

## Appendix A

*This article is the seventh in a series drawn from work in the Handbook of Reading Research: Volume III (Kamil, Mosenthal, Pearson, & Barr, 2000).*

### Learning from Text: A Multidimensional and Developmental Perspective

*Tamara L. Jetton*

*Patricia A. Alexander*

Three students preparing to read and discuss a chapter from Mark Twain's *The Adventures of Huckleberry Finn* sit in a circle. One of the students, Ralph, is struggling because the world of Huck Finn is so alien to him. He does not understand Huck Finn's passion for the river, having only glimpsed at rivers from the window of the family car. He also finds the language of the runaway slave, Jim, strange. Yet Huck's predicaments fascinate Ralph. Because of this interest, he is determined to learn more about Huck's adventures.

Clare has already read several of Twain's short stories and *The Adventures of Tom Sawyer*. She also has some understanding of Twain's writing style, knows about Twain's exploration of young males, quest for adventure, and has learned to interpret dialect by reading it aloud. However, Clare is not taken with Huck Finn. She just cannot relate to the male characters and their raft adventure. Despite the ease with which she can read the novel, she finds it difficult to stay interested in the story.

Kim confronts other obstacles during her reading. She has been wearing the painful badge of "poor reader" since elementary school. She can read the words on the page but often does not understand them, so she avoids reading. Consequently, Kim has limited opportunities to practice the strategies that could improve her comprehension, and she continues to face every reading event with dread and resignation.

The three students we just met remind us how complex learning from text can be. For Ralph, reading *Huck Finn* is difficult because he lacks relevant background knowledge. Clare faces the challenge of sustaining her interest, while Kim needs basic strategies for gaining meaning from text. All these variables – knowledge, interest, and strategic ability – are part of the complex and multidimensional process of learning from text.

### Context: Situating Text-Based Learning in Today's World

A first step in understanding text-based learning is to examine the world in which readers such as Ralph, Clare, and Kim now live. The world of the 21st century poses unique and ever-changing challenges for readers. For one, readers are immersed in a flood of information that is seemingly endless and often unmanageable (diSessa, 1988). As such, students may become desensitized as a way of coping with the continual onslaught of information (Postman, 1995). Further, because they are confronted with so much information, students may find it difficult to discern relevant from trivial content or accurate from misleading information (Alexander & Jetton, in press).

Teachers can unintentionally exacerbate such problems by providing superficial coverage of content or dwelling on tangential instead of central information (Alexander, Jetton, Kulikowich, & Woehler, 1994) – in other words, by making substitutes for in-depth exploration of principled concepts (Gelman & Greeno, 1989). Even though learning from text is facilitated by the development of a rich body of principled knowledge, students often function from a disjointed and piecemeal base that they do not find particularly relevant to their everyday lives (Whitehead, 1929/1957).

We would be remiss if we did not acknowledge that today's students are learning with and from new technologies. Moreover, the potential outcomes of students' interactions with these technologies are still uncertain. Nevertheless, educators cannot simply sit back and wait to see what happens since these new technologies have already become integral parts of the educational process (Alexander, Kulikowich, & Jetton, 1994; Reinking, McKenna, Labbo, & Kieffer, 1998).



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Students now live in a global society. As a result, they are reading texts that are part of a dynamic, diverse worldwide community that is socially and culturally shaped. We can no longer view reading as a purely individualistic engagement with a text; instead, it is a sociocultural interaction among members of the global community. Imagine Ralph sitting in his English classroom with *The Adventures of Huckleberry Finn* displayed on a computer screen while he converses electronically with others across the globe as he reads the text.

### **Texts: Their Nature, Quality, and Form**

In addition to examining the world of the 21st century in which Ralph, Clare, and Kim are situated, we must also consider the nature, quality, and types of texts in which these students engage as they learn. We view texts as dual in nature because they are both individual and social, as well as permanent and dynamic.

Linguistic quality of text is another critical factor in readers' ability to learn from what they read. Texts constructed to facilitate readers' attempts to learn have been called "considerate" (Armbruster, 1984). In contrast, texts that cause readers to expend large amounts of cognitive effort to offset their poor construction are characterized as "inconsiderate." Several factors contribute to the considerateness and quality of texts, including purpose, audience appropriateness, unity of focus, organizational structure, development and validity of ideas, stylistic expression, and correct usage.

The type of text can also exert a significant influence over students' ability to learn. Although any written form of communication, including teacher-created handouts, can be considered a text, we focus on three text genres that have been the subject of numerous investigations: narration, exposition, and mixed (Axelrod & Cooper, 1996; Graesser, Golding, & Long, 1991; Hidi, Baird, & Hildyard, 1982). Narration here refers to prose written in story form to entertain, exposition to prose written to convey information, and mixed to prose used to convey information through a story form.

One reason genres are important is that they appear to elicit varied processing. For example, the information students deem important and interesting is greatly influenced by the nature of the text genre through which that information is conveyed (Schellings, van Hout-Wolters, & Vermunt, 1996). Readers have great difficulty determining the main ideas from mixed texts since they contain factual information in the form of a story or narrative (Jetton, 1994; Jetton, Alexander, & White, 1992).

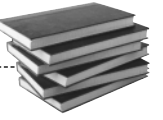
### **Knowledge: The Scaffold for Text-Based Learning**

Of all the factors considered in this exploration, none exerts more influence on what students understand and remember from text than does the knowledge they already possess (Alexander, 1996; Stanovich, 1986). Ralph shows us how lack of knowledge can lead to difficulties in learning from text as he struggles to understand Huck Finn's world of the Mississippi River.

Knowledge helps shape readers' perspectives on text content (Pichert & Anderson, 1977), the attention they allocate to information within the text (Reynolds & Shirey, 1988), the interest they have in the text (Garner, Alexander, Gillingham, Kulikowich, & Brown, 1991), and their judgments of importance (Alexander et al., 1994).

Knowledge is, of course, complex, with many forms and dimensions (Alexander, Schallert, & Hare, 1991). In this discussion, we focus on three knowledge categories: linguistic, schooled and unschooled, and subject matter. Readers use linguistic knowledge to decode the language, as Clare did to facilitate her understanding of the dialect in *Huckleberry Finn*. They also use linguistic knowledge when they consider the structure and forms (i.e., the genres) of written language. Knowledge of text structures allows readers to access information more readily and accurately as they construct their personal interpretations of the text.

Before students step foot in a school, they have amassed a rich body of conceptual knowledge about the world around them. This unschooled knowledge influences their learning from text, and can differ significantly from the schooled knowledge they acquire during formal education. Sometimes students reject knowledge found in content textbooks and hold onto erroneous interpretations gleaned from out-of-school experiences. Thus, the more educators understand about the interplay between schooled and



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unschooled knowledge, and about everyday cognition, the more effectively they can guide students to richer, more meaningful interpretations of text (see, e.g., Carraher, Carraher, & Schliemann, 1985; Saxe, 1992).

In the context of schools, the notion of formal knowledge is typically associated with particular subjects or fields of study (e.g., literature and mathematics). We can identify two forms of subject-matter knowledge that are highly influential in learning from text. First, domain knowledge, the breadth of one's knowledge in a particular field, is based on foundational principles and concepts judged by experts as core to that domain (Stahl, Hynd, Glynn, & Carr, 1996). For example, a foundational concept in literature is irony, and a foundational principle in biology is symbiosis. Because these core principles are different across domains, domains present themselves differently in texts, and these differences translate into variations in text learning.

Some domains, such as mathematics, contain a knowledge base that is highly structured around rules or procedures (Stewart, 1987). However, domains such as literature and history are more ill structured because their core principles do not involve routine procedures or set rules for arriving at outcomes. In fact, in these domains, many interpretations are possible and acceptable (Alexander, 1997a). The characteristics of these academic domains have a direct bearing on the texts used to create them and the way teachers use those texts to facilitate student learning. For example, a mathematics text contains the integration of mathematical symbols and linguistic information. In contrast, a history text is often filled with connected discourse punctuated with visuals such as graphs and charts. Given that students move from one domain to another throughout the school day, they can become perplexed about how to learn from a diversity of texts.

### **Strategies: Tools for Regulating and Enhancing Learning from Text**

All learning demands strategic engagement in the construction of meaning. Without strategies, readers like Kim approach reading tasks with fear and resignation. Perhaps Kim would not have dreaded reading *Huckleberry Finn* if she had been able to employ strategies such as clarifying the words in Twain's dialect and questioning or summarizing the events in the story. These strategies help readers construct meaning from the text.

Strategies are procedural, purposeful, effortful, willful, essential, and facilitative in nature. They are procedural in that students must employ routines for solving complex problems such as those presented in word problems in mathematics classes. Further, readers must consciously invoke these strategies by employing time and mental energy – that is, they must be purposeful and effortful (Alexander & Judy, 1988; Snow, Corno, & Jackson, 1996). Further strategies are essential to learning from text, and they facilitate a deeper and better understanding of the text (Pressley, Goodchild, Fleet, Zajchowski, & Evans, 1989; Weinstein, Goetz, & Alexander, 1988).

One laudable goal of reading instruction is to enable students to become skillful readers who routinely apply procedures that contribute to interpretation – so routinely that they occur in a mindless or automatic fashion. However, when the reading becomes difficult, confusing, or less than optimal, even skilled readers must intentionally use remedies that will fix their reading problems. Thus, these readers must be strategic, as well as skillful.

One particular genre in which readers need to employ strategic behavior is during the reading of nonlinear, linked texts (i.e., hypertext). As readers confront these texts that appear to have no clear starting or ending place, they must navigate through several levels. We know very little about the navigational strategies of readers as they learn with and in these environments (Alexander et al., 1994; Kamil & Intrator, 1998). Thus, we are clearly behind in our understanding of the promises and potentials that nonlinear text-processing strategies pose for learning.

### **Readers, Goals and Interests: Driving Forces in Text-Based Learning**

Learning from text is inevitably a synthesis of skill, will, and thrill (Garner & Alexander, 1991). Few would argue that readers need the requisite skills and strategies to read, but they also need a commitment or will to explore text in a deep or meaningful



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way. Clare exemplifies how important it is to be interested and involved in the text to glean meaning from it. Since she cannot relate to the Twain characters, she lacks the interest needed to persist in meaning making.

Although there are many variables involved in motivation to read, we focus on two that are critical to learning from text – goals and interest. Goals are essentially the particular reasons, intentions, or motives that persons have for their actions (Pintrich & Schunk, 1996). When readers embark on the task of learning from text, they may have a performance goal, such as wanting to get a good grade, look smart, or please the teacher (Dweck & Leggett, 1988). Other students exhibit a learning or mastery goal, in which their primary objective is to gain knowledge or skills by mastering the content (Meece, Blumenfeld, & Hoyle, 1988). Still other students may have a goal of avoiding work, wanting to get the task done with a minimum amount of cognitive effort. Students with mastery goals tend to have an edge in learning from text, while those with performance goals and the goal of avoiding work are in a less favorable position for learning.

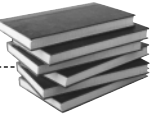
As was apparent in the case of Ralph, some students persist in their pursuit of understanding when others simply close their books and walk away. Interest, like that voiced by Ralph, can be a powerful catalyst for such persistence (Murphy & Alexander, 2000). Interest relates to other critical factors in learning from text, including the attention readers pay to particular text elements (Reynolds & Shirey, 1988), their overall involvement (Reed & Schallert, 1993), and academic engagement (Guthrie et al., 1996).

Kintsch (1980) described two forms of interest that occur during reading – emotional and cognitive. Emotional interest is that affective response that readers have in the text when, for example, they are particularly moved by a character's actions. Cognitive interest results when the text captures the reader's mind and thoughts, such as when the reader finds an author's idea interesting. Other researchers have characterized interest as either individual or situational (Hidi, 1990). Individuals may have deep and enduring interest in certain text content. For example, someone who has studied pottery all of his life and picks up an article on a new technique for molding clay will certainly have an individual interest in the text. Readers who are individually interested are involved in knowledge seeking as they read the text because they actively pursue knowledge and skills associated with their own interests (Alexander, 1997a).

Situational interest is evoked through the environment in which the reading event takes place (Murphy & Alexander, 2000). Either the text itself or the teacher get the learner's attention and try to keep her excited about reading. Dewey (1913), for one, cautions that making something interesting may not lead to sustained interest in the text. As we have seen in our own research, motivating from without is not as powerful as helping students discover their own value in the reading – finding their motivation from within (Jetton, Alexander, & White, 1992).

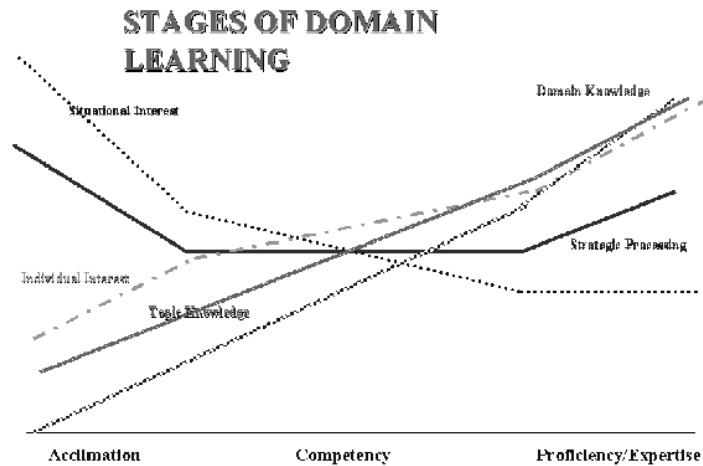
### **A Developmental View**

One gap in understanding how readers learn from text lies in determining how text-based learning changes over time as students become more educated. To explore this developmental picture of learning from text, Alexander (1997b) <<http://www.readingonline.org/articles/handbook/jetton/index.html#alexander97b>> has developed and tested the “Model of Domain Learning” (see Figure 1). According to this model, individuals progress from naiveté or acclimation through competence and, potentially, to proficiency or expertise as they read and learn in certain fields.



## Appendix A (continued)

Figure 1  
Elaboration of the Model of Domain Learning



**Acclimated learners.** Novice readers seek to understand the terrain of an unfamiliar field of study. They have little experience in the domain, and little knowledge about the topics covered in the text. Further, the knowledge they do have is rather fragmented and unprincipled. When they encounter a concept such as “taxation without representation” in an American history text, they must not only wrestle with its specific intent and import, but they must also try to relate that concept to others in the domain of history. Often, texts do not provide adequate explanation or do not elaborate on such concepts, so students struggle to determine if the concepts are important or relevant (Sinatra, Beck, & McKeown, 1992).

Because readers at this stage have little knowledge, they are not likely to have individual interest in the topics presented in the text (Garner et al., 1991). Rather, interest is more situational. Readers at this stage have difficulty discerning important from unimportant information, so they can be seduced by interesting but trivial tidbits. Their lack of knowledge also affects how well they use reading strategies efficiently and effectively (Alexander & Judy, 1988). Part of the reason learners in acclimation do not effectively apply strategies is because they have yet to develop a value in the content, so they are less willing to work to master that content (Palmer & Goetz, 1988).

**Competent learners.** Many readers acquire enough subject-matter knowledge and strategies to read in a particular field of study that they achieve competence. These competent learners have a richer, more cohesive framework of knowledge to guide their learning. For example, the competent learner who reads “taxation without representation” uses her sense of this concept to understand the conflicts between American colonists and British loyalists. Competent learners are also more interested in the topic and are less likely to focus on interesting trivia than their acclimated peers. Strategic processing is also transformed as one becomes a competent learner. Since there are fewer surface-level barriers to reading comprehension, such as the lack of text cohesion, readers do not have to employ as many low-level strategies, such as varying their reading rate. Instead, they can employ higher order reasoning strategies (Alexander, Murphy, Woods, Duhon, & Parker, 1997).

**Proficient or expert learners.** Those who come to the reading task with a wealth of knowledge and a deep interest in the subject matter and whose goal is to exert strategic effort to gain a deep understanding of the reading are considered experts in a domain. Alexander (1997b) argues that few who set out on the road toward expertise ever achieve this laudable end because the demands on knowledge, strategic ability, and motivation are so great. Schools rarely give students enough time and resources to explore topics in subject areas in any depth. Thus, students are not able to build a deep, principled knowledge base, and they have little practice applying the strategies required to process text deeply. Further, students rarely have much say in what they read, whereas

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experts frequently read texts of choice. As a result, students often read texts about which they have little knowledge and interest, and, consequently, they do not develop meaningful learning goals because they see no relevance in reading their assignments.

**Implications for instructional practice.** What do these stages of domain learning have to say about the way that learning from text transpires in schools? To answer this question, we focus on three aspects of classrooms: instructional support, instructional materials, and learner autonomy.

How explicit should teachers be in their instruction of content information? Acclimated learners come to the text with limited and fragmented knowledge, low personal interest, and a smattering of strategies that they haphazardly apply. Thus, they need a considerable amount of scaffolding that aids them in building a meaningful base of content knowledge and the seed of personal interest (Mitchell, 1993). As students progress through competence, teachers need to be sensitive to the needs of the students. At times, scaffolding can diminish as students learn how to construct knowledge and use strategies on their own. However, as these students progress through competence, the texts and tasks should become more challenging and, therefore, scaffolding of concepts or particular strategies may again be needed. As students progress to expertise, teachers should also provide opportunities for pursuing topics in depth.

Students in the acclimated stage need texts and instructional materials that convey fundamental, relevant principles in a coherent way, so they can determine important information and avoid the highly interesting but tangential details (Anderson & Armbruster, 1984). Reading of these texts should be supported by teacher scaffolding through questions, classroom discussions, and explanations (Jetton & Alexander, 1997).

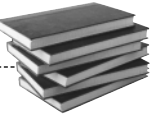
All learners from the acclimated to the expert stages should have opportunities to make choices in the materials they read, the purposes for reading, and the methods of evaluation. These choices are part of the opportunities in the classroom for building student autonomy, which is related to self-determination and intrinsic motivation (Amabile, 1990; Deci & Ryan, 1991). Although acclimated learners do not benefit from free rein, they need some autonomy, such as choosing from a selection of carefully predetermined options. As students become increasingly competent, the teacher can create more opportunities for self-direction.

**Concluding Remarks**

In this article, we explored the multidimensional nature of learning from text through a discussion of the critical variables of students, knowledge, interest, and use of strategies. We also examined the developmental nature of learning from text as students journey through school from acclimation to competence, and finally to expertise in a subject area. We anticipate that future explorations of learning from text will focus on how individuals learn from text over time, how they learn within nonlinear hypertext environments, and how their beliefs affect this process. We await the future of reading research and instruction to provide us with additional insights into the complex process of learning from text.

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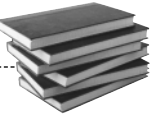
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