Schools should be instructing students in formal thought and expression—what we call "comprehending"—rather than in everyday or "home" thought and language—what we call "understanding." In this essay we suggest general changes in the standard reading and writing curricula. Finally, we examine the language of writing instruction, in college-level individual writing conferences, to take a close look at issues involved in implementing the curricula for higher and lower achieving students.

Understanding and Comprehending

SARAH WARSHAUER FREEDMAN
University of California, Berkeley
ROBERT C. CALFEE
Stanford University

When we communicate with one another through language most of us can operate at both concrete and abstract levels of meaning and at the various gradations between these extremes (Wells, 1979). Everyday language is generally informal and concrete. However, the fact that you are reading this article is evidence that you are comfortable with the more abstract styles and that you probably have a sense of when each is appropriate. Writers necessarily assume such sophistication on the part of their readers.

For convenience, we will refer to the everyday, plain, natural, and concrete style of communication as *understanding* and to the more sophisticated, formal and abstract communication as *comprehend-*

ing. We will consider some distinctive characteristics of each style, but first we will present our conclusion. It appears to us that present-day trends in American public education have led the schools to the mistaken belief that their purpose is to teach understanding. Nothing could be more wrong. Nature is the best teacher of understanding. The job of the schools is to teach comprehension; that is to say, their task is to instruct in formal thought and expression. The context of the various disciplines is but a vehicle for acquiring the processes of abstract (that is, generalizable) thinking and problem solving.[1]

In English classes, youngsters need to learn the facts that aid in recognizing the right answer on a test of punctuation or capitalization conventions; but they need, more important, experience in organizing their arguments for discussion and debate. In social studies, students may learn some specific skills by completing the page-sized bits of a social studies workbook, but they also need to learn how to assimilate the larger and more complex structures that are found in a well-framed lecture on the American political system. In science, students need to go beyond watching interesting laboratory demonstrations and learn to grasp the principles and processes that underlie them.

The curriculum we propose would teach initiative, persistence, and active engagement in problems; the pursuit of information, self-assessment, and review; an awareness of strategies for learning; and achievement of mastery in the fullest sense of the term. These qualities are not optional for the educated person; they are essential to the disciplined and sustained effort that are basic ingredients in formal thought.

THE NEED TO COMPREHEND

For centuries, the school has been society's tool for preparing youngsters for their role in society. The transition from the warmth and security of the home to the toil and trouble of adult life was accomplished under the rubrics of reading, writing, mathematics, social studies, science, home economics, vocational education, and the like. The effects of schooling show up in Inkeles's (1978) characterization of the modern person—informed, self-motivated, efficacious, engaged with society at many levels, capable of global perspectives. As long as there was a reasonable match between society's expectations and the outcomes of schooling, all was more or less well. To be sure, throughout history the adequacy and appro-

priateness of schooling has been questioned; the responses of educators to such criticisms were often more superficial than substantive (Tyack, 1974).

Events during the past two decades have seriously threatened the system of public education in the United States, and perhaps elsewhere. First, in this computer age, when more and more routine jobs are becoming mechanized, increased demands are put on more and more citizens to be knowledgeable and well educated in order to be minimally productive participants in society. Second, other demands on the school have become greater. Increasing bureaucratization and demands for accountability, coupled with the impact of behavioral and psychometric concepts on the curriculum and on instruction, have led to significant changes in what is taught, how it is taught, and how it is assessed (Wise, 1979; Atkin, 1980).These changes may have led the schools astray from their primary purpose.

Formal language and the curriculum. We shall illustrate our concern by analyzing the reading and writing curricula. In Figure 1 we have sketched a common-sense conception of the knowledge and abilities that underlie the processes of reading and writing and that relate them to everyday speaking.

A superficial examination of Figure 1 might lead one to believe that there are strong links among the skills required for conversation, for reading, and for writing. These links lead to the postulation of a simple instructional strategy—teach students to decode and to encode (spell) printed words by helping them make a transfer from their already existing skills of speech. The students should then be on their way to achieving literacy.

The experience of many school teachers, as well as the results of recent research and evaluation efforts, suggests that this strategy does not work. Students can learn to decode and spell, but with no guarantee of proficiency at comprehension or competence in composition. To the contrary, it is clear that many students have difficulty comprehending when they read and expressing themselves when they write. The problem, as we will argue later, is that schools spend too much time teaching students the surface forms of reading and writing (and other aspects of the curriculum) and fail to lead students to the deeper levels that are basic to the education of the modern person. Thinking is the basic skill.

The problem of mismatch. A brief digression: In past years, some educators and linguists have proposed that for some students the

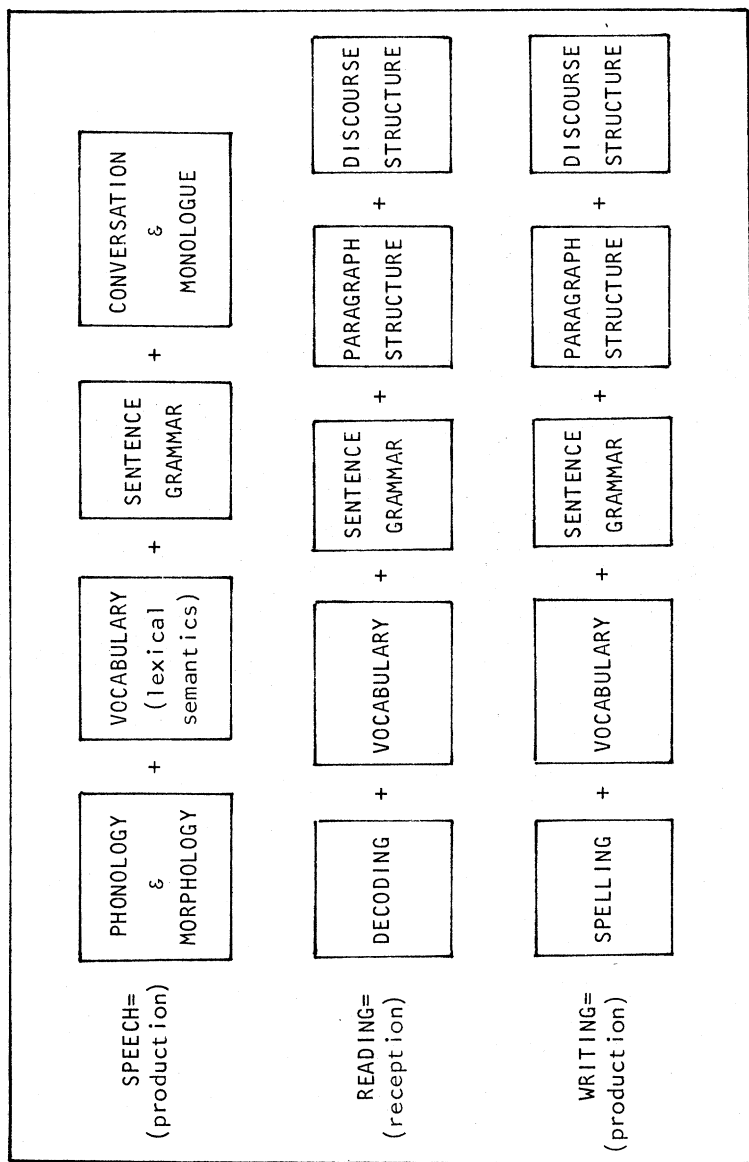|				
SPEECH= (production)	PHONOLOGY & MORPHOLOGY	+ VOCABULARY (lexical semantics)	+ SENTENCE GRAMMAR	+ CONVERSATION & MONOLOGUE
READING= (reception)	DECODING	+ VOCABULARY	+ SENTENCE GRAMMAR	+ PARAGRAPH STRUCTURE + DISCOURSE STRUCTURE
WRITING= (production)	SPELLING	+ VOCABULARY	+ SENTENCE GRAMMAR	+ PARAGRAPH STRUCTURE + DISCOURSE STRUCTURE

Figure 1

problem in comprehending reflects a mismatch between the language of the home and that of the school. They postulate that students in the cultural mainstream find a reasonable match between their everyday speech and the spoken and written language of the schools, whereas a substantial mismatch is experienced by students from nonmainstream backgrounds, those whose home language or everyday speech diverges from a school language that is dominated by so-called teacher talk and textbooks. Cook-Gumperz and Gumperz (1981), however, note a "surprisingly low correlation between the actual language distance . . . and school achievement" (p. 89). Interestingly, the recent Ann Arbor court decision that directed teachers to learn about the home language of their black students was based on the assumption that it was this mismatch between home language and school language that caused problems for black students in the Ann Arbor schools. However, evaluation by the school district suggests that the Ann Arbor remedy—teaching teachers about black English vernacular—has been ineffective (*Education Daily,* 1980). Our argument too would predict the Ann Arbor failure. If our reasoning is correct, the formal academic language of the school should be different from the informal vernacular for all students. We do not mean to imply that schooling introduces a new style of thought and expression at the expense of the familiar and the colloquial—the educated person gains a new facility in using language but retains the style acquired in childhood.

Lest we seem insensitive to the personal dimension, let us hasten to affirm our belief that the schools can and should provide greater support to the student in making the transitions across different levels of schooling—the jump from home to school, from kindergarten to first grade, from elementary to secondary school, from one teacher to another. We are aware that children face a new culture (newer for some than others) when they enter school. The teacher's instructional effectiveness and the students' personal well-being are likely to be greater when the teacher understands and respects the language and culture that students bring from their lives outside of the school. This understanding is not sufficient in itself to guarantee an adequate education, however; nor do we think that educational problems themselves are solved by changing the school culture to become like the home culture, even though some changes may lead to some amelioration of the problems of communicative misunderstanding and discourse interpretation (Cicourel et al., 1974).

Educational remedies suggesting that schooling should be made easier or more like the home in fact exacerbate the problems. Once students fall behind in reading, teachers often rely on so-called "easy-vocabulary/high-interest" texts in high school. These texts use commonplace narratives about familiar events, accompanied by numerous illustrations and drawings; the student can understand much of the message without attending too closely to the text. The teacher may feel reassured because the student appears to be reading, but little if anything new is learned from this experience. Likewise, students who have difficulty with the mechanics of writing often are not asked to write at all. In tracks labeled remedial or low-achieving, the demands to compose are pitifully few. Such students have little opportunity to improve their skills (Heath & Branscombe, in press).

Remedies presupposing that schooling should be made easier for students experiencing difficulties—that the gap between home and school should be kept narrow—will work only if the gap between childhood and adulthood is narrowed and if the conventions of academic writing and academic speech are abandoned by the larger society. We think both possibilities are unlikely, and given the growing power of psychometric selection processes, gaps in achievement may well grow increasingly threatening to the life chances of the individual.

It becomes crucial to distinguish between the need to create a positive learning atmosphere in the classroom and the techniques useful in creating an effective learning environment and an effective curriculum. Those who study home and school language often focus only on the atmosphere in the classroom and overlook the learning environment. Both must be considered if we are to be successful in teaching students to comprehend. Between the time students enter kindergarten and the moment they emerge from high school as young adults, there is much teaching and learning to be done. We can best achieve our goal if at each transition point we attempt to identify the cognitive, linguistic, and discourse requirements that make each transition different and difficult.

An important precursor to any remedy for these problems may entail convincing the child and the family that literacy is a relevant goal. As Heath (1980) and others have pointed out, reading and writing may serve no obvious purposes in the daily life of many communities or may fulfill purposes unlike those that are the focus of school learning (Scribner & Cole, 1982; Freire, 1970).

Characteristics of formal and informal language. We have argued that curricula based on the similarities between informal spoken and formal written language, that try to narrow the gap between home and school language, do not focus on the deeper skills of comprehension. We will continue by arguing that to teach comprehension, schools must focus on the contrast between informal and formal modes of expression. This contrast provides a preliminary framework for examining the task schooling faces when it aims to teach thinking skills. The contrast has recently been emphasized by Olson (1977, 1980), who builds on previous work by Goody and Watt (1963), among others. Olson points up various distinctions between *utterance* and *text*. Although recent research suggests that there are many gradations of difference between the linguistic forms of speaking and writing, or what Olson calls utterance and text (O'Donnell, 1974; Kroll, 1977; Kroll & Vann, 1981; Chafe, 1982; Tannen, 1982), Olson's basic distinctions, summarized in Figure 2, remain useful for two reasons. First, they provide a helpful contrast between formal academic language and the informal vernacular. Second, they help us examine the critical instructional task in the school—the teaching of what we have called comprehending.

We now want to expand on Olson's distinctions. Unlike formal texts, friendly conversations or utterances usually make sense only in the situation where the conversation takes place. In the formal text, little is left to chance. Misinterpretation is kept to a minimum. The writer eschews phrases, such as "ya know what I mean," that refer to unspecified meanings outside the text. As a consequence, formal texts communicate a message that remains fairly constant regardless of where and when they are read. Even though the reader's contextualization of a text affects what is comprehended and allows varying interpretations, we assume a discernible band of interpretation among expert readers who know the conventions used in the creation of the text and who share key background knowledge. Fillmore (1981) calls this expert the "Ideal Reader" and describes the processes of the Ideal Reader's interpretation or "envisionment."

It is important to reemphasize that the critical issue here for education is not the medium of writing versus that of speech but the style and structure of the message. In teaching students to comprehend and produce formal, less context-bound language, schools must teach the range of skills a student needs in handling formal language and thought, be it spoken or written. These skills, which we label comprehension, are closely related to formal operational

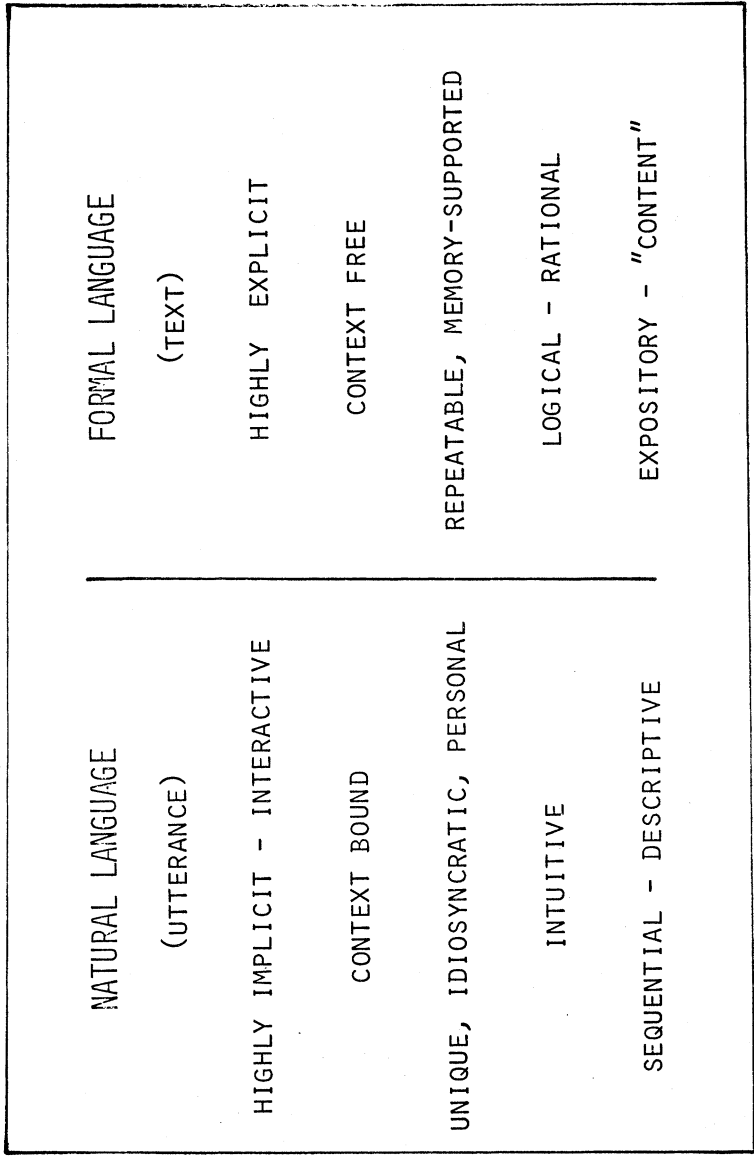| NATURAL LANGUAGE	FORMAL LANGUAGE
(UTTERANCE)	(TEXT)
HIGHLY IMPLICIT – INTERACTIVE	HIGHLY EXPLICIT
CONTEXT BOUND	CONTEXT FREE
UNIQUE, IDIOSYNCRATIC, PERSONAL	REPEATABLE, MEMORY-SUPPORTED
INTUITIVE	LOGICAL – RATIONAL
SEQUENTIAL – DESCRIPTIVE	EXPOSITORY – "CONTENT"

Figure 2

thought (Piaget, 1970; Rohwer, Ammon, & Cramer, 1974, chap. 11; Brown, 1977). The rubric stands for a style and form of thinking that transcends speaking and writing per se. Education influences the way a person handles information from television, radio, and other modern media, such as computers. It shapes the way a person speaks and listens in formal settings.

A number of scholars have puzzled about the causal links between literacy and formal thought. Olson (1977) leads one to believe that the acquisition of literacy fosters a higher level of thought—"Speech makes us human and literacy makes us civilized." Goody (1977) presses the point even more vigorously:

> I see the acquisition of these [literate] means of communication as effectively transforming the nature of cognitive processes. (p. 18)

> The specific proposition is that writing, and more especially alphabetic literacy, made it possible to scrutinise discourse in a different kind of way by giving oral communication a semi-permanent form; this scrutiny favoured the increase in scope of critical activity, and hence of rationality, scepticism, and logic to resurrect memories of those questionable dichotomies. It increased the potentialities of criticism because writing laid out discourse before one's eyes in a different kind of way; at the same time it increased the potentiality for cumulative knowledge, especially knowledge of an abstract kind, because it changed the nature of communication beyond that of face-to-face contact as well as the system for the storage of information; in this way a wider range of "thought" was made available to the reading public. No longer did the problem of memory storage dominate man's intellectual life; the human mind was freed to study static "text" (rather than be limited by participation in the dynamic "utterance"), a process that enabled man to stand back from his creation and examine it in a more abstract, generalised, and "rational" way. By making it possible to scan the communications of mankind over a much wider time span, literacy encouraged, at the very same time, criticism and commentary on the one hand and the orthodoxy of the book on the other. (p. 37)

Scribner and Cole (1982) are more skeptical about the argument that literacy is a prerequisite of abstract thinking, and that abstract thinking is an automatic consequence of literacy. The few records we have from early history suggest that at least some individuals have engaged in remarkable feats of thought without the support of script. Moreover, the Vai tribesmen of West Africa, who become literate in

various scripts, had varying success in solving high-level problems, as defined by Western psychologists (Scribner & Cole, 1982). For the Vai, the function of literacy dictated its cognitive consequences. Wells (1979) also concludes that "literacy can be associated with the important facilitating effects that Olson describes, but this will depend upon the uses to which literacy is habitually put, once it has been acquired" (p. 27).

Scribner and Cole (1978) make another point, that the conditions of application also determine the circumstances of acquisition. The Vai learned to read and write in situations that mapped closely onto the need to read and write; in fact, they learned not just by schooling, but also by doing. The researchers conclude as follows:

> Our functional perspective suggests that the effects of literacy, and perhaps schooling as well, are restricted—perhaps to the practice actually engaged in or generalized only to closely related practices. (p. 457).

> If the educational objective is to foster analytic logical reasoning, that objective should guide the choice of the instructional program. It should not be assumed that these skills will follow inevitably from practice in writing essays. (p. 460)

Let us bring the point home to current educational practices. If thinking is the basic skill, it is not enough to teach reading and writing superficially and in a way that does not demand abstract thought. It will not suffice that tomorrow's citizens perform only at minimum levels of competency. Mastery of sets of behavioral objectives, no matter how extensive these sets may be, will not help achieve the goal of teaching abstract thinking skills. The deeper learning to which we allude comes about with greatest likelihood from a program of formal instruction that has as its primary goal the acquisition of broadly generalizable, analytic problem-solving skills:

> Many . . . skills are taught in the subtle interaction of parent and child . . . . [A]s in the case of language learning, where the pedagogy is highly unselfconscious, it is probably true that most of the primitive skills of manipulating and looking and attending are also taught in this way. It is when the society goes beyond these relatively primitive techniques that the less spontaneous instruction of school must be relied upon. At this point the culture necessarily comes to rely upon its formal education as a means of providing skills. And insofar as there has been any innovation in tools or tool-using . . . the educational

system is the sole means of dissemination—the sole agent of evolution, if you will. (Bruner, 1966, p. 26)

Brown (1977) suggests the importance of formal problem-solving skills in the teaching of reading. She finds that better readers monitor their reading so that they are aware of when they do and do not comprehend. When comprehension fails, they reread. This meta-knowledge, or self-monitoring of cognitive activities, is a prerequisite for effective reading. It is encouraging that Brown finds that poor readers, when trained to adopt these monitoring skills, improve their reading comprehension. In other words, training in analytic, abstract thinking helps them become effectively literate. Further, there is reason to believe that meta-knowledge is equally important for writing. In order to be effective at revising a piece of writing, writers must imagine and meet the needs of a distant and therefore abstract reader and thus must know when they are and are not communicating (Flower, 1979).

FORMAL EDUCATION IN THE CURRICULUM

Our analysis leads to implications for changes in the standard reading and writing curricula—for what is taught and how it is taught. We will organize our comments according to the framework in Figure 1, first reading and then writing. More detailed discussions can be found elsewhere (Calfee, Spector, & Piontkowski, 1979; Graves, 1978; de Beaugrande, 1981).

Reading. Decoding instruction is an obvious task of the primary school and occupies much of the students' time in the primary grades. Unfortunately, much of what passes for instruction in this area is poorly conceived and taught with little critical insight. Given the countless debates about the value of phonics, the arguments about the regularity of English spelling-sound correspondences, and the reliance on workbooks and ditto sheets for teaching skills that are intimately related to oral language, the amazing thing is that many students apparently do acquire a reasonable idea of the alphabetic principle that underlies English writing.

For instance, the evidence suggests that reasonably accomplished readers agree closely on whether a letter string is or is not word-like

(Ehri, 1979), and it appears that they rely on the match of the letters to the orthographic constraints of English spelling. We have been able to find no research on students' meta-knowledge of decoding principles—"Can you tell me why you decode a word the way you do?" It is our impression from responses in clinical testing situations that many readers do not comprehend the underlying sound-symbol regularities.

Vocabulary is the second component in the model. As others have observed (e.g., Anderson & Freebody, 1980), the number of words you know is important, but so is the way that you know them. Natural language depends on context and functional definition—"a hole is to dig." The school must teach categorical relations, formal (dictionary) modes of representing meaning, and morphological analysis (prefixes and suffixes) as ways of gaining insight into word meanings (Litowitz, 1977; Hamilton & Barton, 1980). If a youngster does not achieve such categorical knowledge in school, it is likely that he or she will lack the conceptual and taxonomic networks that educated people take for granted (e.g., Scribner & Cole, 1973).

Sentence grammar, the third component, is often ignored in reading instruction. Relative clauses, appositives, and myriad other syntactic devices in printed material do not usually occur in speech (Chafe, 1982; Chafe & Danielewicz, in press). Students who are not trained to recognize these formal styles of expression may have trouble comprehending and explaining what they read. Traugott and Pratt (1980) demonstrate how adult readers can achieve deeper comprehension of the texts they read by knowing about the language of the text. We are of the opinion that reading is enhanced when the teacher helps even the young student comprehend the structural principles of English grammar. The key here is to teach deeper comprehension rather than superficial rules of correct usage. Let us stress that we are not arguing for teaching grammar acontextually with the hope that knowing grammatical labels will lead to improved comprehension. Instead, we are arguing that teaching certain grammatical   principles in context can lead to increased depth in comprehending text.

Beyond the sentence, two levels of comprehension are represented in the model. The literal comprehension of text is a bottom-up process in which the student reorganizes the various pieces that constitute a unit of thought, such as one finds in a well-written paragraph.[2] At this level, students build meaning from one sentence to the next (Kintsch & Van Dijk, 1978). Students also comprehend text

from the top down, hierarchically. Readers approach the text with a structural model that they impose on it to organize what they take in (Mandler, 1975; Rumelhart, 1975, 1977).

Declining levels of achievement in comprehension have become the object of great concern on the part of educators. The evidence suggests that comprehension is especially poor in the upper grades. Observation in elementary classrooms indicates that relatively little time is spent on direct instruction in comprehension (Durkin, 1978), and analysis of text materials reveals wide variation in what is to be comprehended and in how the task is defined for the student (Chall, 1977; Beck, McKeown, McCaslin, & Burkes, 1979; Beck & McCaslin, 1978).

We are inclined to think that instruction in reading comprehension is weak because of the impoverished conception of what is to be taught. Terms commonly used to classify comprehension skills (for example, main idea, literal details, and inferences) appear to be defined in a way that trivializes the concept of comprehension.

Writing. Learning to write is intimately connected to learning to read. One can probably write only as well as one can read, but writing can be a powerful activity for reinforcing and extending growth in reading skills just as reading can be a powerful activity for reinforcing and extending growth in writing skills.

Alongside instruction in decoding, the primary school teaches spelling. While children should begin to make meaning in writing by applying phonological knowledge to inventive spellings, eventually the student must learn that so-called creative spellings are inadequate representations of the conventions of English spelling and morphology. The English spelling system reveals much about how words are formed in our language, but many students never comprehend the nonphonological principles behind English spelling (Read, 1975; Bissex, 1980; Chomsky, 1970). Graves (1982) illustrates the centrality of concern with spelling for young writers; this is the first subskill of writing that they tackle.

For the student to be able to write a lengthy and integrated essay, the mechanical parts of the writing process, such as spelling, punctuation and capitalization rules, and handwriting, must become mostly automatic (Shaughnessy, 1977; Schatz, 1978; Graves, 1982). Inadequate control over spelling, like poor motor control over a pencil, slows the student so that information in short-term memory is lost. When the student's attention is diverted, the student is prevented

from concentrating on the larger, more cognitively demanding elements of the writing task. Graves (1982) notes that in the early primary grades, after children concentrate on mastering the spelling system, they turn to motor aesthetics, and then to punctuation and other conventions of written language. As these smaller units of discourse production are mastered, children move toward concerns about the idea content of their writing and revision of that content.

When children acquire a more sophisticated vocabulary, they are generally encouraged to use these new words in their writing; the same should hold for grammatical structures. A popular activity in the elementary school is to have the child copy words and sentences from dictation or from the board. But reproduction is not the same as production. Students need to move past such imitative activities. We also see limits to the currently popular sentence-combining exercises (O'Hare, 1974; Strong, 1977; Daiker, Kerek, & Morenberg, 1979), in which students create novel grammatical structures by changing short sentences into more complex arrangements. Such exercises have value only as students use more complex structures independently in writing, as students comprehend the principles of the syntax required in formal, written prose. Relevant to this point is Mellon's (1969) research. Mellon found that students taught to combine sentences do indeed produce longer and more complex sentences. But he made another key discovery that has been largely ignored: Students in a more conventional language arts program who were taught a broad range of grammatical principles produced compositions judged to be higher in overall quality than those from either the sentence-combining or the placebo groups (p. 67ff). In addition, Smith and Combs (1980) found that college students who were told to write more complex sentences produced syntax as complex as those who had been given sentence-combining exercises. Smith and Combs hypothesize that sentence-combining merely provides a covert cue for the type of syntax the teacher prefers; at the college level, students pull out of their existing repertory what they think will please the reader. They acquire no new forms through the combining exercises.[3] As Witte (1980) points out, the "successful" sentence-combining curricula of Daiker, Kerek, and Morenberg (1979) teaches much more than sentence-combining; "sentence-combining teachers taught whole discourse, not merely 'sentence skills' " (p. 436).

Our final remark about writing is linked closely to reading comprehension. Formal, disciplined writing on academic and impersonal themes teaches skills different from those taught in narrative

writing about personal experiences. We do not aim to demean the latter, which serves vital human needs for expression. The natural impluse is to express oneself in a style that is personal, concrete, episodic, and linear in time. But the more difficult type of writing, which the school must teach, is that which requires more abstract thinking and more hierarchic structure, and that which is less immediate to the writer's concrete, everyday experience. In creating such pieces, a writer textures the dominant warp of high-level generalization against the intricate woof of detailed example. In its most elaborated form, Bereiter (1980) suggests, writing serves an epistemic function, the act itself modifying the writer's ideas. Unlike the casual style of personalized writing, the style of explanatory and persuasive passages requires reflective, recursive thought and organization (Flower & Hayes, 1980). The same can be true of formal imaginative writing; however, according to the Scribner and Cole argument, the specific cognitive skills are likely to differ for writing that serves different functions.

In any event, regardless of function, revising is an operation of fundamental importance in formal writing that has no true parallel in informal discourse; we may try to restate something, or explain it in a different way, but we seldom revise it (cf. Nold, 1981; Sommers, 1980; Bridwell, 1980; Faigley & Witte, 1981). It is precisely this style of thinking that we are suggesting should be the focus of school instruction.

THE LANGUAGE OF WRITING INSTRUCTION: A CLOSER LOOK AT TEACHING COMPREHENSION

Let us turn from a discussion of the curriculum necessary for teaching higher order literacy skills—comprehension—to a study of several other issues of importance to the effective teaching of writing. These issues are uncovered through an analysis of the linguistic interactions between an excellent college-level teacher and four of her writing students. We take examples from teacher-student interactions during the writing conference, a focal place for teaching the skills necessary for revision and for understanding the students' meta-cognitive awareness (Freedman, 1983). The students are in the process of learning to write academic, persuasive prose and in their conferences are learning to revise. These four students represent the range of verbal ability and ethnic groups in this particular class: one high-

achieving Caucasian (Jay), one high-achieving Chinese-American (Sherry), one low-achieving Caucasian (Dee), and one low-achieving Japanese-American (Cee).

The form of the teacher's first conferences of the semester with each student is regular. These conferences center around a discussion of the following: (1) the student's past experiences with and current feelings about formal written language; (2) a review of the student's performance on an in-class test, the College English Placement Test; and (3) a review of the student's first formal writing sample for the class. The teacher controls these high-level episodes in the conference; the student introduces major episodes only at the end of the session, after the teacher has indicated that she is finished with her agenda (Freedman, 1982; Freedman & Katz, in press).

The first issue important to the effective teaching of writing centers on the way the teacher can learn about, use, and expand students' meta-knowledge about writing. We have suggested the importance of metacognitive awareness in learning to write; we will now show how the linguistic interactions during the conference reveal important information about the more specific function of meta-knowledge during teaching. An important way that these students exhibit meta-knowledge is by introducing topics of conversation within the larger episodes just described. But students make it difficult for teachers to hear what they say. First of all, because of their lower status in the conversation, students are not in control of the overall discourse. They must thus introduce their topics extremely politely so as not to upstage the teacher, who must maintain surface control. This means that the students frequently introduce their topics in the form of indirect speech acts (Searle, 1975), often in the middle of a conversational turn (Saks, Schegloff, & Jefferson, 1974), and hidden within a response to a teacher's question. Such student topic introductions frequently take the form of "yes to X, but now I want to ask about Y" (Freedman, 1980a; Freedman, 1981). The linguistic form of the topic introductions reduces their saliency.

One example in the lower-achieving Asian-American's first conference follows. The teacher asked Cee how she approached a recent revision task: "Did you make any kind of outline?" Cee responded, "Uhm hum but it just didn't work. I wrote a few things that aren't complete sentences. That's the problem. See if I thought they were complete sentences, I would of probably put them in the essay." Cee responded with the "yes to X" format with her "uhm hum"; as she continued, she shifted the talk away from the teacher's topic,

outlining her problem during her composing process—omitting ideas if she cannot come up with a satisfactory syntactic form for them. Notice the *but* marker that cues this shift. In order to capture her teacher's attention, Cee takes time to elaborate her meaning, focusing more on her topic than on the answer to the teacher's question.

Although in this case Cee's teacher heard and responded to the information that Cee reveals, at other times students raise their topics more tentatively. Sometimes, too, the teacher is not listening carefully and may gloss over such vital information. Interestingly, when a teacher does not hear what is on the student's mind, the student usually tries to intervene. Generally, the student intervenes by repeating the topic of concern over and over again even though the topic initiations remain indirect (Freedman, 1981; Freedman & Sperling, in press). Such topic repetition is similar to what patients do in psychiatric interviews (Pittenger, Hockett, & Daneky, 1960; Labov & Fanschel, 1977). In spite of the students' repetitions of their topics, the teacher still must listen well in order to hear them because of their indirect form (Freedman, 1980b, 1981, 1982).

The teacher-listener can gain significant information about students' meta-knowledge by listening carefully to those student concerns that go beyond what she anticipates. In Cee's case, the teacher heard and recognized the importance of Cee's concern with syntax. Cee told her teacher that she thinks her difficulties with revision are not due to problems organizing her ideas—something the teacher had assumed. It is not just that Cee rejected outlining. She also indicated her need to tackle a more basic problem—finding what she deems an acceptable syntactic form for her thoughts. This topic led to a discussion of Cee's general linguistic insecurity, something she and the teacher focused on for much of the semester. Only in her last conference of the semester did Cee indicate that she has the skills and a procedure for coping with her problem of putting her ideas into an acceptable form. Cee realized that she can focus on her ideas early in the process, without worrying about form at that time, and that she can attend to her syntactic concerns later. In these final conferences, the teacher tells Cee directly to get out her ideas "and then in your editing stage, later, once you get all your ideas out then go back and look at the grammar, but don't worry about that when you're getting your ideas on the paper." For the first time Cee replied, in an ah-hah tone of voice,

> I think that's what I do. I worry too much about the grammar and how
> it comes out the first time around and maybe that's the main cause that
> I worry about that too much, that I don't really worry about how the
> paper would turn out in the sense of is this the right ideas, will the
> reader find that she can relate to this ad, can she visualize the picture?

The teacher has come a long way from her original suggestion that
Cee follow an outline, and Cee has become conscious of her writing
process and the problems it has created for her. Incidentally, Cee now
has the skills to look back at her paper during the editing phase and
correct her errors.

A second pedagogical issue revealed through an analysis of
linguistic interactions during writing conferences has to do with the
feelings students develop about learning to write. A comparison of
the first conferences of these four students indicates that they enter the
class with different feelings about writing. The two higher-achieving
students began the semester with more positive feelings than the two
lower-achieving students.

Cee revealed her negative feelings in a long discussion of how
much she generally dislikes and distrusts teachers (S = student; T =
teacher):

S: Well, I, it is true.
   Like I took this Secretary Administration class,
   and I was working at Kaiser as a personnel clerk
   and I noticed that I learned things much better
   and much faster
   and my supervisor is much more patient with me
   than the teacher who expected more
   and who didn't really give a darn
   if you failed or not.

T: Hum.
   Have you found that to be true at State
   too in all your classes?

S: Yes
   . . . As a whole, I found there is a lot of
   discrimination that's going on at this
   school
   And I talked with other students
   and they notice it too.
   (Hum.)

Like I was talking to this girl recently
I believe it was about two or three days ago
and she took this Psychology class last semester.
She got a B out of the teacher,
but there was this other girl
who also had the same teacher
two semesters ago,
uh, received a D or an F.
And she found out that if the
teacher doesn't like you she'll give you a
bad grade.
That's why I've been feeling
I guess depressed
and lost
because I sometimes
there are not many people who
who would give you confidence
and would help you
even though a teacher might say
oh I'm always there to help you.
But when you go to them
have this attitude of I don't want to help you.
That happened to my business teacher.
She always came to the classroom
and just um two students she liked.
She always said hi to them directly
(Uhm.)
and then the other students
she would just ignore.

Dee, the other lower-achieving student, continually admitted to the teacher how lazy she is as a student. Essentially, she communicated that she does not care enough about learning to write to put in much effort. For example, in response to the teacher's question, "Do you like to read?" Dee said, "I have friends and my friends are really big readers and they [are] constantly recommending books and I just—it's laziness—I just, I mean reading takes concentration whereas television viewing you just sit there and they do all the work." Dee also said that she hates libraries.

By contrast, Jay said that he admires people who can write and that he has even considered creative writing as a major. Sherry, although

quieter than the others, discussed her involvement in producing an underground newspaper at her high school, something she received much pleasure from.

Unfortunately, counterproductive attitudes may well perpetuate the problems experienced by the lower-achieving students. First of all, the tenor of students' comments inevitably leads to teacher judgments; what we say and how we say it are part of the image we project to others. Further, the remarks of these lower-achieving students, besides being issued bluntly and perhaps containing inappropriate content for discussion with a teacher on first meeting, also revealed that these students do not take full responsibility for their learning or for whatever writing problems they have. Notice that Cee blamed prejudiced teachers for students' failures in school and that Dee revealed what she perceives to be a permanent personality trait, her laziness, that will hinder her success.

There seem to be several effects of the students' expressed attitudes on the linguistic interactions and perhaps on instruction itself. First, in a close look at the amount of praise the different students recieve from the teacher, we find that the higher-achieving students receive substantially more than the lower-achieving students. As we have just observed, these lower-achieving students talked in ways that could easily alienate a teacher or at least not ingratiate themselves to the teacher. They are not teacher-wise. In addition, the higher-achieving students, from the first day of instruction, in effect elicited praise from the teacher by admitting their insecurity with their writing; neither lower-achieving student directly expressed such insecurity. Interestingly, the fact that these students do not take responsibility for their failures may suggest why they do not express insecurity as writers.

A second effect of the attitudes that show up in the linguistic interactions appears in a sample of teacher talk that occurs toward the end of these first conferences of the semester. This talk centered on the teacher's invitation to the student to return for additional individual meetings. On the whole, this teacher is exceptionally generous with her time and lets her students know about her generosity. However, these four students receive different types of invitations. Following are these invitations transcribed into idea units (Chafe, 1980)[4]:

1. Teacher (T) and High-Achieving Caucasian (S), Jay

    T: (1) if you think of anything,

       (2) do feel free to come down.

       (3) . . And talk to me

(4)   . . In the office.

(5)   If I go through a lesson too quickly,

(6)   . . or there're points that I didn't raise,

(7)   that you really wanted to ask about,

(8)   and you didn't feel you had time in class to
        cover them,

(9)   always come down.

(10)   . . Or set up an appointment to meet with me.

(11)   . . Uhm as a process class it's important,

(12)   . . that you keep up with the work.
        /Yeah/

(13)   Because you don't want to be thinking about
        thesis statements when you're
        thinking about topic sentences

(14)   or topic sentences when you're thinking about
        paragraph development,

(15)   or introductions and conclusions.
        [You know,]

(16)   when you can kinda tackle
        each part of the writing itself,
        [as its own . . little
        . . what]

(17)   . . as its own issue,

(18)   and its own lesson.

(19)   . . And you can kinda get clear
        at least on the principle.

(20)   It takes a while to incorporate
        it into your writing.

(21)   It takes practice.

(22)   . . There's only so much I can teach you through . . .
        talking.

(23)   Most of it comes from you . . writing.
        /Yeah/

(24)   So if you have any questions,

(25)   . . . feel free to ask.
Now that's really all I needed
to go through with you.

2.   Teacher (T) and High-Achieving Asian-American (S), Sherry

T: (1)   Well you know where my office is.

S: Yeah.

T: (2)   And if you . . if after a class . . on a
thesis statement or something,

(3)   do come down here.

(4)   I try not to let,

(5)   . . . I really like people to ke . .
to keep up with the class,

(6)   since it is a . . . what do you call
process-oriented class.

(7)   You don't want to be thinking
about thesis statements,

(8)   when you're down the road
looking at how to join sentences

(9)   and develop sentences,

(10)   or . . you don't want to be thinking
about topic sentences,

(11)   when we're looking at how to
develop . . paragraphs.

(12)   So that if for some reason a
particular lesson seems
very confusing,

(13)   or you have other ideas that
you wanted to discuss,

(14)   do come down.

(15)   . . and make use of this time.

S: Okay.

T: [Okay.
All right.]

(16)   and if you think of questions later,

(17)   you'll feel free to come in.

3. Teacher (T) and Low-Achieving Caucasian (S), Dee

T: (1)   Uhm . . . all right like I said

    (2)   if you have any . . . questions . . . comments . . things that you want to talk to me about,

    (3)   . . do come down to the office

    (4)   . . and keep up with the course.

S: Okay.

T: (5)   Feel free to come down.

    (6)   now that you know where it is.

    (7)   To visit . . whatever.

S: All right.

T: Okay.

S: Is that it?

T: Yeah
    . . that's all
    . . I just essentially . . .

4. Teacher (T) and Low-Achieving Asian-American (S), Cee

T: I have to go to class now.

S: Okay.

T: Is there anything else you want to ask me?
    Any final observations?

S: Is there any extra credit work we could do?

Notice that the number of teacher idea units devoted to the invitation varies from 25 for Jay to none for Cee. Remember, Cee is the student who admitted that she feels discriminated against by her teachers, and we see that, in a sense, she is. But we also see why. It is also interesting that Cee may receive no formal invitation at the end of the conference, the usual place for an invitation of this sort, because she somewhat inappropriately elicited an invitation earlier in the conference. Since the teacher issued the invitation then, she does not issue another in these salient final moments. Further, at this point in the conference the teacher is trying to close; but the student, again inappropriately, keeps trying to continue the conference. This student's conference is significantly longer than the conferences with the other three students. Throughout, she demands more of the teacher's time, thus the abrupt ending to the conference.

In our efforts to create a more substantive curriculum for all students, we need to focus on the meta-knowledge students need in order to revise their writing. We also need to help lower-achieving students and their teachers negotiate teaching-learning situations better so that these students do not find schooling counterproductive to learning.

CONCLUSIONS: INSTRUCTION FOR COMPREHENDING

In our opinion, the best instruction for comprehending will be guided by Vygotsky's (1978) concept of the "zone of proximal development"—a level of performance at which students can almost solve a problem, but can benefit from some guidance.[5] Such an approach would build upon the teacher's provision of a scaffolding for the student's comprehension. However, as Michaels (in press) has shown, there still may be problems providing a scaffolding in line with a student's discourse understanding; as we noted in our example of the writing conference, students in an interactive learning situation have power, albeit circumscribed, to control parts of the instruction they receive. Further, if they do not fully comprehend the discourse situation, they may elicit differential response and instruction. Nevertheless, teachers must attempt to control the learning environment in such a way that they are able to teach the content necessary to acquire the skills of comprehension. We offer several suggestions.

First, following the concept of instructional scaffolding, one must begin with carefully selected examples that illustrate the principle to be attained. These are presented to the students as problems to be solved, parts of a puzzle to be joined into a whole, examples to be assimilated. The teacher's role, beyond selecting the examples, is to support the students in learning, while at the same time requesting of the youngsters a bit more than they can currently accomplish.

A second element in the successful acquisition of literacy is practice on an expanding variety of examples. Through practice, students become adept at the task and establish a prototype in their minds that becomes the foundation for automatically handling similar situations in the future (LaBerge & Samuels, 1974).

Finally, effective instruction informs students about the organizing principles that make sense of what they have learned, and

about strategic points of departure for using their knowledge when things go wrong. As Brown has put it, the student needs to "learn how to learn from reading." The same holds for writing. We might use the term "meta-knowledge" to cover the broad array of knowledge about what we know and about how we think. This type of knowledge is closely tied to our conscious awareness of the contents of thought (Mandler, 1975; Piaget, 1976). In our opinion, formal schooling helps the student become a more intelligent person by fostering the growth of conscious thought (Brown, 1977).

Hillocks (1983), in a meta-analysis of the results of several hundred classroom experiments in the teaching of writing, found that teachers who present students with complex problems to be solved and who actively teach students the thinking skills that we have argued must underlie the writing taught in schools have significantly more success than other types of teachers. He calls this technique of actively involving students in problem solving activities "environmental." He contrasts it with the significantly less effective "presentational" or lecture style and with the also less effective "natural process" style, in which students are free to choose their own writing topics and are taught to engage in a full writing process.

Beyond our discussion of curriculum, what do we propose as remedies to the problems of teaching comprehending? First, we believe that it is important for the advocates of the public school to search for clarity and unity about the purposes of schooling. Today there is considerable disagreement and confusion about what we should expect of the public school, and so we find ourselves marching off in all directions. In our opinion, it is a profound mistake to see the school as a natural extension of the home; the nation cannot afford a $150 billion babysitting service. We think that it is both fitting and proper to propose that instruction in formal thought and expression be reemphasized as the basic goal of schooling.

Second, our analysis leads us to a restatement of the vital role of the teacher in the educational process. It will be extremely difficult to automate the kind of instruction that we have described as formal. The teacher is important because what is to be taught is not just a style of thought, but a manner of expression. The teacher is important because these skills and knowledge must be adjusted from day to day and from situation to situation. The problem is not one of infinite complexity, but the need for adaptability. Teachers' knowledge and sensitivity, their role as models, their continuing assessment of students in varied contexts and tasks permit them to ensure that the

greatest number of students have the greatest chance of success in acquiring the kind of knowledge described in this article.

Third, a larger proportion of research and development efforts could be profitably directed toward a fuller understanding of the way the mind works to solve formal problems. A considerable amount of educational research now focuses on strictly empirical questions—standardized tests, competency-based teaching of specific objectives, measurable aspects of instruction such as time on task, and the like. While recognizing some value in such investigations, we doubt that they genuinely enlighten us about issues of the most fundamental importance to schooling. These latter can be answered only by deeper analyses of the underlying social and cognitive processes of students and teachers.

A few last reflections. Perhaps we seem to be asking too much when we expect all youngsters to become educated—to comprehend, in the fullest sense of the word. We believe that this expectation is neither unrealistic nor impossible. Heath (1980) describes teachers in the rural south who are beginning with so-called low-achieving third- and tenth-graders to accomplish these goals. Accomplishment does require clarity of goals, a raising of standards substantially above the minimum, and a return of responsibility to the neighborhood school and the classroom teacher. We may seem pessimistic in some of our observations. In fact, however, we are optimistic that educators can meet the challenge, comprehend fully the task of schooling, and pursue rationally the fulfillment of that task.

NOTES

1. The tendency is to view formal thought as a requirement for youngsters who are college-bound. The report on the preparedness of the United States Army suggests that academic preparation is important throughout the society (Holden, 1980). Holden's *Science* article indicates that young men and women in the lowest quartile of the Armed Forces Qualification Test are poor readers, take much longer to train on the various skills required in their jobs, forget more quickly what they are taught, have more difficulty integrating and transferring their knowledge, and lack a sense of responsibility about their work. "[M]echanics were hyperspecialized and incapable of working across the 'broad spectrum' . . . necessary in the actual combat." The Army's response, according to *Science*, is "the tendency to minimize the problem by lowering standards. Many training manuals . . . have been written . . . to a 7th grade reading level." One implication of the report is that the all-volunteer army has attracted citizens of generally low intelligence. Our interpretation is that many of these young people

have lacked access to a good education, and that their intellectual competence will be enhanced not by "hyperspecialized" training but by broad-scale instruction in how to think and how to communicate. It is interesting to note that in a later report in *Science,* a prominent expert concluded that the sharp drop in the productivity of the United States worker in the early 1970s was "to be blunt, a mystery" (Walsh, 1981). Edward Denison of the Brookings Institute evaluated the impact of several economic and social factors, and found in none of these a satisfactory account of the decline. We would simply suggest that the educational character of the work force is worth examination— and we are not talking about years of schooling or performance on multiple-choice tests.

2. We should caution the reader about our use of the terms "paragraph" and "discourse." By paragraph we mean the elements that make up a complete text; most often these are a few sentences long, and consist of a single idea (the topic sentence) with supporting detail. By discourse we mean a coherent textual unit, complete in itself. A text might consist of a single paragraph (in the sense of a series of sentences set off on the page by indentation). This is often the case with a precis, summaries, and so on. Moreover, a paragraph within a larger text may be complete in itself; quite often one finds within a text elaborations of one (or more) paragraphs, which are coherent substructures. For instance, within a narrative a paragraph is an embedded segment that describes the chief protagonist. If a body of text is best understood by linking together a few sentences, we refer to paragraph comprehension. If a text requires the imposition of an organizing schema, we refer to discourse comprehension (cf. Calfee & Curley, in press; Calfee & Spector, 1981).

3. As Lawlor (1980) notes in his review, both O'Hare (1973) and Combs (1976) found that sentence-combining led to improvement in overall writing quality. However, both researchers used a paired-comparison method for judging quality, which seems likely to have caused a halo effect favoring the sentence-combining passage in the pair because of the longer and more complex sentences.

4. The following codes are used for transcription:

/ /   interruption by other speaker
[ ]   preliminaries to idea unit, not counted as part of idea unit
,   rising intonation
.   falling intonation
..   non measurable pause
...   measureable pause

5. McNamee (1979) provides an excellent statement of the process we have in mind:

An overview of the developmental process that I am hypothesizing to account for how children acquire narrative skills can be stated as follows: The adult does not teach the child how to narrate a story by directly explaining or instructing the child on how to carry out the task; rather the adult "teaches" by leading the child through the task. The child "learns" by gradually becoming aware of why he or she was being asked certain questions.

In order for there to be a transition from being guided by another to being guided by one's own means, the one doing the guiding must allow the child to

take over responsibility in carrying out the task when he/she is ready to do so. The adult must be sensitive to the needs of the child and not simply step in and do everything, nor offer help at a level too vague and distant to the child's needs.

The adult makes demands of the child that are just beyond the child's grasp, and the child then struggles to find coherence in what the adult is saying. If the adult didn't make demands that were a little too difficult for the child, or if the adult simply did everything for the child, there would be no struggle for coherence on the child's part. On the other hand, if the adult is confusing or talks way above the child's head, or asks him or her to retell a story that is way too difficult, then there is no possibility of transition. The adult's talking would be meaningless and beyond the child's current potential. (p. 65)

REFERENCES

Anderson, R. C., & Freebody, P. (1980). Vocabulary knowledge (Technical Report No. 136). Urbana, IL: Center for the Study of Reading.

Atkin, J. M. (1980). *Using the law to change schools*. Paper presented at Special Education Conference, Institute on Finance and Governance, School of Education, Stanford University.

Beck, I. L., & McCaslin, E. S. (1978). *An analysis of dimensions that affect the development of code-breaking ability in eight beginning reading programs*. Pittsburgh, PA: University of Pittsburgh.

Beck, I. L., McKeown, M. G., McCaslin, E. S., & Burkes, A. M. (1979). *Instructional dimensions that affect reading comprehension: Examples from two commerical reading programs*. Pittsburgh, PA: University of Pittsburgh.

Bereiter, C. (1980). Development in writing. In L. Gregg & E. Steinberg (Eds.), *Cognitive processes in writing*. Hillsdale, NJ: Lawrence J. Erlbaum.

Bissex, G. (1980). *GNYS at work*. Cambridge, MA: Harvard University Press.

Bridwell, L. (1980). Revision strategies in twelfth grade students' transactional writing. *Research in the Teaching of English, 14*, 197-222.

Brown, A. (1977). *Knowing when, where, and how to remember: A problem of metacognition* (Technical Report No. 47), Urbana, IL: Center for the Study of Reading.

Bruner, J. (1966). *Toward a theory of instruction*. Cambridge, MA: Belknap Press of Harvard University.

Calfee, R., & Curley, R. (in press). Structures of prose in the content areas. In J. Flood (ed.), *Understanding reading comprephension*. Newark, DE: International Reading Association.

Calfee, R., & Spector, J. (1981). Separable processes in reading. In F. Pirozzolo & M. Wittrock (Eds.), *Neuropsychological and cognitive processes in reading*. New York: Academic Press.

Calfee, R., Spector, J., & Piontowski, D. (1979). Assessing reading and language skills: An interactive system. *Bulletin of the Orton Society*, 129-156.

Chafe, W. (1980). The deployment of consciousness in the production of a narrative. In W. Chafe (Ed.), *The pear stories: Cognitive, cultural, and linguistic aspects of a narrative production.* Norwood, NJ: Ablex.

Chafe, W. (1982). Integration and involvement in speaking, writing, and oral litera-ture. In D. Tannen (Ed.), *Spoken and written language.* Norwood, NJ: Ablex.

Chafe, W., & Danielewicz, J. (in press). Properties of spoken and written language. In R. Horowitz & J. Samuels (Eds.), *Comprehending spoken and written language.* New York: Academic Press.

Chall, J. (1977). *An analysis of textbooks in relation to declining SAT scores.* Paper prepared for the Advisory Panel on the Scholastic Aptitude Test Score Decline, sponsored by College Entrance Examination Board and Educational Testing Service.

Chomsky, C. (1970). Reading, writing and phonology. *Harvard Educational Review, 40,* 287-309.

Cicourel, A. et al. (1974). *Language use and school performance.* New York: Academic Press.

Combs, W. (1976). Further effects of sentence-combining practice on writing ability. *Research in the Teaching of English, 10,* 137-149.

to literacy. In Marcia Farr Whiteman (Ed.), *Variation in writing.* Hillsdale, NJ: Lawrence J. Erlbaum.

Daiker, D., Kerek, A., & Morenberg, M. (1979). *The writer's options: College sentence combining.* New York: Harper & Row.

de Beaugrande, R. (1981). Psychology and composition. Past. present, future. In M. Nystrand (Ed.), *What writers know: Studies in the psychology of writing.* New York: Academic Press.

Durkin, D. (1978). What classroom observations reveal about reading comprehension instruction. *Reading Research Quarterly, 13,* 5-6.

Education Daily. (1980). Ann Arbor completes study of black English training. *13*(246), 5-6.

Ehri, L. (1979). Linguistic insight: Threshold of reading acquisition. In T. C. Waller & G. E. MacKinnon (Eds.), *Reading research: Advances in theory and practice* (Vol. 1). New York: Academic Press.

Faigley, L., & Witte, S. (1981). Analyzing revision. *College Composition and Com-munication, 32,* 400-414.

Fillmore, C. (1981). Ideal readers and real readers. In D. Tannen (Ed.), *Georgetown University round table on languages and linguistics.* Washington: Georgetown University Press.

Flower, L. (1979). Writer-based prose: A cognitive base for problems in writing. *College English, 41,* 19-37.

Flower, L., & Hayes, J. R. (1980). A process model of composition. In L. Gregg & E. Steinberg (Eds.), *Cognitive processes in writing.* Hillsdale, NJ: Lawrence J. Erlbaum.

Freedman, S. (1980a). College students reveal their learning processes. *Resources in education* (ERIC Document Reproduction Service No. ED 181 452).

Freedman, S. (1980b). Teaching and learning in the writing conference. *Resources in education* (ERIC Document Reproduction Service No. ED 185 599).

Freedman, S. (1981). Evaluation in the writing conference: An interactive process. In M. Hairston & C. Selfe (Eds.), *Selected papers from the 1981 Texas writing research conference.* Austin: University of Texas at Austin.

Freedman, S. (1982). Student teacher conversations about writing: Shifting topics in the writing conference. *Resources in Education* (ERIC Document Reproduction Service No. 214-181).

Freedman, S. (1983). The student teacher writing conference: Key techniques. *Journal of English Teaching Techniques 12,* 38-45.

Freedman, S., & Katz, A. (in press). Pedagogical interaction during the composing process: The writing conference. In A. Matsuhashi (Ed.) *Writing in real time: Modelling production processes.* New York: Academic Press.

Freedman, S., & Sperling, M. (in press). Teacher student interaction in the writing conference: Response and teaching. In S. Freedman (Ed.), *The acquisition of written language: Revision and response.* Norwood, NJ: Ablex.

Friere, P. (1970). *Pedagogy of the oppressed.* New York: Seabury Press.

Goody, J. (1977). *The domestication of the savage mind.*
Cambridge: Cambridge University Press.

Goody, J. (1977). *The domestication of the savage mind.* Cambridge: Cambridge University Press.

Graves, D. (1978). *Balancing the basics: Let them write.* New York: Ford Foundation.

Graves, D. (1983). *Writing: Teachers and children at work.* Exeter, NH: Heinemann Press.

Hamilton, M. E., & Barton, D. (1980). *A word is a word: Metalinguistic skills in adults of varying literacy levels.* Stanford, CA: Stanford University.

Heath, S. B. (1980). Literacy and the future of print: The functions and uses of literacy. *Journal of Communication, 30,* 123-133.

Heath, S. B., & Branscombe, A. (in press). "Intelligent Writing" in an audience community: Teacher, students, and researcher. In S. Freedman (Ed.), *The acquisition of written language: Revision and response.* Norwood, NJ: Ablex.

Hillocks, G. (1983). *What approaches to teaching writing make a difference in quality.* Paper presented at the annual meeting of the National Council of Teachers of English, Denver.

Holden, C. (1980). Doubts mounting about all-volunteer force. *Science, 209,* 1095-1099.

Inkeles, A. (1978). The future of individual modernity. In J. M. Yinger & S. J. Cutler (Eds.), *Major social issues.* New York: The Free Press.

Kintsch, W., & van Dijk, T. (1978). Toward a model of text comprehension and production. *Psychological Review, 85,* 363-394.

Kroll, Barbara (1977). Combining ideas in written and spoken English. *Discourse across Time and Space. Southern California Occasional Papers in Linguistics, 5,* 69-108.

Kroll, Barry, & Vann, R. (1981). *Exploring speaking-writing relationships: Connections and contrasts.* Urbana, IL: National Council of Teachers of English.

Labov, W., & Fanschel, D. (1977). Therapeutic discourse: Psychotherapy as conversation. New York: Academic Press.

LaBerge, D., & Samuels, J. (1974). Toward a theory of automatic information processing reading. *Cognitive Psychology, 6,* 293-323.

Lawlor, J. (1980). *Improving student writing through sentence combining: A literature review* (Technical Note 2-80/05). Los Alamitos, CA: Southwest Regional Laboratory.

Litowitz, B. (1977). Learning to make definitions. *Journal of Child Language, 4*, 289-304.

Mandler, J. (1975). Consciousness: respectable, useful, and probably necessary. In R. Solso (Ed.), *Information processing and cognition: the Loyala symposium.* Hillsdale, NJ: Lawrence J. Erlbaum.

McNamee, G. D. (1979). The social interaction origins of narrative skills. *The Quarterly Newsletter of the Laboratory of Comparative Human Cognition, 1*, 63-68.

Mellon, J. (1969). *Transformational sentence-combining: A method for enhancing the development of syntactic fluency in English composition* (Research Report No. 10). Urbana, IL: National Council of Teachers of English.

Michaels, S. (in press). Narrative presentations and oral preparations for literacy with first graders. In J. Cook-Gumperz (Ed.), *The social construction of literacy.* London: Cambridge University Press.

Nold, E. (1981). Revising. In C. Frederiksen & J. Dominic (Eds.), *Writing: the nature, development and teaching of written communication.* Hillsdale, NJ: Lawrence J. Erlbaum.

O'Donnell, R. (1974). Syntactic differences between speech and writing. *American Speech, 49*, 102-110.

O'Hare, F. (1973). *Sentence Combining: Improving Student Writing without Formal Grammar Instruction* (Research Report No. 15). Urbana, IL: National Council of Teachers of English.

O'Hare, F. (1974). *Sentencecraft: An elective course in writing.* Lexington, MA: Ginn & Company.

Olson, D. (1977). From utterance to text: The bias of language in speech and writing. *Harvard Educational Review, 47*, 257-281.

Olson, D. (1980). On the language and authority of textbooks. *Journal of Communication, 30*, 186-196.

Piaget, J. (1970). Piaget's theory. In P. H. Mussen (Ed.), *Carmichael's manual of child psychology* (3rd edition). New York: John Wiley.

Piaget, J. (1976). *The grasp of consciousness.* Cambridge, MA: Harvard University Press.

Pittenger, R., Hockett, C., & Daneky, J. (1960). *The first five minutes: A sample of microscopic interview analysis.* Ithaca, NY: Paul Martineau.

Read, C. (1975). *Children's categorization of speech sounds in English* (Research Report No. 17). Urbana, IL: National Council of Teachers of English.

Rowher, W., Ammon, P., & Cramer, P. (1974). *Understanding intellectual development.* New York: Dryden Press.

Rumelhart, D. E. (1975). Notes on a schema for stories. In D. G. Bobrow & A. M. Collins (Eds.), *Representation and understanding: Studies in cognitive science.* New York: Academic Press.

Rumelhart, D. E. (1977). Understanding and summarizing brief stories. In D. LaBerge & J. Samuels (Eds.), *Basic processes in reading: Perception and comprehension.* Hillsdale, NJ: Lawrence J. Erlbaum.

Sachs, H., Schegloff, E., & Jefferson, G. (1974). A simplest systematics for the organization of turn-taking for conversation. *Language, 50*, 696-735.

Schatz, M. (1978). The relationship between cognitive processes and the development of communication skills. In B. Keasey (Ed.), *Nebraska symposium on motivation.* Lincoln: University of Nebraska Press.

Scribner, S., & Cole, M. (1973). Cognitive consequence of formal and informal education. *Science, 182,* 553-559.

Scribner, S., & Cole, M. (1978). Literacy without schooling. *Harvard Educational Review, 48,* 448-461.

Scribner, S., & Cole, M. (1982). *The psychology of literacy.* Cambridge, MA: Harvard University Press.

Searle, J. (1975). Indirect speech acts. In P. Cole & J. Morgan (Eds.), *Syntax and semantics* (vol. 3). New York: Academic Press.

Shaughnessy, M. (1977). *Errors and expectations: A guide for the teacher of basic writing.* New York: Oxford University Press.

Smith, W., & Combs, W. (1980). The effects of overt and covert cues on written syntax. *Research in the Teaching of English, 14,* 233-242.

Sommers, N. (1980). Revision strategies of student writers and experienced adult writers. *College Composition and Communication, 31,* 378-388.

Strong, W. (1977). *Sentence combining: A composing book.* New York: Random House.

Strong, W. (1981). *Sentence-combining and paragraph building.* New York: Random House.

Tannen, D. (Ed.). (1982). *Spoken and written language.* Norwood, NJ: Ablex.

Traugott, E., & Pratt, M. L. (1980). *Linguistics for students of literature.* New York: Harcourt Brace Jovanovich.

Tyack, D. (1974). *The one best system: A history of American urban education..* Cambridge, MA: Harvard University Press.

Vygotsky, L. (1978). *Mind in society.* Cambridge, MA: Harvard University Press.

Walsh, J. (1981). Is R & D the key to the productivity problem? *Science, 211,* 685-688.

Wells, C. G. (1979). Language, literacy and educational success. *New Education, 1,* 23-34.

Wise, A. E. (1979). *Legislated learning.* Berkeley: University of California Press.

Witte, S. (1980). Review of D. A. Daiker, A. Kerek, & M. Morenberg, *Sentence Combining and the Teaching of Writing* (Akron, OH: University of Akron, 1979). *College Composition and Communication, 31,* 433-437.

Sarah Warshauer Freedman is an Associate Professor in the Language and Literacy Division of the School of Education at the University of California at Berkeley and is an Associate Director of the Bay Area Writing Project. Her research is on the evaluation of written language and on how response to student writing can lead to learning. In 1983 she was awarded a grant from the National Institute of Education to conduct a study entitled "The Role of Response in the Acquisition of Written Language." In the next year her edited book, The Acquisition of Written Language: Revision and Response, *will appear as part of the ABLEX series on writing research.*

Robert C. Calfee is Professor of Education and Psychology at Stanford University. His research interest is in the improvement of instruction through empowering teachers to have increased awareness of their curricular choices and strategies for instruction. He is currently editor of Journal of Educational Psychology *and serves as an elected member of his local school board.*