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ABSTRACT

Education has often created and widened the distinctions between reading and writing rather than focusing on their relationship. More recently, however, research has advanced a view that recognizes reading and writing to be instances of communication between people. Research also suggests that five kinds of knowledge (informational, structural, transactional, aesthetic, and process) are critical to expertise in both reading and writing. For example, when readers compose messages, they need both the text and information of their own. When writers compose messages they begin with information and use text to convey it. Revision in both reading and writing focuses on information. Structural knowledge comprises knowledge of discourse structure and writing formulas. Writers produce texts with structure; readers use the structure when they construct meaning. Transactional knowledge relates primarily to the conceptualization of texts as a medium of communication between author and reader. In reading, such knowledge leads to investigating and questioning the author's purpose and even style. Aesthetic awareness, or the artistic side of language--its sound and rhythm--also constitutes a strong link between reading and writing. Finally, since both reading and writing are complex, awareness of the process by which knowledge is combined aids proficiency in both areas. Thus, since reading and writing do facilitate one another, they should be taught as related processes, with classroom contexts taking advantage of the communicative nature of reading and writing. (HOD)

CENTER FOR THE STUDY OF READING

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READING AND WRITING: HOW ARE THE FIRST TWO "R's" RELATED?

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Reading and Writing: How are the First Two "R's" Related?

People use language to make connections with others. As in other social events, the connections established through language are complex, sometimes superficial, sometimes more profound. Just as guests bring their wine, their jokes, their good will, and even their disguises to a party, language users bring their knowledge, their biases, their gifts, and their disguises to communication. Partygoers have reasons for attending social gatherings. communicators have goals for participating in linguistic interactions. Communication cannot occur without people; it depends on all the participants and their contributions. Even with a written text, where the author and reader may never meet face-to-face, a connection between them is essential for communication to occur (Bruce, 1981).

Susan is a first grader whose behavior reflects her growing appreciation of reading and writing as ways people communicate about things that are important to them. From the very beginning of the year, Susan expected text to communicate because she wrote her own pieces (Hansen, 1983b). However, she learned that in order to make other authors' stories communicate, she often needed to add her own commentary to the printed text. For example, Susan once read a trade book to her class. After each page, she held up the book, in imitation of her teacher, to show the pictures. At one point a boy called out, "I like the part

about chocolate frosting." Susan immediately responded, "So do I," and then asked the entire class, "How many of you like chocolate frosting?"

Susan's decisions about the text she selected and the way she read it illustrate several critical aspects of her appreciation of language. First, she chose a text which could communicate with her audience. She knew her own stories had messages because she had written them. She knew many stories from basal readers contained so little information that the message was difficult to understand. So she chose a text with more potential as a communicative seed. She then encouraged the seed to grow into a true communicative event by making her own contribution to the meaning and eliciting contributions from the rest of the class.

Susan is not typical. Many children grow up without a picture of reading and writing as unitary and alive. They see it instead as piecemeal and problematic because much instruction fragments and decontextualizes language. Education has often created and widened distinctions between reading and writing. This paper attempts to close that gulf by presenting recent research on their relationship.

Until recently, the dominant view of reading and writing was based on definitions that contrasted the two processes. Reading was defined as a receptive process, while writing was considered expressive (Hennings, 1982, Petty & Jensen, 1980). This

viewpoint also held that reading was a non-creative process and that meaning existed in the text itself. The reader's task was to ferret out the meaning, using clues the author left behind like Hansel and Gretel's breadcrumbs in the forest. Writing, on the other hand, was seen as creative. Viewed in this way, reading and writing are opposites, operating in the same arena, but with reading "undoing" what writing has done, much as one might unload a truckload of watermelons. As Shanklin (1981) puts it, this paradigm held that "reading involves a one-way transmission of meaning from graphics to readers' minds. In contrast, writing involves a one-way transmission from writers' minds to the working out of graphic displays" (p. 164).

While the prevailing view of reading and writing stressed their differences, superficial similarities between them guided language arts education. In both cases, students were required to master mechanical details. Thus, instruction in reading focused on decoding and subskills. Writing instruction consisted of mastering the conventions of handwriting, punctuation, spelling, grammar, and standard rhetorical forms. This surface likeness, however, prevented the real similarities from surfacing.

Recent research has uncovered deeper similarities between reading and writing and has focused attention on the author's and reader's contributions to communication. In reading, schema theorists (e.g., Anderson, 1977, Bransford, 1979) found that the

messages readers construct are influenced by their own knowledge as well as by the text. At the same time, studies of writers have shifted the emphasis of writing research away from the product of composition to the process (e.g., Emig, 1971; Flower & Hayes, 1981a, 1981b; Graves, 1982; Stotsky, 1983).

The interaction of these two insights has produced a view that emphasizes the essential connectedness of reading and writing as communicative acts. Research advancing this perspective has suggested that reading, like writing, is composition (Petrosky, 1982); that both writing and reading involve "transactions" between a reader and a text (Rosenblatt, 1976); that an awareness of the author-reader relationship is central to both reading and writing (Tierney & LaZansky, 1980); and that the writing process includes reading (Graves & Hansen, 1983). This view recognizes the central fact of reading and writing--they are instances of communication between people.

New technology makes possible language activities which further blur the distinctions between reading and writing. Microcomputer activities such as Story Maker (Rubin, 1983) and the Interactive Text Interpreter (Levin, Boruta, & Vasconcellos, 1983) allow one "composer" to construct a structured set of choices from which a partner "composer" constructs a final text. Who is the author of the finished product? The reading performed by the second "composer" is as integral to the process as the writing performed by the first.

Research also suggests that the knowledge readers and writers use when they compose can be divided into the following categories, even though the boundaries between categories are not sharp.

- o Information knowledge
- o Structural knowledge
- o Transactional knowledge
- o Aesthetic knowledge
- o Process knowledge

Because all five kinds of knowledge are critical to expertise in both reading and writing, it is possible that knowledge gained through reading could facilitate writing or vice versa. The following discussions include hypotheses and evidence about how instruction in reading or writing might transfer to the other. In some categories, reading appears more often to be the source of increased knowledge and writing the benefactor. For other categories, the situation is reversed.

The children cited in these discussions are in the same first-grade classroom as Susan. They write every day and confer with their teacher and peers as they develop their pieces. As they learn to read, they have similar conferences about their reading process. They routinely connect writing and reading in-class discussions that include such comments as, "I got this idea for an ending from the book that Danny read to us last week." They explore connections between reading and writing that have until recently been largely ignored.

Information Knowledge

This category includes vocabulary, world knowledge, concepts, and general "book learning." When readers compose messages, they need both the text and information of their own. When writers compose messages, they begin with information and use text to convey it. Revision in both reading and writing focuses on information. In writing, the author adds or deletes information so the message will be more clear. Readers revise when they reread a text to acquire more information.

Writers recognize the centrality of information to good writing. When asked what makes a good writer, one first grader answered, "Someone who does lots of things. I don't mean in school. We all do the same things in school. I mean on the weekends." (Hansen, 1983). Another child in the class commented on his own revision process. The first draft of his story read, "Some days are pouring. Some days are REALLY pouring." He elaborated this brief description into a story of several sentences, then commented on his first draft, "That didn't have much information in it, did it?"

One connection between informational knowledge in reading and writing is that information gained in reading is one possible source of content for writing; research papers make explicit use of this connection. The possibility of using information gained in writing to facilitate reading is being investigated as well. Gould, Haas, and Marino (Note 1) demonstrated that when students

wrote about a topic (Oregon in 1845 in this case) before reading a related text, they recalled the text better than students who wrote on topics unrelated to the text. They concluded that the writing supplied the reader with a "set for understanding." The information these students gained and clarified through writing enhanced their reading comprehension by providing them with more "raw material" for composing their message.

Structural Knowledge

This is a category with a long history, traditionally taught through composition books and writing exercises. It comprises knowledge of discourse structure and writing formulas such as paragraph structure, compare and contrast paragraphs, problem-solution frames (Armbruster & Anderson, 1981), story grammars (Mandler & Johnson, 1974, Stein & Glenn, 1979), and cohesion and coherence devices (Halliday & Hasan, 1976). Writers produce texts with structure, readers use the structure when they construct meaning. Writers and readers learn that various genres (narrative, exposition, journalistic accounts, argumentation) have associated conventions. Sophisticated readers and writers understand how purposely breaking structural conventions can also communicate a message.

Studies of the relationship between structural knowledge in reading and writing are relatively rare. Gordon and Braun (1982) demonstrated the transfer of structural knowledge gained through reading to writing. They taught fifth-graders to discover the

story grammar structure in appropriate texts and the stories these students later wrote fit story grammars more closely than those of the control group. Taylor and Beach (1984) demonstrated a similar result in the domain of expository texts; instruction in a hierarchical summary procedure improved both recall of unfamiliar texts and the quality of students' expository writing. Conversely, Taylor (1982) found that students who practiced writing in particular expository formats showed improvement in reading texts written in those structures. Results from both experiments support the intuition that instruction in one arena can benefit the other in both directions, however, the evidence is only preliminary.

Part of the reason it is difficult to assess the effects of structural knowledge across the reading/writing boundary is that we do not fully understand the role such knowledge plays in either reading or writing as separate processes. But this understanding is beginning to emerge. Several experiments have shown that structural knowledge can improve reading comprehension. Such studies have been carried out using both narrative (Gordon, 1980) and expository texts (Meyer & Freedle, 1979, Meyer, Brandt, & Bluth, 1980). Case study evidence in writing indicates that knowledge of structure can initiate a qualitative change in children's compositions. Young writers who struggle with structure to make their messages clear learn its significance first-hand. For example, when Marie first wrote a piece about Christmas, it included information on attending a

play, a hockey game, gifts, sledding, and a visit to her grandmother. This confused her readers until she organized her piece into several chapters. This in turn started a wave of "chapter" books in the classroom, because the other children recognized the value of chapters as a mechanism for handling and communicating complex subject matter.

Transactional Knowledge

This category of knowledge relates primarily to the conceptualization of texts as a medium of communication between an author and a reader as studied, for example, by Booth (1961), Holland (1975), and Bruce (1981). An appreciation of author/reader relationships leads to discussions of purpose in reading and writing. What was the author trying to achieve? Does the reader's comprehension of the text include an understanding of the author's reason for producing it?

Transactional knowledge develops early. In a literate environment, children learn at a young age that print can fulfill different purposes, many of which are social. Harste, Burke, and Woodward (1981) found that preschool children know what type of information everyday labels and signs contain. They illustrate this knowledge with examples of children's early messages to family and friends. For example, Robin (age six) wrote this note at home, "PATTY IN THE MAORNING CAM IM MY ROOM." (Patty, in the morning come in my room.) (Harste, Burke, & Woodward, p. 33).

Slightly older writers use more complex knowledge of social interactions and human emotions when they write and read. In a sixth-grade class where students use a computer to write, one girl included in her own review of a school event the following comments on her friend's review: "When the Glee-Club was singing so nice, Melinda got very jealous and asked Mrs. Elbert to be in the Glee-Club. But when Mrs. Elbert said no she wrote bad things about the Glee-Club on the computer up-stairs."

Consideration of audience also influences topic choice and revision. Children's choice of topic is governed by their conception of audience reaction ("They'll think it's funny"). They decide what information to add to their pieces when they revise based on their understanding of the purpose and audience of their piece. Randy, for example, decided to add information on scurvy to his piece on Good Food because, "The kids don't know about scurvy." His comment displayed an understanding of one purpose of expository text--to impart information to its audience--as well as an awareness of his specific audience's background knowledge.

In reading, transactional knowledge leads to investigating and questioning the author's purpose and even style. Green and Laff (1980) showed that kindergarteners can identify the authors of books by conventions such as rhyme and attributes of the main characters. Graves and Hansen (1983) have identified the reader's role as one of actively questioning the author's

decisions. A group of first graders demonstrated their perspective on reading and writing with their explanation of the differences between original texts and their simplified versions in basal readers. Faced with the basal's watered-down version, they hypothesized that the author had produced it first, received feedback on its lack of detail, then improved it for the final (original) version!

Graves and Hansen also have identified several phases in children's developing sense of the concept of "authorship"--a concept which affects both their reading and writing competence. Among their hypotheses.

- Children realize authors have options, because children do the following when they write: exercise topic choice, revise by choice, compose in different genres, and receive feedback from many people on their pieces.

- Children who learn to exercise options become more assertive when they read. At first an author is instant, then an author is self, finally, the self-author questions all authors and assertive readers emerge.

- Children who begin to write early in their school years develop a sense of transaction in reading and

writing. When children write, they become aware of author/reader relationships and use that knowledge in the reading arena.

Aesthetic Knowledge

The "artistic" side of language--its sound and rhythm--is often neglected in cognitive literature, although literature in the arts and affective education pay more attention to it. Knowledge of aesthetic devices constitutes another strong link between reading and writing. A certain alliterative style, the way a single interjection focuses an entire paragraph, or the relative length and stress patterns of consecutive words all echo in readers' and writer' ears and affect their choices.

Danny had just read the trade book "More Spaghetti, I Say" in which the following segment is frequently repeated:

I love it,
I love it,
I love it,
I do!

He had also heard Langston Hughes' "April Rain Song" which ends, "I love the rain." And he had heard Eve Merriam's poem "Weather," Which includes:

flick a flack fleck
Freckling the window pane

A puddle a jump puddle splosh

A juddle a pump a luddle a dump a

puddmuddle jump in and slide!

This fun language prompted Danny to write the following piece in April of first grade:

When rain comes down it dances in the puddles and splashes

in the air. pssss

It splashes on the window. Goes pat. pat. pat. and I catch

it in my mouth.

When I walk in the puddles I try to splash it.

When I come home I change my clothessss

I love it.

I love it.

I love it.

I love the rain.

Another aspect of aesthetic knowledge has to do with the affective side of communication. Brewer and Lichtenstein (1981) studied adult readers' concepts of story by presenting them with different versions of the same narrative in which suspense and surprise were manipulated. They discovered a high correlation between readers' sense that the narrative was a story and the amount of suspense it contained. The important point is that a reaction which might be considered outside the cognitive domain can influence readers' perceptions of text

The affective domain also includes the revelations about self that writing requires. Children who choose their own topics become emotionally involved in their pieces, often writing personal narratives about their families, ". . . My nana has a hump on her back. That's why I love her." Children who have experienced this involvement in what they write assume other authors have important messages to share. When they find a text which does not "grab" them, they either quit reading it, elaborate it so that it does involve them, or start to question the author s purpose and technique.

Process Knowledge

The four previous categories--informational, structural, transactional, and aesthetic knowledge--are all necessary components of a person s reading/writing knowledge, but they are not sufficient by themselves. Since both reading and writing are complex, knowledge about the process by which knowledge is combined aids proficiency. An author is forced to consider the writing process because both intermediate and final products are observable. The product of reading, by contrast, is internal and, therefore, not observable. Being able to describe the writing process--choosing a topic, brainstorming, drafting, organizing ideas, revising, editing, and publishing--gives us a metaphor for describing and examining reading. Seeing the parallels between the two may emphasize to the reader the constructive nature of reading comprehension

For example, awareness of the importance of revision in writing may facilitate reading. Writers who are aware of their writing process can make conscious decisions about revising. Similarly, readers who are aware of their reading process can make conscious decisions about which strategies to use in rereading an unsatisfactory message. If more children were aware at an earlier age of their reading and writing processes, we would probably hear fewer graduate students echo, "It wasn't until college that I realized there was something to do other than 'Read Harder' when I didn't understand a piece."

Instructional Implications

The discussions of the five categories of knowledge which reading and writing share lead to several instructional implications. We will describe two educational contexts in which reading and writing are taught as related processes. If writing and reading facilitate one another, as we have speculated and as the accumulating evidence suggests, these are the kinds of classroom contexts which can take advantage of the communicative nature of reading and writing.

QUILL (Rubin & Bruce, 1984; Steinberg, Note 2) is a set of microcomputer-based writing activities for upper elementary children. It includes a child-oriented text editor, a data base management system, an electronic mail system, and a program to help students plan and organize their thoughts. Although QUILL is officially considered a system for teaching writing, it

incorporates a large amount of reading by setting up a classroom communication environment in which children's writing is naturally read by their peers. The electronic mail system encourages students to write messages to other students in the class and to students in distant schools.

The classroom activities which QUILL facilitates--such as publishing a class newspaper--foster the interrelatedness of reading and writing and create an atmosphere in which students communicate with one another for valid purposes. In a pilot classroom in the spring of 1982, fourth graders tried out the electronic mail system for the first time. They wrote each other riddles, invited each other to parties, and even commented on each other's writing. Without being told, these students created a situation not present in many classrooms--the full cycle of author/reader feedback which is critical to communication.

QUILL is now being field tested in school districts in Connecticut, Massachusetts, and New Jersey. It will be evaluated by comparing pre- and post-test writing samples from experimental and control classrooms. These will be augmented by observational case studies. We have already seen in one sixth-grade class that the presence of the computer has changed the amount students read each other's writing. Students in this class tend to "mill around" the computer, reading partially-finished pieces over the author's shoulder, and sometimes including comments on friends' work in their own texts.

A second rich educational context is the first-grade classroom described throughout this chapter. Blackburn, Graves, and Hansen (Hansen, 1983, 1983a) have generated four implications for instruction from their study of the relationship between reading and writing in this class.

1. Children must compose messages frequently. The children began in September by inventing stories in both reading and writing. They could write and read early because when they wrote they used invented spelling and when they read they invented stories loosely based on the books in front of them.

2. Children must choose their topics and books because they will then feel committed to the piece. In writing they will pursue a piece until it is clear. In reading they will stay with a piece because they want the satisfaction of knowing they can read it themselves. It is when they stay with a piece that breakthroughs occur.

3. Children's composition attempts in both reading and writing must be accepted by their peers and teacher. Writing is hard. If we expect children to write, we must provide an environment that supports risk-taking. Reading is also hard. Children's earliest attempts must be supported so they will persist in learning to read.

4. Children must share books and their own writing with their peers and teacher. They must receive help during the drafting phase so they can reread or make revisions for clarity. Whenever the students realize their friends do not understand their message, the decision about rereading or revision must be their own.

If we want students to continue writing and reading, control of these processes must remain in their hands. They must have options, and they must make their own decisions about these options. If the message is worth communicating, they will choose to remain with it until it is clear. One sixth grader using QUILL learned only recently that he had control over his own writing. The researcher noticed Ken consistently copying into his piece words from planning questions the computer offered. The researcher commented, "You don't have to use those words." Ken responded, "Do you mean I can use my own words?" "Yes." "Do you mean words like 'tuff'?" "Yes."

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