model (Rest, 1983). In it, moral action requires moral sensitivity (e.g., awareness of cause-consequence chains of actions and reactions), moral judgment (e.g., selecting the most moral action), moral motivation (applying one's values and prioritizing a

moral action), and moral action (implementing and following through on the moral choice). All four components were included in each story.

We examined whether children understood the themes of moral stories as intended. We selected themes that were understandable to younger children (e.g., persevere for the good of others, be honest with strangers, do not lie for friends, be responsible and trustworthy by completing your duties to others) rather than more adult themes, such as principles for sustaining constitutional democracies. We focused on correct versus incorrect choice of the moral theme from among distractors. Participants from third and fifth grades and from a university were tested on whether or not they understood the author-based lessons (i.e., the moral themes) from several moral stories. They were asked to identify the theme from a list of message choices and to identify which of four alternative vignettes had the same theme. Participants also rated the set of message and vignette choices for closeness of match to the original story. Reading comprehension was used as a covariate. Developmental differences in moral theme understanding were significant, even after accounting for reading comprehension differences. Younger participants were more attracted to lower moral judgment stage distortions of themes, suggesting that moral judgment development is a factor in moral theme comprehension. The reader seems to impose a level of cognitive moral sophistication (a set of moral schemas or cognitive field) on the initial interpretation of the moral story.

Imposing his moral schemas on the story, "Doug" may have been attracted to a more simplistic understanding of the theme. He may have ignored or missed the contradictory elements in the story because of a very personal, tacitly held understanding of causal and necessary events in the social world. Culture operates in a similar manner. As readers read or view a text, they seem to impose a culturally based cognitive field on the text as well.

THE DEGREE TO WHICH THE CULTURAL ASSUMPTIONS OF THE TEXT MATCH THOSE OF THE READER

What knowledge do people from different cultures draw on when they read culture-specific texts? Cultural knowledge seems to affect comprehension much like background knowledge. Similarly, when texts are inconsistent with the expectations or high-level knowledge structures of the reader, the reader will understand poorly (Bransford & Johnson, 1972), recall wrongly (Steffensen et al., 1979) and even distort memory to fit with the reader's mental schemas (Reynolds et al., 1982). A classic example is Bartlett's (1932) seminal work with the "War of the Ghosts" folktale, in which participants showed an increasingly distorted recall over time of this Native American story, making it conform to familiar story schemas. Bartlett was the first in this century to provide evidence for the influence of cultural expectations on narrative recall. In subsequent research, Harris, Lee, Hensley, and Schoen (1988) found that routines from another culture were increasingly recalled erroneously over time by those from a different culture, indicating a conceptual influence during memory retrieval. Readers apply culture-based schemas to the way they mentally represent the text (e.g., Reynolds et al., 1982). For example, when Harris et al. (1988) asked participants to recall texts about events in a different culture, they found distorted recall, as in the following story. The text said:

“Ted was eager to go downtown to do some shopping for Carnival. He needed to buy some gifts for his parents and some new costumes for himself and his friends. . . . He got on the bus at the rear door and found a seat in the back. After getting settled, he pulled out his wallet. . . . He then carried a stack of fifties up to the cashier in the center of the bus. . . . Ted passed through the turnstile and found a seat just behind the driver. . . . When he arrived, he scrambled out the front door of the bus.”

Participants from the United States tended to recall incorrectly that Ted got on the front of the bus, paid, and sat down in the back. Participants from Brazil did not make these errors because the particular bus experience was a familiar schema.

One large-group difference that has been studied in cross-cultural research is orientation to relationships in terms of individualism or collectivism (Triandis, 1995). As for religious and political differences, difference in orientation to human society and relationships can be a source of value conflicts. In an individualistic orientation, everyone is expected to look after self and immediate family, whereas with an orientation to collectivism, persons receive protection from a cohesive in-group in exchange for loyalty (definitions are from Hofstede, 1991). Triandis and his colleagues (e.g., Kim, Triandis, Kagitcibasi, Choi, & Yoon, 1994) have studied the individualism–collectivism construct and postulate that it reflects cultural syndromes for which evidence at the individual level is accumulating. So, for example, Triandis (1995) suggests that in a restaurant setting, waiters in places with different cultural orientations on individualism–collectivism will behave differently. A waiter in Brazil (collectivist) takes the order from the senior member of a group because he assumes that the group will build bonds by sharing the same food. In contrast, most waiters in Western (individualist) countries will assume that each person will order according to individual preference.

We designed a study to examine the influence of individualism–collectivism orientation on the on-line processing of moral texts. In Narvaez, Mitchell, and Linzie (1998), we tested two groups: Asians/Asian Americans and non-Asians, expecting that the Asian group would more reliably provide us with collectivists than other groups. Participants had native skills in English and read several stories on a computer about individuals who were asked for help by a relative (aunt, uncle, cousin). In half of these stories, the protagonist sacrificed his or her own goals in order to help (“help” stories); in the other half he or she did not help (“no-help” stories).

While they were reading, the participants were interrupted with a lexical decision task. Some of the letter strings were not (English) words, some were words irrelevant to what they were reading, and some of the words represented inferences assumed to take place by the reader at that point in the story. Two kinds of inferences were tested in the moral stories: reinstatements of information from earlier in the text necessary to understand a current sentence and moral inferences—elaborations on current text action based on cultural assumptions (cognitive field). The moral inferences occurred after the protagonist decided to help or not help in the story. In the “help” stories, the moral inferences were represented by words like “dutiful” or “loyal.” For the “no-help” stories, the moral inferences were represented by words like “self-centered” or “shameful.” Using the nonrelevant English words as a baseline, each participant served as his or her own control. We expected there to be a significant response-time difference for both kinds of moral stories between individualists and collectivists. We also expected that the collectivists would react more quickly especially to the moral probes in the “no-help” stories. Par-

ticipants took an inventory of their orientation to individualism or collectivism. Reading skill differences were controlled by individually standardizing each reader's responses.

As expected, there were no significant differences in reaction time for reinstatement (nonmoral) probe words based on collectivism score. But we did find significant differences in reaction time to moral probe words based on collectivism scores. Further, significant differences in reaction time to moral probe words remained after holding cultural background constant. That is, collectivism scores, regardless of cultural-ethnic background, were significantly related to reaction time for moral inferences but not for nonmoral inferences. We concluded that cultural-ideological background can influence moral inferences while reading. The process of reading about helping or not helping relatives activated a cognitive field concerning relating to others and affected the mental model of the text.

Cultural influences on reading often transpire without awareness. Reading is also influenced by the reading context and the reader's conscious goals. Another factor in determining intraindividual variation in the pattern of inferential activity during reading is the purpose the reader has for reading (e.g., Walker & Meyer, 1980).

THE READER'S PURPOSE FOR READING

A critical role for reading purpose in the comprehension process is implied by findings that orientation to (or goal while reading) the text during reading influences recall (e.g., Pichert & Anderson, 1977; Anderson & Pichert, 1978). Readers claim to modify their reading strategies according to reading goal. For example, Lorch, Lorch, and Klusewitz (1993) asked readers what kinds of different reading tasks they experienced and how they perceived the processing demands for the different types of reading tasks. The participants broadly distinguished two categories of reading tasks, reading for school (study) purposes and reading for stimulation or entertainment.

School reading was perceived as less interesting, slower, involving less anticipation of future text events, more attempts at integration, and more rereading, and also as more taxing of understanding and memory. In contrast, reading for entertainment was perceived to involve an increased effort to find relations among ideas and events in the text, more anticipation of forthcoming text events, more interest, and more analysis of writing style. Lorch et al. (1993) provide a rich description of text types and reader perception of their demands.

Narvaez, van den Broek, and Ruiz (1999) reported that reading purpose influenced the pattern of inferences that readers generated as they read. Readers with a study goal were more likely to engage in rereading and evaluating the text and to indicate knowledge-based coherence breaks than were readers who were reading for entertainment. This pattern of findings corroborates readers' assessments of their own reading processes, in particular their perception that school/study reading involves more rereading and attempts at integration (Lorch et al., 1993). The findings also suggest that the "search-after-meaning" principle (Graesser et al., 1994; van den Broek, 1990)—according to which the reader attempts to explain each element in the text before continuing to the next element—applies particularly to readers who are reading to study rather than to readers who simply read for entertainment.

Narvaez, van den Broek and Ruiz (1999) also examined the interaction between

reading purpose and the reading of two types of text, narrative and expository texts. The expository text evoked more study-type behaviors, specifically the generation of repetitions, evaluations, and the identification of knowledge-based coherence breaks. Processing of the narrative appeared to be much less affected by reading goal. Regardless of reading goal, readers gave more explanations and predictions when reading the narrative text than when reading the expository text. Conversely, the expository text evoked more associations, repetitions, evaluations, and indications of knowledge-based coherence breaks. The research literature provides various reasons for why one might expect different comprehension processes for narrative and expository text:

1. Narratives may elicit more interest, promoting more explanations and predictions than expository texts (e.g., Olson, Mack, & Duffy, 1981; Perrig & Kintsch, 1985; Schmalhofer & Glavanov, 1986; Trabasso & Magliano, 1996; van Dijk & Kintsch, 1983).
2. Narratives may promote increased inferencing, resulting, for example, in readers making nine times as many inferences during stories as during expository texts (Graesser, 1981).
3. Readers have early and extensive practice making inferences while reading stories because stories are used when learning to read and because everyday life is constructed much like a story (Britton, van Dusen, Glynn, & Hemphill, 1990).
4. The structure of expository texts is more variable than that of narratives (Bock & Brewer, 1985).
5. Narratives activate schema and script structures that support inference generation (Britton et al., 1990).
6. Narratives may rely more on familiar forms of causality than do expository texts, thus prompting more explanations and predictive inferences.

In summary, instructors need to be aware of the extent of individual differences among comprehenders. In general, readers vary in cognitive structures or schemas according to their experience and the interaction of experience with maturation. Reader schemas help determine what the reader extracts from a text. Schemas known to affect reading comprehension include world knowledge, developmentally based conceptual fields, and culturally based causal fields. Reading failure may occur due to lack of text-relevant schemas to make the requisite inferences and to activate related memory objects or ideas that the author assumes in the reader. Failure to comprehend the intended messages in a text can also occur during moral discourse comprehension. For example, young children may interpret a story about being responsible to others as a story about avoiding deleterious effects to the self. Specific implications for practice follow. These suggestions are grouped in terms of moral discourse comprehension, moral theme comprehension, cultural differences, and reading strategies.

Comprehension of Moral Discourse

Persuasive discourse that incorporates moral argumentation pervades our lives: news shows, talk shows, documentaries, political speeches, policy discussions, lawyers' arguments in jury trials. Often containing implicit moral reasoning, persuasive discourse of any kind may be understood distinctively by different comprehenders in correspondence

to their levels of moral judgment development. As has been found in schema research (e.g., Bransford & Johnson, 1972; Dooling & Lachman, 1971), discourse that presents implicit or fragmented moral reasoning may activate moral schemas more strongly (as a means to fill in coherence breaks). When the textual information conflicts with reader knowledge, the reader's preexisting knowledge is likely to prevail unless the reader is dissatisfied with the level of explanation his or her knowledge provides (Anderson, 1983). This "dissatisfaction" with moral reasoning schemas can be generated through class discussion with peers (see Power, Higgins, & Kohlberg, 1989).

Explicit educational curricula and instruction concerning moral topics such as social behavior change (e.g., drug use prevention or abuse recovery) may not be properly understood if the moral judgment capacities of the audience are not accommodated. Instructors should be aware that students may be understanding texts in ways different from the author's intention or the perspective of the instructor. Just as teachers attempt to match the reading level of a text with the student's level of reading skill, moral and social education programs should attempt to match the moral reasoning level of a text with the level of the student's moral reasoning capacities. Of course, in order to create the context for cognitive growth, texts should be selected that contain familiar and slightly more advanced moral reasoning (to promote "dissatisfaction" with existing schemas). Curricula advocating behavior change, such as character education curricula, should be thoroughly piloted in order to gauge what is understood by the target audience. A curriculum that works with one age group may not work with another.

Comprehension of Moral Themes

In order to promote the development of general theme comprehension, the instructor should facilitate student practice of gist recall and generalizing from texts (see Williams, Brown, Silverstein, & deCani, 1994 for a direct teaching approach). For *moral* theme comprehension, instructors also can focus on specific moral aspects of texts. A list of actions that teachers can take based on the process model of moral behavior (Narvaez, Mitchell, Endicott, & Bock, 1999) follows.

1. Assist students to become aware that some demands in a story are in conflict with others (e.g., personal/inner, outer/social). This may be studied by discussing: What was the problem? What was the worst thing the character faced? Were there differences in what people wanted? What were the differences?
2. Increase students' moral sensitivity to the configuration of the situation. This may be accomplished by asking these questions: What was going on? Who was thinking about what was going on? Who could be affected? Who was affected?
3. Help students reason about possible actions (moral sensitivity and reasoning) by posing questions such as: What could be done? What would happen if ____? What outcomes might occur? How might people react?
4. Focus students' attention on their own, as well as characters', personal identities and moral motivation, with questions like: What did the character think about when deciding/doing the deed? What kinds of ideals were driving the character in the story?
5. Increase students' awareness of sacrifice or sublimation of personal gratification for a greater good (moral motivation). Ask: How did the action affect each char-

- acter in the story? How did the action affect the community (e.g., classroom, neighborhood)?
6. Help students notice follow through: How did the character carry out the action? When there were obstacles, what did the character do?
 7. Develop students' skills in interpreting the social outcome and implicit or explicit positive judgment of action taken: How did the story end—good or bad? Why? For whom was it a good ending? For whom was it a bad ending?
 8. Develop students' skills in reflecting on alternative endings: How could the outcome have turned out better for everyone?

To explore characteristics of moral themes and texts themselves, we (Narvaez, Bock, Endicott, Mitchell, & Bacigalupa, 2001) are developing methods to measure the moral content in stories. This will allow the study of particular content effects on particular comprehenders.

Culture and Reading Comprehension

Schema effects are strongest with ambiguous material in which referential specificity is low (what the sentence or phrase refers to is not clear), local coherence is weak (the phrases and sentences are not closely related), and the message is unclear or nonsensical until a theme or title is provided (Bransford & Johnson, 1972; Dooling & Lachman, 1971). To a non-native speaker of English, this is the way an average text may appear to a reader. Those whose first language is not English or who have immigrated to the United States may find most school texts ambiguous. Students from diverse backgrounds are often novices in text-relevant knowledge and in knowledge of text structures. Their cognitive fields may be quite different in terms of understanding world events, and they may need assistance in learning the memory objects relevant to school learning. Instructors need to help all students build the cultural cognitive fields necessary for a particular text. Further, instructors should discuss readings during or soon after reading. The longer the interval before recall, the more inaccuracies, and the more likely memory reconstruction is affected by the individual's own perspectives (e.g., schemas) in terms of theme sharpening (embellishment, emphasis, rationalization) and theme leveling (discarding, condensation) of seemingly irrelevant material (Bartlett, 1932; Brown et al., 1977; Dooling & Christiaansen, 1977; Dooling & Lachman, 1971; Sulin & Dooling, 1974).

For students with a different language or cultural background: (1) different conceptual frameworks may become activated that misguide them in reading; (2) expectations of what is normal may differ and cause breakdowns in coherence; (3) cause-consequence chains can differ and/or may be more emotional, evoking strong reactions in the reader (e.g., showing disrespect to an elder by talking back); (4) symbols may differ and cause a breakdown in coherence (e.g., a black cat is related to bad luck in some European cultures; the color white is related to death in some Asian cultures); and (5) there may be differences in what to attend to, what to ignore, or what is superfluous (e.g., what a woman wears on the street is generally ignored by Western societies but highly important in Muslim countries). Instructors should make explicit the world knowledge a text requires for understanding, identifying cultural differences in terms of contextual features, actions, and interpretation of outcomes. Explicit discussion of text events and necessary inferences can help in fostering dialogue not only about the texts themselves but about differ-

ences in cultural and moral practice. In addition, using a variety of cultural texts may not only bring some relief to diverse students but also encourage the “mainstream” students to widen their views of the world.

Regardless of what the instructor does, the students may not understand what is intended due to developmental, cultural, and expertise differences. The instructor needs to continue to counter the related misconceptions by helping students hone study strategies that focus on comprehension and that develop thinking, knowledge, and multicultural reading skills.

Reading Purpose and Strategies for Comprehension

Strategies readers use are not always appropriate for comprehension. Readers tend to generate associative inferences with study texts. Instructors and students need to realize that associative elaborations alone are not enough for learning (see Trabasso & Magliano, 1996). Explanatory inferences are also vital (e.g., van den Broek & Kremer, 1999). Yet readers with a study purpose do not automatically use strategies that are related to increased understanding (Chi et al., 1994). Students need assistance in learning helpful reading strategies when reading expository texts. Reading strategies focused on comprehension—in which causal relations are central—are related to better reading comprehension (see also van den Broek & Kremer, 1999) than study strategies such as questioning or outlining. A focus on comprehending a text is more likely to “transform” knowledge into the type of mental representation that promotes long-term learning (Scardamalia & Bereiter, 1984).

Instructors (and texts) need to ask the questions that will lead the reader to make inferences that are related to increased retention, such as causal relations between elements of the text, predictions, and explanations. Students naturally perform these behaviors with narrative texts and need to activate such strategies when studying. Readers need instruction on how to transfer the strategies that they know and apply automatically when reading narrative texts to their reading of expository texts. Instructor coaching can assist readers to monitor their comprehension strategies and activate comprehension-enhancing techniques. Conscious strategic reading will help with comprehension and memory.

Most important, instructors should remember how complex is the interaction between reader and text. Based on the memory objects and cognitive fields built from experience, every reader will have a different mental model of a text. Only those with more expertise, development, and/or similarity in world knowledge to the author will have a mental model of the text that resembles that of the author.

OUR FUTURE RESEARCH AGENDA

Moral text comprehension research is in its early stages; hence there is much work to be done. Although we have studied moral theme comprehension, moral narrative recall, and on-line moral inferencing, it is still unclear what the key features of moral discourse comprehension are. How common is it? How is it used? For example, how does moral theme comprehension relate to persuasive discourse generally? What factors other than moral reasoning and background knowledge influence the interpretation of persuasive discourse? When persuasive discourse is used for prevention of risky behaviors, how do

moral themes affect the power and influence of the discourse? For instance, Narvaez, Gardner, and Mitchell (2001) examine both the comprehension of and the effects of using antidrug use messages that depend on moral reasoning and/or evoke moral identity in their interpretation.

Relating moral theme comprehension research to general text comprehension, these questions might be explored:

1. What are the elements of moral theme comprehension? What is the difference between moral and nonmoral theme comprehension? Researchers find that extracting embedded information from a narrative is difficult and relies on factors such as the concerns of the reader at the time and the reader's perspective on the topic (Britton, 1984; Rosenblatt, 1991). General theme extraction is especially difficult for children, becoming better established by fifth grade (Goldman, Reyes, & Varnhagen, 1984). We know that story grammar categories such as initiating events, actions, goals, and outcomes are differentially recalled by children in contrast to adults (e.g., Collins; 1983; van den Broek, Lorch, & Thurlow, 1997). Does moral theme comprehension require something over and above these simpler elements, such as more sophisticated social knowledge?
2. What kinds of story structure and affective focus (Brewer & Lichtenstein, 1982) facilitate moral theme comprehension? How does causal connection strength (Trabasso & van den Broek, 1985) of a moral theme relate to its comprehension (i.e., is a theme with more causal connections to events in the story better comprehended)?
3. What determines whether a reader conjures a moral or a nonmoral theme for a story? For example, *The Little Engine That Could* (Piper, 1930) has both a nonmoral theme (keep trying and you will be successful) and a moral theme (persevere to help others). Does the generation of a moral theme (instead of a nonmoral theme) become a more automatic rather than a consciously controlled process with age?

Classroom research into the teaching of moral theme comprehension should address questions such as:

1. Where are the children failing in theme comprehension? In "picking up" the message through the integration of intention-action-outcome chains of events? In remembering the message? In putting it into words? In making a generalization and applying it? When are differences occurring—at encoding or at retrieval?
2. What skills can be developed for moral theme comprehension? Are the skills the same as for general theme comprehension? How should moral theme instruction be different? What works in teaching moral themes? Williams et al. (1994) have demonstrated that middle-level students can understand the theme of a narrative, but only with deliberate, structured guidance.
3. Are there developmental limitations to moral theme comprehension skills? Does a reader have to have a particular set of moral schemas in order to extract a theme based on such schemas? Are some moral themes understood sooner developmentally than other moral themes, or are some themes just easier to comprehend than others?

Research into the influence of culture on reading should include the study of such questions as: (1) What specific aspects of culture affect reading? (2) Is the cognitive field predictably different for bicultural readers? (3) How multicultural can someone become

in terms of reading comprehension? How easy is it to change a reader's cultural cognitive field? (4) What are the specific, identifiable ways that cultural background influences reading comprehension?

There is abundant work to be tackled in the study of individual differences and text comprehension. The mapping of the variety of differences alone will take many years of study. Identifying the instructional strategies that increase reader abilities in each area will require ingenious and persevering research programs.

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