CHAPTER 1

Fifty Years of Reading Comprehension Theory and Practice

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The history of reading comprehension during the period between the election of President Kennedy and President Obama includes major shifts in the ways that literacy educators and educational psychologists think about reading comprehension, both as a basic intellectual process and as an instructional responsibility for teachers and schools.

We begin this chapter by unpacking the history of reading comprehension to illuminate major developments in theory and practice over that 50-year period. Next, we focus on current construction-integration models of comprehension and their impact on policy and practice, giving special emphasis to the impact of these models on the development of the Common Core State Standards ([CCSS]; National Governors Association Center for Best Practices [NGA Center] & The Council of Chief State School Officers [CCSSO], 2010).

We represent the history of this period of time as a series of shifts in the relative importance of three factors—(1) the text, (2) the reader, and (3) the context—that have been used to explain reading comprehension. This chapter suggests that one or another of these three factors has dominated during different periods. Within our description of each period of time, we highlight what it meant to foreground one factor over the others. In the end, we suggest ways to conceptualize reading comprehension that moderate the less productive extremes of this history, recognizing that there are many ways to read a text and many resources to bring to meaning-making and interpretation.

A SHORT HISTORY OF READING COMPREHENSION

To document and explicate the history of reading comprehension, we analyze the relative salience of the three factors above—text, reader, and context—through a simple visual model. This trio of factors has been used by reading theorists for over a century to account for the degree of readers' comprehension achievement (e.g., Huey, 1908). We start with a hypothetical model[1] based on the assumption that these three factors influence reading comprehension to about the same degree. Hence in this model, reader, text, and context are represented as three *equal* circles whose intersection represents reading

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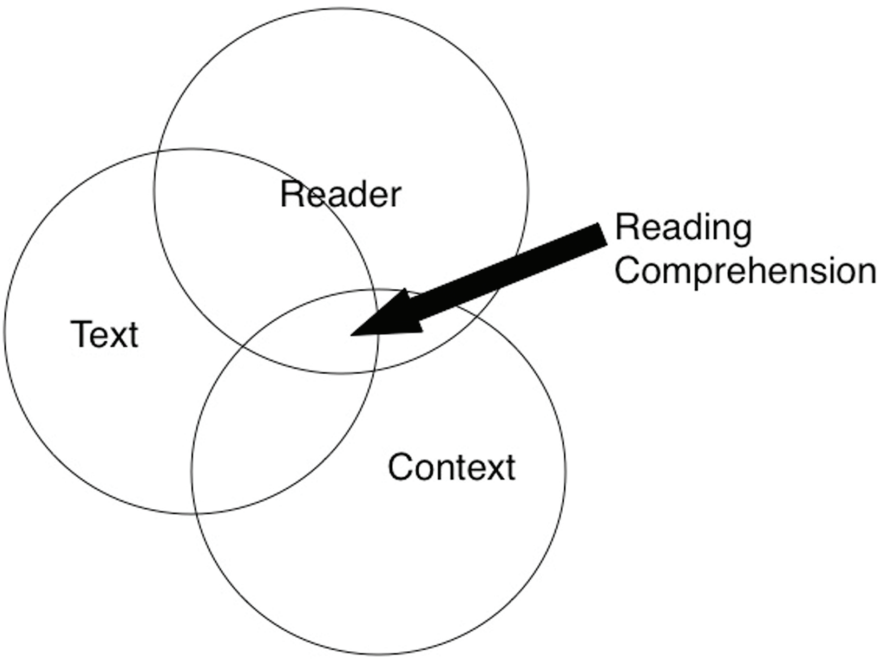
comprehension (see Figure 1.1). Over the past 50 years, each of these factors has had its moment in the spotlight, serving as the leading explanation for proficient comprehension. Therefore, in each of our visual representations, the *size* of each of these circles shifts to signify the relative salience of each factor during different periods.

Pre-1965: A Text-Centric Era

Prior to the mid-1960s, comprehension was all about the text. The dominant theoretical perspective in all of psychology, including cognitive psychology, was behaviorism, which was born in the early 1900s, in the work of E. L. Thorndike (1910) and J. B. Watson (1913), and maintained through the 1950s and beyond by B. F. Skinner (1957). Behaviorists believed that useful theories relied upon observation; as a result, the unobservable contents and processes of the brain (the "black box") fell outside the purview of psychology, leaving only the inputs (mainly text and task) and outputs (recall, answers to questions, blanks filled in, or perhaps eye movements or other physical correlates) as psychologically relevant explanatory phenomena. One could observe stimuli and responses; everything else was just speculation, a practice best left to philosophers.

In the behaviorism-dominated milieu, the text ruled the comprehension process, and its features determined the nature and degree of comprehension any given reader achieved. Reading was a largely perceptual process. First, the reader visually analyzed the relevant features of letters until those letters were identified. Next, the letters were mapped onto sounds to pronounce strings of sounds (including words). Finally, the reader listened to the output—either externally during oral reading or internally during silent reading—and achieved understanding. This model of reading earned the label of *bottom-up*, suggesting

Figure 1.1. Reader, Text, and Context



that lower-level processes, such as the visual features (of letters), are analyzed along the way to higher-level processes, such as semantic processing (deciding where a concept fits in one's memory store) or reading comprehension. Others used the label *outside-in*, to capture the sense that the comprehension process starts outside of the reader (i.e., in the text). Another label attached to these models is "the simple view" (Gough & Hillinger, 1980), which relies on the fundamental claim that Reading Comprehension = Listening Comprehension x Decoding (RC = LC x D). The assumption there is that meaning is *in the text*, and our job as readers is to use the text's visual features to dig out that meaning.

The parallel paradigm in literary theory was the text-centric movement known as New Criticism (Brooks & Warren, 1938/1960; Richards, 1929), which favored close reading of a "text qua text" as the key to understanding its meaning. Readers were admonished to keep their *top-down* (or, if you prefer, *inside-out*) knowledge resources at bay, to suppress individual responses to text, and to defer to the bottom-up processes that allowed the text to speak to the reader. Learning from text was largely a receptive process; students literally received the information that emerged from this close, analytic reading process. In many ways, New Criticism and close reading were responses to a fascination with approaches to literary criticism that focused on the historical and personal contexts in which writers did their work (Catterson & Pearson, in preparation; Ransom, 1937; Young, 1976). Before the rise of New Criticism, according to Ransom (1937), literary analyses were far too subjective and speculative, too steeped in a kind of pseudo-historicism in which writers could not escape the bounds of the times and context in which they wrote. New Criticism did not involve personal responses to literature, historical study, or linguistic or moral analysis that dealt with the abstract character of the text.

The fact that New Criticism was a response to other approaches implies that there were alternative views, and indeed there were. Most notably, there were strongly historical perspectives represented during the first third of the 20th century, even approaches that put the reader at the center of the process, such as Rosenblatt's (1938) reader-response perspective. But New Criticism, close reading, and the centrality of the text won the day (at least until sea changes swept through both psychology (Gardner, 1985) and literary criticism (Tompkins, 1980) in the 1970s and 1980s (Lockhart, 2012).

In Figure 1.2, text's leading role is depicted as a giant "text" circle in comparison with smaller "reader" and "context" circles. The instructional approaches of this period reflected the emphasis on text. Establishing accuracy of word recognition on the way to automaticity on the way to fluency and, eventually, to comprehension was the dominant pedagogical model. Text-based questions with right answers—what Pearson and Johnson (1978) called text-explicit question-answer relationships—were the order of the day. Textual readings were privileged across text genres, as evidenced by examples of questions from the Brooks and Warren classic, *Understanding Poetry* (1938/1960): "Can you find any principle of progression in the poem? Some good poems do work, in part at least, by accumulation, but the accumulation should lead to a significant impression. Do you find such an impression?" (p. 289). The term *close reading* was often applied to this approach, which implied that readers should stick close to the text as they tried to generate understanding.

The Era of the Reader: 1970s–1980s and Beyond

The late 1960s and early 1970s ushered in the cognitive revolution in psychology (Gardner, 1985). Once again, it became respectable for psychologists to speculate about what

might be going on inside the black box, as scholars such as Huey (1908) had done in the days before behaviorism captured the field. Theories were developed about the nature of the processes that played out inside the brain during reading comprehension, as well as the nature of the storage mechanisms in memory. Elaborate accounts of knowledge acquisition during reading and of the organization of knowledge in memory became primary frameworks for understanding comprehension. At the same time, the reader became the centerpiece of the reading comprehension process. Kolers (1969), in an article written during the early phases of the cognitive revolution, chose the provocative title "Reading Is Only Incidentally Visual." Although no one besides Kolers stated it in quite these terms, this expression is an apt characterization of the new cognitive perspectives, which privileged a top-down orientation where higher-order resources, such as the semantic processing of prior knowledge, were used to minimize reliance on lower-order resources such as features and letters.

There was a re-emergence of the long-suppressed reader-response paradigm, marked by the rediscovery of Louise Rosenblatt's transactional theories of reading literature (Rosenblatt, 1938, 1968). Reader-response theories emphasize "readerly" readings that begin with the "apprehension" of understanding inside the reader and then move outward to the text as an evidentiary source to corroborate or temper the reader's internal musings. Interpretation emerges from the interaction between the reader and text, meaning that no two readers can ever be expected to interpret a text in exactly the same way, though their personal models of meaning typically bear a sufficiently strong family resemblance to allow for negotiating a social meaning through discussion. Figure 1.3 depicts these shifts, with a large circle for "reader" and relatively smaller circles for "text" and "context." The reader in the foreground, as illustrated in Figure 1.3, is evident in the three cognitive-based approaches to the study of reading comprehension that dominated this period.

The first cognitive-based approach involved efforts to explain how readers come to understand texts through their knowledge of the underlying structures of texts. Readers' story schemata—or schemata for textual organizational frames—were viewed as a dominant force that drove comprehension. Text-focused scholars offered structural accounts of the nature of narratives and expository texts, complete with predictions about how knowledge of those structures enhances both text understanding and memory (Kintsch, 1974; Mandler & Johnson, 1977; Meyer, 1975; Rumelhart, 1977; Stein & Glenn, 1979). Because the structure-oriented analyses were concerned with readers' knowledge of *text*, they honored knowledge of text over knowledge of the world and/or the topics that were described in the texts. Although their accounts did provide some explanation for how readers understood text, the focus on text structure failed to get to the heart of comprehension—understanding ideas.

The task of explicating comprehension fell to the second dominant cognitive-based approach of this period: schema theory (Anderson & Pearson, 1984). Schema theory emphasizes the role of the reader's existing topical and world knowledge in comprehension, examining how readers bring that knowledge to bear on text comprehension. The metaphors of "constructing meaning" (Tierney & Pearson, 1983) and the reader as "builder" (Pearson, 1992) capture the dominant view of reading comprehension in the schema theory model.

A third major strand of research that emerged from this period focused more on processes and practices than on knowledge. Dubbed "metacognition" (see Baker & Brown,

Figure 1.2. Text-centric Models of Reading Comprehension in the 1960s: Meaning Is Largely in the Text

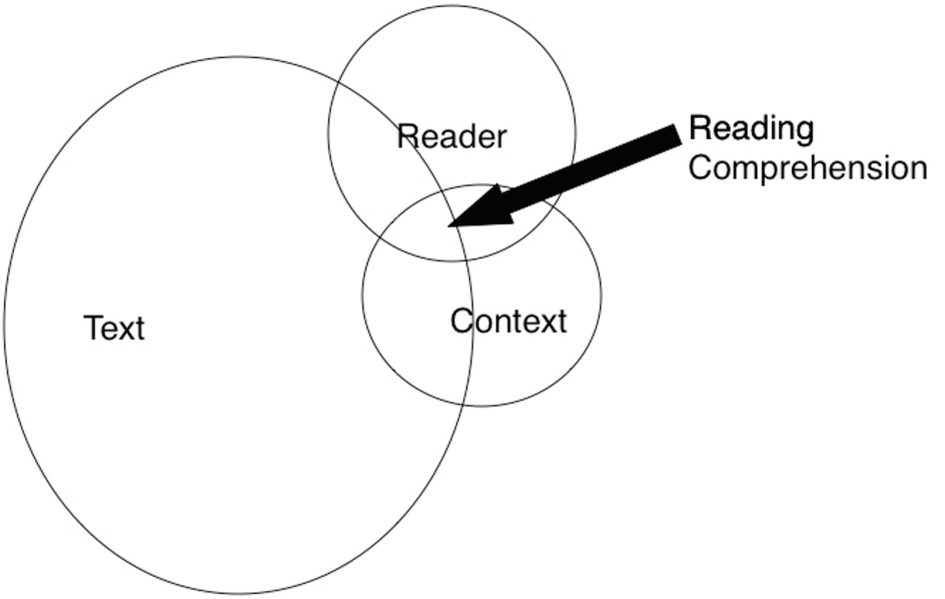
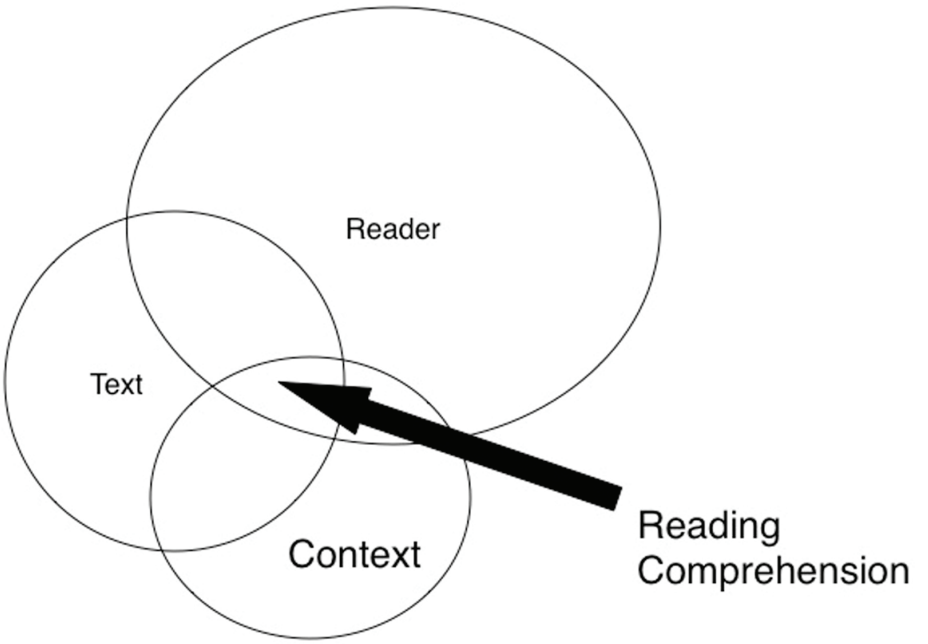


Figure 1.3. Reader-centric Models of Reading Comprehension of the 1970s: Meaning Is Largely in the Reader



1984, for a contemporary review of this research), the work emphasized all of the intentionally activated strategies that readers use to monitor their comprehension ("Does my current model of what the text means make sense?") and repair breakdowns in comprehension ("How can I get my comprehension back on track?"). If schema theory evoked the metaphor of the reader as builder, then metacognitive work gave equal status to the reader as "fixer," who must always be willing to repair the fragile process of meaning-making when it goes wrong.

Movements in pedagogy paralleled these theoretical developments in psychology and literary theory. This was a period rampant in constructivist learning models (students must build knowledge for themselves) and equally constructivist pedagogies (teachers must avoid "telling" students what they need to know and instead arrange conditions and activities to allow students to discover through systematic inquiry what they need to know to complete an activity, performance, or project) (see Pearson & Johnson, 1978). Aesthetic reader response became the cornerstone of literary reading. Personal, aesthetic, expressive response prevailed over, or at the very least preceded, more efferent (work-like) forays into the comprehension of ideas and examinations of the author's craft. The question about text shifted from the New Criticism version of meaning: "What is the meaning of the text?" to the reader-response version: "How do readers make meaning from a text?" (Tompkins, 1980).

Instructional activities changed as well, moving away from a steady diet of literal, text-based questions toward an explicit process of relating the "new to the known" (Pearson & Johnson, 1978). Students were encouraged to integrate what they gained from reading into their existing knowledge structures in memory (i.e., schemata) (Anderson & Pearson, 1984). Teachers were encouraged to ask, "What do students already know, and how can I exploit that to help them access new ideas in the text that I would like them to learn?" Numerous instructional routines emerged that reflected the broad commitment to the centrality of reader knowledge. These included Ogle's (1986) K-W-L routine and Raphael's Question-Answer-Relationships (QARs) (Raphael & Pearson, 1985; Raphael & Wonnacott, 1985). These two popular examples typify the broad-based commitment to the centrality of reader knowledge in driving the comprehension process.

Other interventions hearkened back to earlier research on the role of text structure in shaping reading comprehension. They focused on teaching students to use their knowledge of text structure to understand, learn, and remember information, particularly from informational texts (see Pearson & Camparell, 1981, for a review from this early period). The most ambitious of these interventions (see Armbruster, Anderson, & Ostertag, 1987, and Bartlett, 1978) involved teaching students to think of text structures as architectural "frames" into which authors could position key content.

In a classic instructional study, Palincsar and Brown (1984) operationalized the advances in metacognitive approaches to reading comprehension in the pedagogical routine Reciprocal Teaching. The full title of that landmark study is "Reciprocal Teaching of Comprehension-fostering and Comprehension-monitoring Activities." This title is significant because it suggests that both awareness (the builder) and repair (the fixer) of sense-making can be achieved by intentionally applying strategies (summarizing, questioning, clarifying, and predicting). Reciprocal Teaching was originally validated with struggling readers, many of whom had learning disabilities, at the middle school level. Reciprocal Teaching has spread over the past 30 years to virtually every level of K–16

education and to a wide range of disciplinary settings (see Palincsar, 2007). In many ways, it touches on all the themes of this reader-based era. In addition, with its socially based, Vygotskian roots, Reciprocal Teaching anticipated the context-centric era that lay just ahead.

The Era of Context: 1985 and Beyond

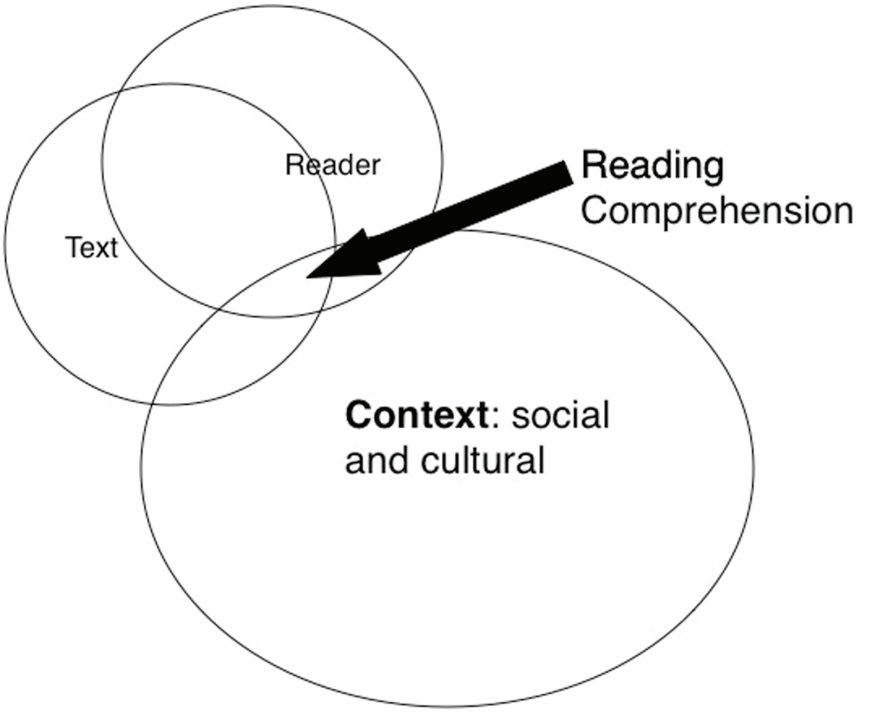
To assign time frames to movements in reading comprehension, as we have done for the text- and reader-centric periods, necessarily oversimplifies both their origins and their legacies. Nowhere is that oversimplification more evident than with the models of comprehension that privilege context. Assigning them to the years 1985 and beyond obscures their much earlier roots. The sociocultural turn in literacy theory (Bloome & Green, 1984), and to a lesser degree in psychology (J. S. Brown, Collins, & Duguid, 1989; Cole, 1996), started to gather momentum in the 1970s, but it was not until the late 1980s and early 1990s that it became a dominant paradigm—and even then, this occurred only in the field of literacy. In terms of our dynamic visual model, the dominance of context and situation is represented by a large circle for "context" and small circles representing "reader" and "text" in Figure 1.4.

Theoretical roots of context-centric approaches. Within psychology, the situated cognition movement emerged from the work of J. S. Brown et al. (1989) and A. L. Brown and J. C. Campione (1994). These researchers argued that approaches to nurturing cognitive development were too abstract and divorced from the "authentic activity" that they were designed to facilitate. In their zeal to develop context-free, transferable concepts and skills, reading educators had inadvertently and inappropriately focused on the teaching and learning of explicit but abstract rules and conceptual features. What was needed, contextualists argued, was a "situated" view of cognition and epistemology. To help learners develop useful models of meaning for text or experience, teachers would need to design activities that situate students in the specific and authentic rather than the abstract. Situated perspectives ultimately sought generalizable knowledge and practices, but the underlying principle was that the best way to learn what is abstract, general, and context-free is for learners to behave as though all that matters is to understand phenomena as they exist within their natural settings, including in the text at hand. The irony of this perspective is that the particular is the surest path to the general.

Others (e.g., Harste, Woodward, & Burke, 1984) put forward more socially oriented critiques, championing constructs such as the social construction of meaning, which viewed cognition of all sorts as being distributed within a community rather than encapsulated within the individuals of a community.

This same period of time also witnessed the rediscovery of the Russian psychologist Vygotsky (1978) and Russian literary theorist Bakhtin (1975/1981). Following Vygotsky's lead, reading researchers fixed their attention on the social nature of learning and the key role that teachers and students' peers play in facilitating learning for an individual. Possibly the most influential learning construct in the 1980s was Vygotsky's "zone of proximal development," which represents the difference between the learning a child can accomplish on her own and what she can accomplish with the help of others (such as a teacher, mentor, parent, or knowledgeable peer).

Figure 1.4. Context-centric Models of Reading Comprehension from the 1980s and 1990s: Meaning Is Largely in the Context



From Bakhtin's (1975/1981) dialogical perspective, scholars forged a new, intertextual view of reading comprehension and adopted the basic premise that readers understand each new "text"—written, oral, or experiential—in relation to *all* the previous "texts" that they, and the culture in which they construct meaning, have experienced. By the mid-1990s, these new constructs had shifted the attention of reading researchers from the reader and the text to the situational context and the interpretive community surrounding the act of reading.

Pedagogically, this new perspective suggested approaches favoring close analysis of the contextual (rather than the textual or reader) features that shape the ways in which teachers and students negotiate the meaning of text:

- The social construction of meaning, most likely in rich conversational settings around text (more likely, multiple texts) in which students interact freely and voluntarily
- Critical analysis of the devices (structures and tools) that authors use to shape the meaning they want readers to take away from a text
- Thorough examination of the subtexts that accompany text, including a close analysis of ideas and language that reveal which groups (along with their ideologies and voices) are either privileged or silenced by both the text and the surrounding conversation

Classroom applications of context-centric approaches. In the classroom, critical approaches have involved students in problematizing and interrogating (or, in everyday parlance, closely analyzing and questioning) texts and textbooks (Freebody & Luke, 1990; Lewison, Flint, & Van Sluys, 2002). Students are encouraged to ask questions about how the world is being portrayed in a text, whose voices and experiences are represented, and how these portrayals benefit particular groups in society (Lankshear, 1997). They might, for example, read for evidence of ethnocentric interpretations of history. They might also analyze how an author's decisions around language position readers to identify with particular characters or ideologies in literature. Students also develop counternarratives that include less dominant perspectives on issues and texts (Lewison et al., 2002). Questions for a discussion might include: Whose interests are served by this text? Whose interests and views are marginalized or absent? What ideological assumptions does the author make?

Although it extends beyond critical literacy, Freebody and Luke's widely used Four Resources Model was developed during this period when literacy theory and practice took a sociocultural turn (Freebody & Luke, 1990; Luke & Freebody, 1999). Freebody and Luke suggest that, depending on a wide range of contextual variables (e.g., pedagogical context, purpose, perceptions of consequences), readers engage with text by taking on four roles:

- *Code breaker*: cracks the code or cipher by working from the material form of the text, such as print-symbol-sound relations and punctuation, mapping spellings to sounds and vice versa, and associating a representation of the word form with its common meaning
- *Meaning-maker*: generates and integrates the communications of a text into a message, including the knowledge required to understand it
- *Text user*: focuses on the pragmatics of use—what function a text serves in the social contexts in which reading occurs
- *Text critic* (originally called "text analyst"): takes a critical stance, unpacking the social, economic, ideological, moral, emotional, and political assumptions behind a text and the consequences of using it

These roles hearken back to periods in our history that have emphasized particular resources in comprehension. Two of the roles, the code breaker and meaning-maker, remind us of the text-centric and reader-centric eras, respectively; the text user and text critic stances are solidly in the context-centric camp of critical literacy and other more socially driven models. The text critic role, in particular, acknowledges the social dimensions of comprehension by taking into account the fact that authors—text makers—operate from particular perspectives and that seeing those perspectives at work in texts is an important part of making and reworking meaning.

A MODERN ERA OF BALANCE: CONSTRUCTION-INTEGRATION MODELS

Even as more socioculturally oriented models were earning their theoretical and practical stripes in the world of reading theory and pedagogy, cognitive models from the 1970s that made reader and text variables more prominent did not disappear; to the contrary,

these models underwent constant revision and refinement on another theoretical plane throughout the 1980s and 1990s. The newer models achieved a greater balance between reader and text variables than did earlier text- or reader-centric models. Thus, they avoided the critiques that had begun to be leveled at schema theory from both inside (McNamara, Miller, & Bransford, 1991) and outside (McVee, Dunsmore, & Gavalek, 2005) the field of cognitive psychology.

Over the past 3 decades, reading comprehension theory has been dominated by a quest to understand how readers construct multiple representations of what a text means (Graesser, Wiemer-Hastings, & Wiemer-Hastings, 2001). This quest has resulted in a number of cognitive models that make somewhat different claims about the construction of these representations and about the particulars of inference-generation in the process of construction. Despite differences in their details, these theoretical cognitive models are rather consistent in many respects (e.g., Goldman, Graesser, & van den Broek, 1999; Ruddell & Unrau, 2004). For this reason, in this chapter, we have adopted the language and constructs of Kintsch's (1998) Construction-Integration (C-I) model to illustrate the principles of these kinds of models in general. Because we will claim that the C-I model has become dominant in both cognitive psychology and applications to reading pedagogy, curriculum, and assessment, we will examine it in more detail than we have done for its ancestors.

The Nature of Reading in the C-I Model

In comparison with the text-, reader-, and context-centric models of earlier eras, the C-I model seems to us to be more balanced in terms of reader and text factors, with a lesser nod to contextual factors. The sizes of the circles in Figure 1.5 reflect this balance of attention to reader and text factors and the decreased dominance of context.

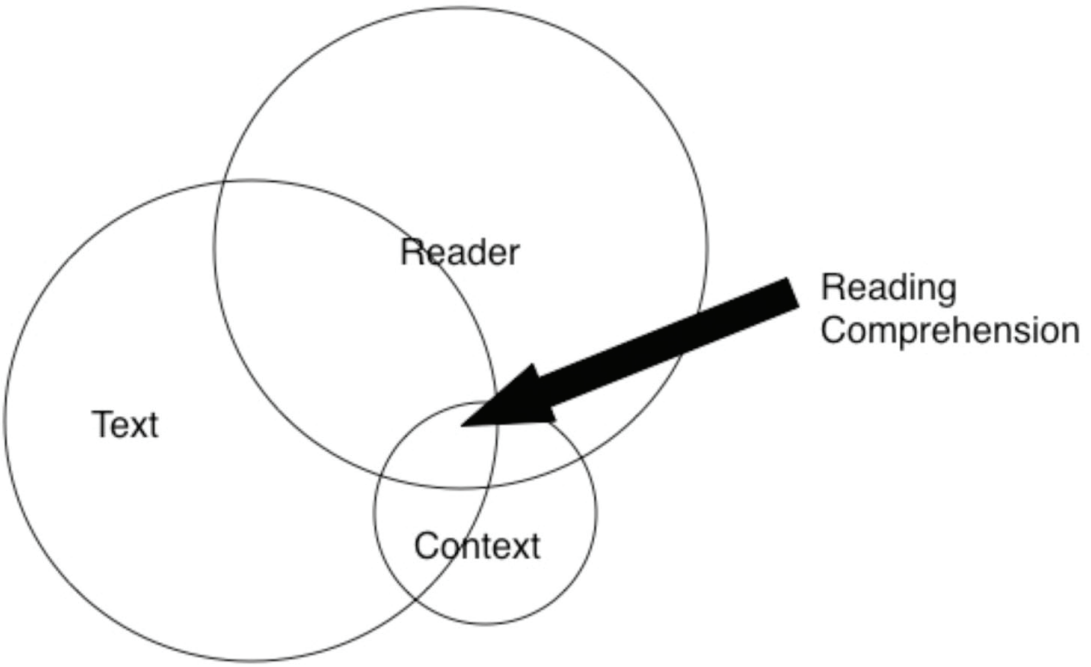
In this class of cognitive models, readers are viewed as actively seeking to create coherent mental representations of a text (Graesser, Singer, & Trabasso, 1994; van den Broek, 2010). As they create coherence, readers traverse three levels of text representation: (1) a *surface form*, (2) a *textbase*, and (3) a *situation model* (Kintsch, 1988, 1998).

The *surface form* captures the linguistic structure of the text, the actual words and phrases. It tends to be the result of accurate decoding, is short-lived in memory, and is not strongly related to comprehension per se, because it contains little semantic information.

The construction phase (the first of the two-phase model) is text-based and bottom-up. In this *textbase* phase, textual information activates the reader's background knowledge in an associative and relatively uncontrolled, almost automatic, manner (see also the memory-based model; Gerrig & O'Brien, 2005).

The initial activation is followed by the second phase—the integration phase— and is decidedly top-down; in this phase, activated knowledge and the information in the *textbase* are integrated into a coherent mental representation of the text. The product of this integration phase is the *situation model*. During integration, background knowledge supports connections between and to ideas from the text and provides the foundation for inferences. As readers proceed through a text, they generate many relevant and irrelevant inferences, but the semantic relations represented in the text constrain the process, activating only that knowledge needed to build a situation model and deactivate irrelevant inferences (Kintsch & Welch, 1991). That is, when text propositions and inferences align, they strengthen each other to build a coherent representation of the text. In this aspect of

Figure 1.5. Depiction of the Relative Salience of Reader, Text, and Context in Kintsch's Construction-Integration Model



comprehension—the process of integrating prior knowledge and text—the C-I model departs from earlier schema theory views in which knowledge, or schemata, guide readers' interpretations of text and scaffold the assimilation of information from text into their working memory and ultimately into their long-term store of semantic memory. In the C-I model, schemata also help constrain the chaotic process of inference-generation that occurs during the construction phase of comprehension. This subtle but important distinction is what prevents C-I models from the criticism of runaway inference-generation leveled at schema theories in the 1990s (see, e.g., McNamara et al., 1991).

Much research has been dedicated to identifying the processes, strategies, skills, and background knowledge that readers must have to arrive at a coherent situation model of the text. One important insight is that, although much of the processing that results in text representations is automatic, readers can exert more conscious coordination and leverage strategic problem solving when comprehension breaks down. In those instances, readers may strategically search and reactivate information from the preceding text (from memory or by reinspecting the actual text), and/or they may strategically search for and activate background knowledge (van den Broek, 1990). Effective readers know when their efforts to comprehend require such strategic interventions and what appropriate corrective steps might be (Baker & Brown, 1984; Cote, Goldman, & Saul, 1998). However, individuals vary considerably in their control over the corrective steps needed to repair comprehension when it goes awry, and many readers need instruction to learn to use strategies effectively (Kintsch, 2004). Hundreds of correlational and intervention studies

have demonstrated that students who are explicitly taught to use comprehension strategies can apply them to new texts, leading to improved comprehension (National Institute of Child Health and Human Development, 2000). The inclusion of more comprehension-strategy instruction in reading programs attests to the influence of the C-I model (Block & Pressley, 2002; Dole, Duffy, Roehler, & Pearson, 1991; Rapp, van den Broek, McMaster, Kendeou, & Espin, 2007).

Although the C-I model appears at first glance to focus mainly on the interaction between reader and text, implementation of the skills and processes required for the development of situation models is also influenced by the context—for example, the text genre, the discipline of the text (history vs. physics or literature), and the reader's goals (Kintsch, 1998). Some C-I models also include somewhat more explicit attention to context. For example, Graesser, Millis, and Zwaan (1997) add two levels of representation to Kintsch's model—(1) a text-genre level involving the nature of information and the way information is presented in accordance with different text genres, and (2) a pragmatic-communication level, which refers to the communicative context of the text and the intentions of its author. Texts that are written to convey information might prompt different reader stances from those written to amuse readers. Even so, in C-I models, compared with the role of context in sociocultural models, context plays a modest role.

The Impact of C-I Models on Policy and Practice

The C-I model, as Kintsch (1998) and others (e.g., Linderholm, Virtue, van den Broek & Tzeng, 2004; Perfetti, 1999) have explicated it, has become the dominant paradigm in explaining conceptualizations of both basic processes and pedagogical practices for reading comprehension. To test this claim, we examine three important policy contexts—(1) the RAND report produced in 2002 as a seminal account of our knowledge of reading comprehension, (2) the latest reading framework of the National Assessment of Educational Progress (NAEP; National Assessment Governing Board—NAGB, 2008), and (3) the model of comprehension underlying the Common Core State Standards for English Language Arts (CCSS ELA; NGA Center for Best Practices & CCSSO, 2010).

RAND Model

As Rumelhart (1977) and Lipson and Wixson (1986) did in their interactive models, the RAND (2002) panel defined reading comprehension as "the process of simultaneously extracting and constructing meaning through interaction and involvement with written language" (p. 11). The panel went on to suggest that comprehension entails three primary elements:

- The *reader* who is doing the comprehending
- The *text* that is being comprehended
- The *activity* in which comprehension is a part (p. 11)

The reader and text factors are very similar to those we have discussed in examining C-I models. Significantly, the RAND panel acknowledged that the interaction of the three primary elements occurs within a sociocultural context "that shapes and is shaped

by the reader and that interacts with each of the three elements" (p. 11) (see Figure 1.6.). The RAND definition emphasizes the salience of both the text (extracting meaning) and the reader (constructing meaning) through interaction with written language (the activity). The position of the text in the RAND report is telling: "We use the words extracting and constructing to emphasize both the importance and the insufficiency of the text as a determinant of reading comprehension" (p. 11).

The factors of reader, text, and activity are familiar in the strong cognitive traditions of the 1970s and 1980s and in the current C-I models. However, attention to context in contemporary models provides some twists to our analysis of comprehension that show a strong trace of the sociocultural turn of the 1990s. In characterizing the RAND view of sociocultural context, Pearson, Valencia, and Wixson (2014) argue that context extends to physical location (school, work, or home), discipline (science, literature, or social studies), and purpose (reading to learn, to be entertained, or for insight, or reading for gist or details).

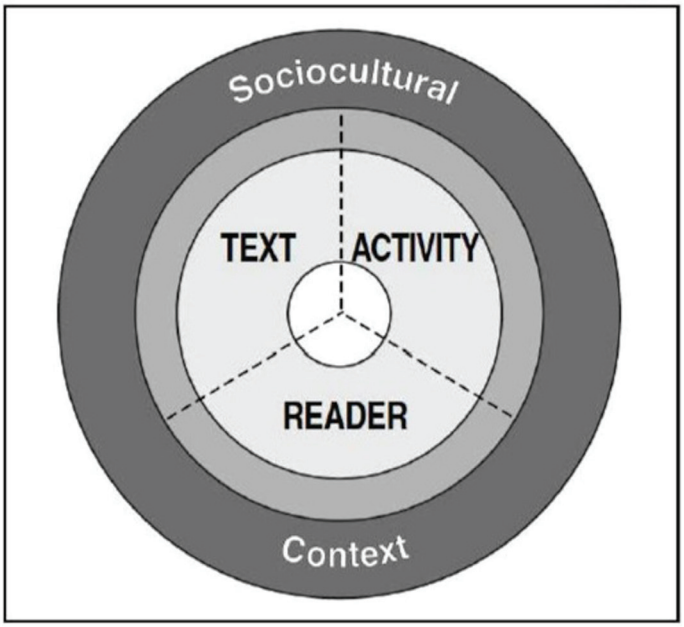
The NAEP Framework

The recent framework developed for the reading assessment of the *National Assessment of Educational Progress* (NAGB, 2008) puts forward three key cognitive targets that must be assessed: (1) *locate and recall*, (2) *integrate and interpret*, and (3) *critique and evaluate*. The types of activities assigned to the *locate and recall* category are decidedly text-based and correspond roughly to the sort of activities we identified as dominant in the text-centric period before the cognitive revolution. The *integrate and interpret* activities bear an uncanny resemblance to those we associated with the reader-centric models of the 1970s and 1980s and seem consistent with the practices in which readers engage in the creation of a situation model in the integration phase of C-I models. Not surprisingly, the NAEP tasks that earn the *critique and evaluate* label fall more naturally into the activities associated with critical literacy as it emerged in the 1990s, complemented by examinations of author's craft tasks that have always been associated with literary analyses of text. There is no exact counterpart for *critique and evaluate* in the C-I model; however, such activities seem to carry the sense of *using* or *applying* knowledge that is stored in memory, at least in part as a result of having placed new knowledge acquired from reading (and learning from) text into memory. And, of course, the metaphor of the reader as a *text user* or *text critic* is implicated strongly in almost all instantiations of critical literacy (e.g., Freebody & Luke, 1990), including the NAEP's target, *critique and evaluate*. In a sense, the NAEP framework, at least in its three cognitive targets, embodies the history of reading comprehension over the past half-century. That said, its links to the C-I models from the cognitive tradition are more transparent and stronger than its links to other models from other eras.

The Common Core State Standards for English Language Arts

A surface-level analysis of the reading standards in the CCSS ELA permits the conclusion that its anchor standards for reading are consistent, at least in broad strokes, with current C-I models of reading comprehension (note: we omitted Standard 10 on text complexity from the CCSS ELA to focus on comprehension). Broadly speaking, the CCSS' parsing of

Figure 1.6. The 2002 RAND Model of Reading Comprehension



Note: In contrast to earlier diagrams, context is now in the surround and activity (the tasks in which we ask students to engage) has been added as a key variable at the core of comprehension.

the nine reading comprehension standards into three overarching categories (Key Ideas and Details, Craft and Structure, and Integration of Knowledge and Ideas) (see Table 1.1) roughly corresponds to the three NAEP categories, but the mapping is a little tricky.

Examination of the CCSS. The standards in the Key Ideas and Details category bear a close family resemblance to NAEP's first cognitive target: locate and recall. But the standards in the Craft and Structure category bear more resemblance to NAEP's third cognitive target (critique and evaluate) than they do to the second NAEP target (integrate and interpret). Conversely, the standards in the CCSS category Integration of Knowledge and Ideas are a better match for the second NAEP cognitive target (integrate and interpret). What students are asked to do in the Key Ideas and Details standards sounds very much like a C-I description of constructing a textbase. And most of the tasks outlined in the Craft and Structure and Integration of Knowledge and Ideas standards represent things readers would do either (1) in the integration phase of C-I (where readers create the situation model), or (2) using the knowledge, most likely gained as a result of creating the situation model, to apply to a new issue or problem. Pearson (2013) found that the mapping to the C-I model was distributed across the three CCSS categories in complicated ways. So, for example, Standards 1–3, 5, and 8 focus on a close reading of the content on the page—a text-based orientation. Standards 2, 7, and 9 foreground the integration of ideas (1) within and across texts and (2) with existing knowledge—classic situation model work. Still other standards focus more on analysis and interpretation (e.g., comparing the text at hand with prior texts in Standard 9, critiquing text-based arguments in

Table 1.1. College and Career Readiness Standards from the Common Core State Standards for English Language Arts

Cluster	Standard
Key Ideas and Details	1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text. 2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas. 3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text.
Craft and Structure	4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone. 5. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole. 6. Assess how point of view or purpose shapes the content and style of a text.
Integration of Knowledge and Ideas	7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words. 8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence. 9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

Standard 8, or inferring point of view in Standard 6); they have the look and feel of what NAEP would classify as examples of the *critique and evaluate* target and what Freebody and Luke (1990) call text user or text critic standards.

Another strong but often overlooked connection between C-I models and the CCSS is the centrality of knowledge acquisition. The whole point of the C-I model is to describe how readers transform the information represented by words on a page into a semantic code that allows it to be integrated into long-term semantic memory, where it will endure as knowledge that is available for all sorts of cognitive enterprises, including guiding future text-based construction and situation model integration efforts. In accounting for the role of knowledge in the standards, Cervetti and Hiebert (2015) note that the CCSS developers call for a curriculum that is "intentionally and coherently structured to

develop rich content knowledge within and across grades" (NGA Center & CCSSO, 2010, p. 10), because a foundation of knowledge in core subjects makes students better readers and writers across content areas.

Entailments and interpretations of the CCSS. Clearly, we are convinced that many, and perhaps most, of the recent developments in reading policy and practice—most notably, the RAND report, NAEP framework, and the CCSS—have been heavily and positively influenced by the C-I model of reading comprehension. However, when one shifts attention away from the official CCSS to documents that have been developed to guide interpretation and implementation of the standards (e.g., S. Brown & Kappes, 2012; Coleman & Pimentel, 2012), the mapping is less transparent and more complex. The Publishers' Criteria (Coleman & Pimentel, 2012), in particular, a document written by the main CCSS-ELA authors to advise publishers on how to craft new materials to implement the standards, seem to have found a way to undermine the standards themselves. A review of these criteria, all of which point to construction of a text base, leaves one wondering what happened to the integration phase of the C-I model. For example, the criteria state that a significant percentage of the tasks and questions that students encounter should be text-dependent, meaning they "do not require information or evidence from outside the text or texts; they establish what follows and what does not follow from the text itself" (p. 6). Further, the criteria specify that publishers should "make the text the focus of instruction by avoiding features that distract from the text . . . [and] should be extremely sparing in offering activities that are not text based" (p. 10).

We find these developments in the implementation work of the CCSS quite discouraging: They represent an intellectual betrayal of the commitment the standards make to theory and research about the comprehension process—namely, the *balance* among tasks that promote the development of three related capacities:

- Constructing a solid text base
- Building a rich situation model that permits integration with knowledge and the building of new knowledge
- Using what you know to engage in a range of critical thinking and application tasks around text

We can only hope that voices championing the absolutely essential balance among construction, integration, and use (almost a "what the text says, means, and does" philosophy) will prevail in the process of implementing these standards. Whether they will remains to be seen.

SUMMARY, REPRISE, AND PROJECTIONS INTO THE NEAR FUTURE

To summarize this journey through the past half-century, we end with a bold claim—namely, that a conceptualization of reading exists that actually provides a kind of grand synthesis of the various historically important views of reading comprehension processes and practices that we have unpacked in this chapter. We think Freebody and Luke's Four Resources Model has the right balance of reader, text, task, and context to serve both as a summary of our journey and as a tool for crafting sensible, research-based curricula (see Underwood, Yoo, & Pearson, 2007).

The Importance of the Four Resources Model

In their model, Freebody and Luke (1990) assert that readers assume four very different roles or stances as they read—the code breaker, meaning-maker, text user, and text critic—and that each role emphasizes a particular resource—the reader, the text, the task environment, or the sociocultural context (hence, the label: Four Resources). Luke and Freebody (1999) analyze each of these resources (or roles, as they sometimes label them) as "descriptions of the normative goals of classroom literacy programs." In enacting these four roles, readers:

- *Break the code* of written texts by recognizing and using fundamental features and architecture, including alphabet, sounds in words, spelling, and structural conventions and patterns
- Participate in understanding and composing *meaningful* written, visual, and spoken texts, taking into account each text's interior meaning systems in relation to the reader's available knowledge and experience of other cultural discourses, texts, and meaning systems
- *Use texts* functionally by traversing and negotiating the labor and social relations around them—that is, by knowing about and acting on the different cultural and social functions that various texts perform inside and outside school and understanding that these functions shape the texts' structure, tone, degree of formality, and sequence of components
- *Critically* analyze and transform texts by acting on knowledge that texts are not ideologically neutral—that they represent particular points of views while silencing others and influence people's ideas—and that text designs and discourses can be critiqued and redesigned in novel and hybrid ways

The four resources provide a rough summary of the historic shifts in theoretical views of the reading process we have outlined in this chapter. Prior to the mid-1970s, the field of reading education was dominated by "perceptual" views of reading that emphasized the idea that reading comprehension is the product of decoding and listening comprehension. In this "simple view," reading is essentially a process of decoding print to speech and listening to the product to achieve understanding. This is the reader's role as *code breaker*.

The 1970s brought to center stage psycholinguistic and cognitive perspectives (see Anderson & Pearson, 1984; Pearson & Stephens, 1993) and, with them, the idea of the reader as *meaning-maker*. What mattered most was the reciprocal relationship between knowledge and comprehension. Readers use their knowledge in active ways to control the reading process, always seeking congruence between what they know and what passes before their "eyes" in reading. Knowledge is the cause and the consequence of comprehension.

The sociolinguistic perspectives of the 1980s and 1990s (see Heath, 1983; Wells, 1986) championed functional views of reading—how the social and cultural *contexts* in which the reading actually occurred shaped the sense of what was "appropriate." Thus, retelling a story to a friend who asks what a book is about requires a different "performance" from giving a formal "plot-theme-characters" retelling in a 9th-grade literature class. In the *text user* role, the reader literally has to learn to "read context" as well as reading text.

Although there have been critical perspectives that challenge the structuralist assumptions in "modern" views of epistemology and ontology for centuries, it was not until

the 1990s that postmodern perspectives (Foucault, 1980; Giroux, 1991) assumed a dominant role in the discourse of reading education. By that time, the term *reading* had been nearly universally replaced by the broader and more contextualized term *literacy* (see Gee, 1987). A key understanding is that texts are inherently "interested"; that is, they are written by individuals (or groups) with intentions, conscious or unconscious, that are conveyed through text. Furthermore, it is "interested" individuals, who bring their own histories to the act of reading at many levels—idiosyncratic, social, and cultural. Hence, all acts of literacy—in addition to being verbal acts of communication—are social, political, or economic. In the role of *text critic*, the reader asks: In whose interests is this text written? Who are the champions? Who are the villains? Who is invisible?

We think the power of the Four Resources Model is in its implication that it is not only unnecessary, but also unwise, to make a choice among the resources that are available to readers as they try to make sense of text. Our view is that when readers approach a text, they bring all four stances, all four resources, to the task. And within a given text, there will be stretches where one reads as if code-breaking matters most, especially when the text is dense, the words unfamiliar, and the graphemic patterns obscure. In other stretches, readers will put most if not all of their cognitive energies into making connections with whatever knowledge bases they carry in their long-term memory. In those instances, understanding what's new in terms of what they already know—and then asking themselves what they learned to enhance their current knowledge base—will be what really matters. There will also be other stretches when readers emphasize the uses and functions of text to try to see how authors do their magic of persuading readers to take their messages seriously. In such cases, the reader emphasizes both function (What is the author trying to say?) and form (What tools of the craft is the author using to achieve her ends?). Finally, in other stretches, readers will focus almost entirely on critique, evaluation, and subtext, and will ask: What is the author's ulterior motive? What assumptions does she make? And how can the reader talk back to those assumptions? Each of the four resources is necessary, but not sufficient, to contend with the reading demands of schooling and citizenship.

All of these resources, along with the stances they bring with them, are part of what it means to be a complete reader. Until and unless educators realize this, they are likely to be doomed to a lifelong cycle of repeating each of these models in serial fashion. Each of the resources deserves pedagogical emphasis in classrooms, but ultimately they all need to be brought together for learners into a coordinated meaning-making process. What the literacy education profession should begin to do is to build pedagogy and curriculum that emphasizes flexible, nimble approaches to reading that encourage students to view texts from different stances, depending on their purposes and on how they read the opportunities and obstacles all around them.

Implications for Schools and Classrooms

Clearly, we are committed to the multiperspective view that comes with accepting the Four Resources Model. But the question for educators at the district, school, and classroom level is whether acceptance of a model like this will affect and, we hope, improve the ways in which they facilitate and teach comprehension. We think it will; in fact, we would not have written this chapter if we didn't think so. The question is, how?

First and foremost, reading comprehension instruction, when implemented with the Four Resources Model as the driving force, demands that students use all of the available resources to make sense of text and learn to take more than one stance toward text, if not in a single lesson then definitely across lessons. There is no one right way to understand either a single text or text in general; all of the stances in the Four Resources Model have a place in making meaning during reading and, therefore, in the curriculum designed to help students make sense of texts. Which stance a teacher emphasizes on a particular day or in a given moment will depend on the teacher's purpose for the students in the precise situation.

The Four Resources Model suggests that there is more than one stance from which to make sense of a text. If this is true, then it follows that for any given question, task, or practice, there is always more than one *right* answer, or at least more than one *plausible* answer. Interestingly, this implication that questions always have more than one right anwer can be derived as easily from a perspective that suggests that text-based, reader-based, and context-based conceptualizations of comprehension all have something to offer the classroom teacher in terms of helping students negotiate the meaning of texts they encounter. Thus, classroom discussions of text must be open to multiple interpretations of a text—and even multiple interpretations of a question asked about a character's motives or the real purpose behind an author's point of view. Another implication is that when teachers are reading students' assignments, they need to look not for the one answer they think is correct or best for a given question but for the quality of the reasoning students provide when they explain their answers. A marginal answer with a great line of reasoning behind it might (and we think should) deserve a higher score than a technically correct answer with no rationale for why it is a good answer. (We acknowledge, of course, that a highly plausible response that also has a great line of reasoning would be even better!) In terms of the CCSS-ELA, a focus on quality of reasoning is desirable precisely because quality of reasoning that links a student's claim to evidence is more important than just giving the right answer. And this isn't just a criterion for middle and high school students; it applies equally to conversations and assignments in kindergarten or 1st grade.

Earlier, we discussed the high likelihood that implementation efforts for the CCSS had actually betrayed the intent of the standards themselves, particularly when it comes to understanding the role that prior knowledge plays when students build models of meaning for texts or deciding what counts as close reading of a text. That likelihood bears grave consequences for instruction around text, particularly instruction designed to ensure that kids get a real chance to explore the text as

- a resource for enhancing one's knowledge,
- a source of evidence for supporting opinions about a character's motives or claims about how a scientific process works, and
- an opportunity to evaluate how an author is manipulating language and perspective to persuade readers to accept her point of view on an environmental issue.

One final point: If we as a profession accept the Four Resources Model—and along with it, a commitment to examine reading from the perspectives of the text, reader, *and* context—then we must find a way to engage *all* readers, not just our most able readers,

in traversing *all* four of the resources every day and every week. We must avoid the trap of assuming that there is a hierarchy or an order of acquisition to the resources—that students must first master the code breaker stance before they get opportunities to engage text as a meaning-maker, a text user, or a text critic. It would be easy, and even appealing, to assume that each resource was logically a prerequisite to its successor. If we fell into that trap, we would end up implementing a kind of basic skills conspiracy of good intentions. The conspiracy goes like this: First, you have to get the *words right* and the *facts straight* before you can do the *what if's*, *I wonder what's*, and the *says who's* of text understanding. The problem with the basic skills conspiracy is that students on the low end of the performance continuum will end up spending most of their school careers getting the *words right* and the *facts straight*—and they'll never get to the *what if's*, *I wonder what's*, and the *says who's*. Putting an end to this inequitable conspiracy would be an important step toward bringing opportunities for richer engagement with text to all students.

NOTE

1. We use the term *model* as a metaphor for a general framework for organizing and describing factors that influence the phenomenon under examination—in this case, reading comprehension. For a more refined treatment of models of reading, see Chapter 3 by Michael L. Kamil in this volume.

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CHAPTER 2

The Use of Research in Federal Literacy Policies

Barbara Kapinus and Richard Long

This chapter identifies the scope of federal educational policy and practices related to literacy from 1965 to the present. At the beginning of this period, the federal government provided resources to schools to compensate for an inadequate tax base, leaving states a great deal of discretion in how to allocate those funds. Individuals in government recognized that students needed improved reading opportunities if they were to escape the cycle of poverty in their communities—and reading opportunities required resources. Fifty years later, there is a far different federal role as the federal Congress and executive branch directs many state-level policies and practices that impact classrooms across the nation. For example, federal funding or the withholding of funds is used to compel states to adopt and enforce more complex standards, processes for the evaluation of teachers and principals based on student assessments, and use of data to make key decisions.

Our focus in this chapter is on federal policies that have to do with reading and literacy. As will become evident as we progress through our review of the federal government's evolving role during this 50-year period, many acts of Congress related to literacy have claimed underpinnings in the research of the literacy community, such as the scholars whose work fills this volume for example. However, what research is selected and how it is interpreted can take unique forms in the arena of federal policy (see also Goodman, Calfee, & Goodman, 2013).

THE RELATIONSHIP BETWEEN POLICY AND RESEARCH

Policymakers deal with what can be described as the art of the possible and practical, whereas academic researchers deal with explanations and connections that require reexamination and cautions about conclusions. The difference in perspective between policymakers and researchers is evident in an anecdote from Roller and Long (2001). One of the authors put a senior administration official in touch with a literacy researcher to provide an answer to a pressing policy question related to the proverbial phonics questions (how much, what kind?). At the end of a 20-minute phone call between the official and the literacy expert, the official said, "I really hate myself. That guy has spent his whole

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life studying and understanding this complex issue. He was very nicely willing to share the nuances and to help me craft an insightful decision. Unfortunately, I just needed to know yes or no" (p. 708). This anecdote highlights the stance of policymakers: Through politics, ideas and perspectives about education and instruction are translated into decisions about the use of resources, procedures for resource distribution, and measurement of the outcomes. Thus, when policymakers are working on federal and even state policies, the decisionmaking rule is simple: It is yes or no.

Frequently, policymakers recognize a need (often based on the work of journalists, economists, and/or public complaints) and seek a solution before education researchers have gathered solid evidence on how the need might be successfully addressed. This is evident in policies regarding high-stakes testing and teacher accountability that have—in our opinion as well as those of longtime experts in testing (Baker, Barton, Darling-Hammond, Haertel, Ladd, Linn, Shavelson, & Shepard, 2010)—been put into place without research evidence to support them.

REVIEW OF HISTORIC FEDERAL LEGISLATION SUPPORTING READING EDUCATION

The past 50 years have seen policymakers becoming increasingly involved in shaping instructional practice. A timeline of critical federal activities related to reading education appears in Figure 2.1. In the sections that follow, we describe some of these activities, especially those that set the stage for the implementation of the Common Core State Standards (CCSS; National Governors Association [NGA] Center for Best Practices & Council of Chief State School Officers [CCSSO], 2010).

Elementary and Secondary Education Act

The signing of the Elementary and Secondary Education Act (ESEA) in 1965 helped shape the federal role in creating national policy about the basic education of children in high-poverty settings and/or with home languages other than English. At the time the ESEA was passed, legislators and government officials were focused on whether inputs and outputs were equal for all students. The federal government was not collecting data on or evaluating what was actually happening to students in schools. Instruction was considered the realm of states and local educational agencies. Living in a home with incomes below the poverty threshold and/or where the dominant language was one other than English was viewed as a potential challenge to students' acquisition of a basic education. The evidence used to structure ESEA was simply that students in certain schools seemed to lack access to basic education. In most states, school funding was tied to state and local taxes. Schools in poverty-impacted communities had fewer resources than schools in wealthier communities. Policymakers at the federal level believed that providing funds for additional resources in these lower-income communities would solve the problem of lower achievement. Figuring out how to provide the instruction that would lead to improvement was left to local schools and states. When discussing the structure of the first ESEA, Wayne Morse, a U.S. senator from Oregon who has been a Republican, Independent, and Democrat during his 30 years in the Senate, stated, "We thought that all schools needed was money, that they knew what was needed to help high need students" (Cross, 2010, p. 21).

Figure 2.1. A Timeline of Critical Federal Activities Related to Reading Education

Selected Activities	Year
Elementary and Secondary Education Act (ESEA)	1965
National Assessment of Education Progress (federal funds)	1968
Education for All Handicapped Children Act (EHA)	1975
Nation at Risk	1983
Charlottesville Summit	1989
Comprehensive School Reform	1998
Reading Excellence Act	1998
National Reading Panel	1999
No Child Left Behind (ESEA Reauthorization)	2002
Reading First	2002
Individuals with Disabilities Education Act (EHA reauthorization)	2004
Race to the Top (stimulus act)	2009
Promised Neighborhood Act	2010

The basic concept of the original ESEA program was that compensatory programs could provide resources to fill the needs or gaps in certain schools that lacked books, staff, and curriculum resources they needed to give all their students access to a solid, basic education. There was little direct evidence that this was the correct intervention strategy or that it would even work.

Indeed, by the later part of the 1960s and early 1970s scholars and analysts who were studying evidence from ESEA came to believe that the approach was inappropriate or, at the very least, inadequate (Jencks, 1974). However, with minor changes, the idea of compensatory education, with its remedial thinking, remained the central focus of the ESEA for almost 40 years as Congress renewed the act six times. But when the act appeared before Congress for the seventh time in 2001, the focus of the act was changed and given a new name, the No Child Left Behind Act (NCLB).

REA and CSRD

Not everything was static in the period between the initial passage of ESEA and the enactment of NCLB in 2002. Change had been encouraged by the landmark report *A Nation At Risk* (Gardner, 1983). This report, commissioned by the U.S. Secretary of Education, concluded that the nation's very well-being was linked to the quality of its schools, not simply equal access to resources. The national discussion of education policy focused on the idea that providing access alone (equity) was no longer the sole feature for successful federal programming; rather, quality needed to be included in program provisions, along with access and quality.

As the undersecretary and acting deputy secretary of the U.S. Office of Education from 1993 through 2000, Marshall Smith was instrumental in crafting and supporting the passage of two acts that would provide a foundation for the NCLB legislation. Smith and his associates called for an examination of the contents of Title I, a section of ESEA, and its alignment with critical research findings (Marshall Smith, personal interview, 2009, as reported in Long & Selden, 2011). Reports commissioned by the U.S. Office of Education (e.g., Rotberg, 1993) brought expert recommendations from policy analysts and researchers. These recommendations were later used in the rationale for the Reading Excellence Act (REA) that was passed in 1998 through a major lobbying effort by Reid Lyon at the National Institute of Child Health and Human Development.This law required schools to use scientifically research-based reading, which culminated in the appropriation of the term *scientifically based reading research* (REA, 1998). The notion of scientifically based reading research would become even more central in the Reading First component of the NCLB legislation. Over time, the construct of scientifically based reading research would be extended and clarified in the concept of evidence-based education (Whitehurst, 2002). These developments introduced a new criterion for the use of federal funding through Title I of ESEA; instructional practices selected for use in federally funded programs had to be based on empirically validated research.

An additional legislative act passed in 1998, the Comprehensive School Reform Demonstration (CSRD) Act, was similar to the REA. It helped lay the foundation for the policies of NCLB. According to the CSRD, a school district's allocation of ESEA funds would no longer be based simply on its demographics and the submission of a plan. The CSRD stipulated how schools could spend funds, and it also required districts submit plans to the U.S. Department of Education for the use of the federal funds to support both instruction and professional development. Moreover, these proposal efforts needed to be based on evidence—that is, research involving experimental or quasi-experimental design.

No Child Left Behind (NCLB)

In 2002, NCLB built on the ideas that underlay the REA and CSRD. First was the idea of scientifically based reading research of REA, which would be represented prominently in the Reading First portion of NCLB (see McCardle & Chhabra, 2004; Whitehurst, 2002). The second idea was the CSRD notion that schools should be held accountable for the progress of groups of high-need students, not just the "average" progress of students in a school. This meant giving increased attention to assessments and analyses of student outcomes on these assessments, especially for economic and cultural subgroups.

With the NCLB legislation, the federal government put in place two tools to ensure that particular types of changes were occurring in schools receiving federal funding. Based on views held by the senior democratic and republican education committee leaders that previously legislated programs had led to insufficient improvement in reading and mathematics, NCLB had a detailed and extensive accountability mechanism. Recipients of NCLB funds would not be responsible for monitoring their own progress. Instead, the act required states and districts receiving Title I funds to meet particular adequate yearly progress (AYP) goals for their total student populations and for specified demographic subgroups, including major ethnic/racial groups, economically

disadvantaged students, limited English proficient (LEP) students, and students with disabilities. Schools that failed to meet AYP goals for 2 or more years would be classified as "in need of improvement" and would face steadily escalating consequences. These consequences included school transfer options: Parents of students in a school could choose to transfer a child to another school, one that was not identified as being in need of improvement. After 3 or more years of failing to meet AYP, supplemental services (tutoring or other extra education services that provide academic aid to students) would be provided. After 4 consecutive years of failing to meet AYP, corrective actions, such as replacing school staff, implementing new curriculum, or extending the school year or school day, would be put in place. After 5 consecutive years of failure to meet AYP, a school needed to be restructured with alternative plans; some of these plans include the reopening of a school as a public charter school or replacing all or most of the school's staff, including the principal. Federal funding for states, districts, and schools was contingent upon an agreement between the federal government and the states to accept the legislative requirements. All of these directives marked a major shift in the role of the federal government and the U.S. Department of Education in the conduct of schooling at the state and local levels.

It is notable that there was more focus on research-based evidence in the Reading First portion of NCLB than in the other parts of that legislation, such as testing and adequate yearly progress. The guidelines for Reading First required states (and their districts) to adopt an entire process for reading education based on the interpretation of research by a particular group of researchers and educators. This group, known as the National Reading Panel (NRP), reviewed a large body of research on learning to read and distilled it into five essential elements of reading that schools and classroom should address: (1) phonics, (2) phonemic awareness, (3) vocabulary, (4) fluency, and (5) comprehension. This work appeared as the *Report of the National Reading Panel Teaching Children to Read* (National Institute of Child Health and Human Development, 2000).

The NRP's findings were strongly questioned when they were first published (Calfee, 2014; Pressley, 2005; Pearson, 2004). But at the time of the release of the NRP's report, officials within the Reading First management and subsequently leaders and policymakers in states, districts, and schools, mandated compliance with the five elements or, as they came to be called, the five pillars required for success in learning to read. There are indications that U.S. Department of Education officials and some experts reviewing state applications for Reading First pressured states and districts to adopt specific programs, curriculum materials, and assessment tools, contrary to the legislation's directives that prohibited the U.S. Department of Education from making curriculum decisions (Manzo, September 7, 2005, November 9, 2005). In September 2006, an internal review by the Department of Education's Office of Inspector General (OIG) found that the Reading First program exhibited conflicts of interest. Some of the consultants hired by the Department of Education to train teachers and state department of education personnel were also coauthors of certain reading programs. After publishing a series of seven reports on the mismanagement of Reading First—and referring the matter to the Justice Department—the OIG requested the U.S. Congress to clarify what was meant by "scientifically based" and whether it was enough for a program to contain elements that have been researched or if a program itself had to have been researched.

The Common Core State Standards

Since 2010, another development within the policy arena has added to how decisions on curriculum and instruction are made and who makes them: the creation of the CCSS, which were adopted by 45 states, the District of Columbia, the Department of Defense Education Activity, and 3 U.S. territories by December 2013 (NGA Center for Best Practices & CCSSO, 2010). As of the writing of this chapter (June 2014), a number of states have either reversed their adoption of the CCSS and/or dropped out of the CCSS-aligned assessment consortia (Partnership for Assessment of Readiness for College and Careers [PARCC] and Smarter Balanced Assessment Consortium [SBAC]), declaring their intention to create their own standards and assessments. The motivation for this shift appears to be concerns about retaining educational control by stakeholders within individual states (Gewertz, 2014; Ujifusa, 2014). The guidelines found in the CCSS are more inclusive than the NRP or NCLB when it comes to what evidence is considered critical for defining and achieving successful reading competency.

Background for the Standards. The impetus for the CCSS can be traced to the initiation of state-by-state comparisons on the National Assessment of Educational Progress (NAEP), which began in 1992 measuring the number of students reading on grade level. State-by-state comparisons made it possible to see how a representative sample of students in a particular state performed relative to students in other states. When the majority of students in some states were found to be proficient in reading according to their state assessments but many of those same students failed to attain proficient status on the NAEP, educational scholars and analysts began to question the standards individual states were using to assess their students. The National Center for Education Statistics (NCES) conducted an analysis of proficiency standards in states and on the NAEP (Bandeira de Mello, Blankenship, McLaughlin, & Rahman, 2009). Bandeira de Mello et al. reported that 31 states set standards for proficiency in grade 4 reading that were lower than the cut point for the basic performance level on the NAEP. For grade 8 reading, 15 states set lower standards of proficiency than the basic performance level on the NAEP.

The federally mandated assessment, NAEP, may have been an impetus, but the work of creating a common set of standards emanated from state policymakers—both governors and chief state school officers. Variable standards became a topic of conversation at meetings of the NGA and the CCSSO. As chair of the NGA in 2006–2007, then-governor of Arizona Janet Napolitano wrote an initiative, as other chairs of the association had done before (and have continued to do since). Napolitano's initiative emphasized improving math and science education and the workforce. To remain competitive in the global economy, Napolitano argued, the United States needed an internationally competitive education system. Particular countries that showed high performances on international assessments, such as the Programme for International Student Assessment (PISA) and the Programme for International Reading Literacy Study (PIRLS) (e.g., New Zealand and Singapore), had national standards for education. Analysts have not been able to make a causal link between national standards and high achievement on international assessments because there is not sufficient control over data collection. However, at the time, the Napolitano argument resonated with many education policymakers who believed that for students to have the opportunity to compete in world markets, the United States needed similar high-level standards across the country, not just in certain localities.

Another compelling argument for common standards was the apparent lack of preparedness among U.S. students for college and career after high school graduation (Rothman, 2011). A 2004 study by ACT, an organization producing college admissions tests, found that alarmingly low percentages of students were ready for college courses or the demands of the workplace.

Following the early discussions on the need for national standards, Napolitano created a task force that consisted of chief state school officers, governors, corporate chief executive officers, and experts in higher education. In December 2008, this task force released a report (NGA, CCSSO, & Achieve, 2008) that called for common standards for U.S. schools and served as the foundation for efforts to develop what would eventually become known as the Common Core State Standards.

Shortly thereafter, the NGA, the CCSSO, and a nonprofit group called Achieve came together to bring the recommendations of the report into policy and practice. These three organizations were at the center of the effort, and they hired a group from Student Achievement Partners to write the Standards based on broad input from several committees and groups. Other national organizations, including the International Reading Association and the two largest teachers' unions (the American Federation of Teachers and National Education Association), were asked for input. Drafts of the standards were posted online, and organizations and individuals were invited to respond. According to one report, the CCSS development team received 10,000 responses to drafts of the standards (Bidwell, 2014).

Once the standards were completed in the spring of 2010, state legislatures began to adopt them. As noted earlier, by December 2013, 45 states, the District of Columbia, and 3 U.S. territories had adopted the CCSS. The initiative was not federal, although, as President Obama suggested in his 2013 State of the Union Address, federal Race to the Top funds[1] had been used to persuade almost every state to develop "curricula and higher standards" (Obama, 2013). Adopting the CCSS saved states the effort of doing the complex standards development work on their own. Further, the U.S. Department of Education showed support for the CCSS through the funding of two consortia to design and implement assessments that were aligned with the Standards. The consortia themselves were run by states, but a major portion of the original funding (approximately $330 million) came from the federal government in the form of Race to the Top funds (U.S. Department of Education, September 2010).

The relationship between research and the Standards. The membership of the team that was contracted to write the Standards—Student Achievement Partners—was not similar in background to the membership of the panel responsible for the report of the NRP that provided the rationale for at least some of the policies within NCLB. Of the 13 members of the Standards Development Work Team, three came from nonprofits and one came from a university (retired) (NGA, 2009). The remainder of the team came from for-profit entities. At the same time that the formation of the Standards Development Work Team was announced, a feedback team was also announced. Of this group of 18 members, 15 were researchers from universities, including two who had been members of the NRP (NGA, 2009). The other three members of the feedback group included a teacher and two individuals from nonprofit education think tanks.

In English language arts, the Standards Development Work Team developed a broad set of 10 goals for reading and 10 goals for writing that described what students should

know and should be able to do at the end of high school to be prepared for college or a career-entry job. These were termed the *anchor standards*. The grade-level standards for reading and writing were developed from these anchor standards. There were similar anchor standards for listening and speaking. The grade-level standards were designed to reflect progressions of skills and knowledge across the grades, a development in classroom practice that included formative assessment, curriculum maps, and carefully articulated sequences in student learning, referred to as "learning progressions" (Heritage, 2010; Jacobs, 1997; Popham, 2008). This was a departure from previous standards and frameworks that simply listed skills that should be addressed at each grade level.

The CCSS were intended to reflect research, but some people questioned whether important research had been considered (Pearson, 2013; Rothman, 2011). For example, the call to increase the complexity of texts was based on two studies—one based on texts from the 1950s through 1970s (Chall, Conard, & Harris, 1977) and the other summarizing text features from the early 1900s through the 1980s (Hayes, Wolfer, & Wolfe, 1996). The need for more complex texts for students in middle and high school was supported by research indicating that high school texts were often written at a low level that did not reflect the complexity in college texts. However, the idea of using complex texts, at least with beginning and early readers, was not based on a clear body of research (Gamson, Lu, & Eckert, 2013; Hiebert & Mesmer, 2013).

FEDERAL POLICY RELATED TO ASSESSMENT OF STUDENT ACHIEVEMENT

The federal government's involvement in both mandating and funding particular assessment programs has had substantial consequences for reading education over the past 50 years. From a period when there were no federal mandates regarding assessments to the present where state assessments through the two CCSS-aligned consortia have been developed with federal funds, the role of the federal government in the assessments that millions of schoolchildren take annually has brought about major changes in the daily lives of teachers and students in American classrooms.

The National Assessment of Educational Progress

From 1968 until 1992, the federal government provided an assessment of reading achievement nationwide, the NAEP. The results were based on assessments of representative samples of students conducted every 4 years. A group of experts and test developers created the assessment tasks. The NAEP in reading has collected and reported information on achievement gaps among socioeconomic groups. It also has used surveys of students, teachers, and administrators to provide data on resources and instructional practices in classrooms and schools. In that reporting, it raised early concerns about whether all students had equal access to effective education.

The development of the 1992 NAEP. In 1988, Congress mandated that NAEP results in reading would include voluntary, state-by-state reporting for grade 4 (National Assessment Governing Board [NAGB], 1992). The purpose was to determine whether states were supporting the achievement of all students, including those who were poor or from

minority groups. At the same time that Congress approved the reporting of state-level scores on NAEP, it also established a group to oversee the development of NAEP assessments and the reporting of the scores. This group was called the National Assessment Governing Board (NAGB). It included appointees by the president and Congress. Along with the National Center for Educational Statistics (NCES), which was part of the U.S. Department of Education. NAGB made final decisions on test design and reporting. In the early days of NAGB, efforts were made to have its members represent a wide range of perspectives. In our opinion, over time the members seemed to become more representative of the incumbent president and his advisors.

Because the 1992 NAEP in reading was supposed to report scores by state level, the development of that NAEP was highly publicized. Hoping to prevent partisan politics and specific ideologies from dominating the process, NAGB, working with Congress and the U. S. Department of Education, created panels with input from education organizations such as CCSSO. The purpose of one panel was to provide general guidance, while the second panel was responsible for creating the assessment. The composition of the groups was driven by the intention of using consensus among diverse stakeholders and experts to develop an assessment that was acceptable, and even attractive, to a broad range of informed stakeholders.

The resulting assessment made several changes in design from the previous NAEP reading assessments that were planned to enhance its appeal to those who were skeptical of state-by-state reporting and also to increase its construct validity. Longer texts, open-ended questions, and the NAEP Reader (a form of the test where students picked from an array of stories and answered general, open-ended questions about the story) were all attempts to reflect sound classroom practice in reading.

Research and the NAEP. The NAEP for 1992 reflected some specific research and practice. Research indicated that usually when proficient students read through longer texts, they develop understandings in a recursive sequence—forming a general idea of what the text conveys, building increasing understanding, and finally considering how and why an author created the text (Langer, 1990). Research also indicated that certain reading activities—such as summarizing and making inferences—were especially important in becoming a proficient reader (Dole, Duffy, Roehler & Pearson, 1991). The design and questions of the NAEP were also influenced by research that suggested students do not "get the meaning of text" but instead create an understanding based on what they already know and what the text conveys (NAGB, 1992).

Some reading research and practices were addressed in special studies conducted at the time the 1992 assessments were administered. These included determining how well students read orally as well as gathering information on the type of instruction they received and what kind of reading they did both in and out of school. These special studies were partly a way to examine aspects of reading that were not usually included in large-scale assessments because of technical, time, and financial constraints. They also were a means of gaining support from diverse groups in the education and policy communities. Subsequent NAEP reading assessment designs have changed the taxonomy but have not moved away from the general notion of reading being the process of constructing meaning from text. In addition, changes in NAEP reading designs have not had the broad-based input and review that the first state-by-state version in 1992 had.

Assessment and the CCSS

In 2010, as part of the federal Race to the Top funding effort, the U.S. Department of Education held a competition for funds to develop assessments to measure achievement of the CCSS. The developers were to be consortia of states. Two groups received funding: SBAC and PARCC. The federal guidelines required that the assessments being developed (1) be delivered on a computer-based platform, (2) be valid and reliable, and (3) be designed for use in teacher evaluation. The assessments were to be part of systems that include interim or formative assessment and professional development. Although the assessments are being developed by consortia of states, the federal role in framing the assessments is substantive, with regular monitoring of the progress and design of the tests.

Characteristics of the funded assessments. SBAC's effort includes computer adaptive summative assessments with performance or research simulation tasks as well as both constructed and selected response items. Most of the constructed response items are to be scored using artificial intelligence. The SBAC system will include optional, interim assessments delivered via computers that can be used by classroom teachers to monitor progress across the school year. There will be a digital library with professional development components on such topics as assessment literacy, formative assessment practices, and instruction related to the CCSS. The digital library will also include information on the summative assessment tasks, resources for using formative assessment, prototypes of instructional activities, and tools for using data from the summative assessments.

PARCC is developing a similar system. The summative, end-of-year assessment is delivered via computer but is not computer adaptive. It has optional diagnostic and mid-year assessments. It will include student research simulations, like SBAC's system, but it will be administered about three-quarters of the way into the school year and will be more extensive than those on SBAC. PARCC is also developing teacher resources.

If the majority of the states use SBAC and PARCC—assessments that are aligned to the CCSS and have features quite similar to the NAEP (such as long passages and open-ended responses)—then one could say that the original aims of NAEP (to provide a barometer of student performance in the nation as a whole) have been addressed. However, there is little, if any, public discussion of this issue, and the current departure of some states from the two federally funded assessment consortia make such a scenario unlikely in the near future.

Research and CCSS-related assessments. The SBAC and PARCC assessments are connected directly to the CCSS. The intent was not to create assessments that reflect transparent recommendations or findings from research on literacy and language, per se; instead the link to research was through the CCSS. Since the CCSS were themselves research-based, so goes the argument, a link to the CCSS is a link to scholarship (see Pearson, 2013, for a different tale about the strength of the research base for the CCSS). Perhaps because the CCSS were promoted as research-based, there has not been much consideration of additional research related to the construct of reading being used to develop the assessments.

An important distinction to note—one that has been ignored by several policymakers and journalists in recent comments—is that the CCSS, in both design and content,

can have a major impact on assessment design but not necessarily on assessment policy. Current federal policy requires all students in grades 3 through 8 to be tested and also requires the use of student test scores in evaluating teacher effectiveness (Layton, 2014; U.S. Department of Education, April, 2010). States can use either the new assessments being developed by the consortia or their own assessments. This assessment requirement is not a result of the standards; rather, it is a continuation of federal policy and policies that were in place in some states before the standards were even developed. The CCSS call for (1) integration of language arts, with reading and writing being closely linked; (2) close reading of texts; (3) providing text evidence of inferences; (4) complex texts; (5) expository texts; and (6) the use of language arts in research (especially integrating information across text in producing writing). Most of these skills cannot be adequately assessed using multiple-choice questions. Consequently, students are being asked to do research simulations, to construct as well as select responses to questions, to provide text evidence for their responses, and to produce relatively long writing that integrates information from multiple texts.

The passages used in the new assessments under development, especially the SBAC assessments, are not necessarily naturally occurring texts as in NAEP. This is partly because of the large number of test items required and the highly limited development time allowed by the Race to the Top funding guidelines. On the SBAC assessment, many of the stimulus texts are being written as part of the assessment development. This has been an essentially financial and logistical decision rather than a reflection of research. PARRC is trying to use naturally occurring texts, but deadlines and resources could prevent them from doing so.

Politics and Economics of the New Assessments of the CCSS

Teacher accountability is a major goal of many, and possibly most, education policymakers who are making decisions about funding and general guidelines for assessments that have recently been developed by the states or are under construction by the assessment consortia. Accountability has become a major factor in assessment design. The new assessments must allow teacher effectiveness to be calculated based partly (sometimes as much as 50%, depending on state-level policy) on the scores of students taking the new assessments. This has made psychometricians cautious about planning the types of items allowed on the assessments, the scoring of items, and the reporting of results. It also has made the groups guiding the design of the assessments cautious about using innovation. Consequently, most items are multiple-choice, although items are more complex than the types of multiple-choice items that have been used in previous assessments.

Financial constraints at the state level have also influenced the design of the new assessments, mandating efficient administration and scoring of assessments. Originally, SBAC (2011, 2012) indicated that there would be a substantive number of constructed response items on the summative assessment that would assess the "full range" of the CCSS and that teachers would be involved in the scoring. This practice would have provided teachers with a working knowledge of what students need to understand and do to be successful. Some states balked at the additional cost of this approach, so it was decided to create open-ended questions that mainly could be scored using artificial intelligence. This greatly limited the types of open-ended questions that could be included and also affected

the depth of processing or thinking that the items could require as well as the range of standards that could be assessed. For example, an open-ended question could be scored for the correct use of propositions, but not for the logic displayed.

Looking back, we can identify three trends since the 1988 legislation that changed NAEP into a state-by-state assessment. First, the focus has increasingly moved from national patterns to patterns among states. Second, state legislators, members of state boards of education, superintendents, and state department of education staff have become increasingly involved in the design of assessments at both the national and state levels. Third, there has been an increased effort to involve experts and stakeholders with a range of perspectives and interests. Language-minority groups and experts, special-needs advocates and experts, parents, and businesspeople have been asked to provide input. The current assessment consortia have invested numerous resources to meet the requirement that students with disabilities be accommodated and to attend to the needs of students for whom English is a second language. The involvement of a broader community stands in stark contrast to assessments from NAEP's development in 1968 and to state assessments of that time. During that period, the NAEP was essentially the product of advice from a relatively small group of experts (as few as a handful of scholars in the 1960s and 1970s to approximately a dozen in the late 1980s who worked with the staff of an organization (initially the CCSSO and later Educational Testing Service [ETS]) with input from the U.S. Department of Education through its NCES. By 1992, the NAEP had a steering committee of 15 members, had a planning committee of 15 members, and was subject to extensive review by state department of education staff.

There is even broader involvement of stakeholders in the current assessment consortia, SBAC and PARRC, which have numerous committees and work groups developing and reviewing the assessment design and items. More than a hundred teachers have been involved in each consortium in some aspect of the assessment work.

OBSERVATIONS AND THOUGHTS ABOUT THE FUTURE

This review of federal legislation of the past 50 years of education shows that research can be used as a tool in developing and implementing education policy. At the beginning in the early and mid-60s, research provided the impetus for legislation. For example, the impetus for the original ESEA legislation was research indicating that children who lived in high-poverty social communities were not performing as well as their counterparts from higher socioeconomic groups. Government leaders at the time believed that equity was a major goal of general policy and that education was the tool to achieve it. Directing how education was conducted was not the goal or the purpose of this early federal funding.

During the first four reauthorizations of Title I of ESEA (1964, 1966, 1968, and 1974) the *content* of instruction and the method of delivering content (including professional development to ensure that the appropriate content was delivered in the appropriate manner) were not the focus. Even as goals and definitions of reading shifted (e.g., REA, 1998), the structure and the traditional policies of the federal system itself restricted the government from prescribing precisely how teachers should teach. The government made recommendations and implied general goals but did not specify the components of the curriculum.

This perspective changed with the passage of the NCLB in 2001. Specifically, the Reading First sections created a new interpretation of federal education law. The requirement was that to use the federal funds, both the appropriate content (e.g., the five pillars of reading) and ways to deliver this content (e.g., specification of particular amounts and kinds of professional development and types of materials to be used) were much more specific and had to pass federal muster before the funds were released to the states. What constituted research was defined in the statute, and not all research was treated equally; some was considered to be unuseable because of its methodology, while a highly specified type of research was viewed as "valid" because of its methodology.

By the end of the Obama administration's first term in 2011, federal education policy was built around the concept that internationally benchmarked college and career ready standards would deliver the changes in education needed to make a difference. But where is the evidence that this focus on college and career and more prescriptive policy will work? What about the specifics that are being prescribed? Local autonomy is a major feature of many of the education systems, such as Finland's, that outperform the U.S. system on international assessments.

In terms of specific instructional factors, the education research community has developed many key ideas. For example, they suggest that having students focus on problem solving and inferences is more important than reciting facts; reading and writing are better taught together than separately; and scaffolding or the manipulation of reading contexts can support the performance of less able readers (Donavan & Pelligrino, 2004; Guthrie, 2003; McCardle, Chhabra, & Kapinus, 2008; Snow, Griffin, & Burns, 2005). These (and other elements) should be supported by policies that allow the necessary teacher flexibility in how instruction is provided to students. Unfortunately, policies are not providing information that is directly useful to change instruction. Ideally, for example, assessments should be promoted that require questions that allow students to reflect on and analyze the information being provided to demonstrate their cognitive ability. All of these elements have been the subject of years of research and analysis, but, at least within public policies, they have not been integrated into the mandated assessment systems.

Comings (2013) observed that educators cannot seem to bring to scale demonstration or research efforts on school improvement. Policymakers might better devote their energies to finding ways to bring to scale solutions that support high levels of learning among the 21 million children who are enrolled in Title I, the 7 million in special education, and the 1 million who are receiving instruction to help them learn English, in addition to the millions of students who are performing adequately but not at the levels required for full participation in the international marketplace of the 21st century.

As reading educators who have worked on national and state projects for a combined total of over 90 years, we have witnessed people who have little or no knowledge of education or education research creating policy based on selective use of evidence. At times, economic and political factors have trumped sound practice and research. More important, policymakers have not yet determined how to support access to sound education for all students without getting in the way of continuous growth in the quality of schooling. The lack of the use of evidence and the lack of progress in improving learning would support the hypothesis that federal policy is often more about policymakers holding on to their offices rather than providing the education that our children need to become leaders and preserve our democracy.

NOTE

Race to the Top was a new type of program where USDE initiated states to apply for funds to support programs that USDE was focused on. From the beginning it was clear that not all states would receive a share of the funding available; in short, it was a competitive grant program.

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