

What the Future of Reading Research Could Be

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This talk is about what I hope will be the future of research in reading, especially in reading education. I realize, however, that most research in reading education, like most science, will be incremental work, going a bit farther than the field has gone previously. Thus, a realistic, future-oriented talk about reading research must be grounded in past work.

For as long as people have studied or thought about anything, there has been the part-whole dilemma: whether it makes more sense to focus on the whole or its constituent parts. So it is with the reading education research of the recent past. There has been research on whole classrooms and schools that are making more of an impact than other reading educational settings, and thus deserve our attention. As researchers study these situations, however, they inevitably spend a great deal of time focusing on the instructional components contributing to achievement in these settings. And for every study of whole classrooms or schools, there are dozens of studies directed at particular components of reading or literacy education, with many researchers making very good livings by analyzing them in great detail, turning their attention to how such instruction fits into whole educational settings only in the discussion sections of their articles.

Because whole classrooms and schools that work have been understudied relative to components, I am going to begin my talk by making the case emphatically that there is a need for a lot more research on whole educational settings that are effective. As I do so, keep in mind that I will then follow with a discussion about particular reading education components that in my view deserve additional attention, for much progress has been made by studying individual components and more progress can be made by doing so.

I will not resist commenting on some of the wheat and some of the chaff now in the marketplace of ideas about reading education. It will be clear that I embrace research and the evidence produced by researchers as completely as I ever have. If you have read any of the three editions of my most complete appraisal of the research literature related to reading education (the book on balanced teaching; Pressley, 2006), you know that. What will also be obvious is that I do not embrace the research uncritically, and I do not buy that all of the research findings that are being used to leverage practice in fact should be leveraging practice. So, implicit in what I say today is that I think you should look to research evidence for guidance in practice but do so with a sufficiently critical perspec-

tive that you will not be misled. This point is important because there are researchers and policymakers who are willing to catapult reading practices that are not as well grounded in research as they could be. For those doing such catapulting, one message today is to do more research before foisting your perspective on the nation.

Well, let's get started, thinking about the wholes first.

Research on the “Wholes”: Studies of Effective Classrooms, Effective Schools, Entire Literacy Programs, and Entire Language Worlds

To be perfectly honest, although I did some research on reading in the 1970s and 1980s, it was not the focus of my professional life then. It was not until the early 1990s that I took the plunge into reading completely, and literally was sucked into the vortex that was the reading war at the time—a war between whole language and those who thought that skills instruction needed to be driving reading instruction, especially beginning reading. If you know my work from that era, I was studying classroom settings where comprehension instruction was being done impressively and effectively. That line of work put me in classrooms and schools a lot. It developed in me a real feel for what was going on in real schools. It prepared me to read the many pieces on the great debate that were floating around in the early 1990s with an informed opinion. One who recognized that was an editor named Carl Smith at ERIC, who pulled me into the whole language versus skills fray as a discussant on an ERIC-published volume on the reading war that was then raging (Smith, 1994).

As I read both the pro-whole language and the pro-skills instruction great debaters in preparation for my summary comments in that volume (Pressley, 1994), I came to an important realization: None of them was describing what seemed to me to be the most engaging classrooms I had witnessed in the early 1990s. Indeed, as I read many of these authors, I found myself wondering if they had been in a first grade classroom since they were six, for I could not recognize the environments they described at all. And, having visited both committed whole language and committed skills classrooms during that era, I did not remember the wonderfulness attributed to these classrooms by their advocates.

But the most important insight I had, along with my colleague and great friend Ruth Wharton-McDonald, was that no one had taken the tactic of going out and studying grade 1 classrooms that were doing a really good job, that were producing better reading and writing achievement than other grade 1 classrooms. Yes, the whole language folks had studied classrooms they knew to be committed to whole language, and, similarly, the skills instruction enthusiasts watched and wrote about skills-emphasis classrooms. But they studied these classrooms because of their commitment to a perspective or approach, not because they produced pretty good achievement. Ruth and I went on an odyssey to find grade 1 classrooms that were producing better reading and writing achievement than other grade 1 classrooms, classrooms where children could read and were reading more impressive books than the children in other classrooms, classrooms where children were writing more impressively than the children in other classrooms.

Effective classrooms

As many of you know, we found those classrooms and, over a series of studies (for a review, see Pressley, 2006, chapter 8), my colleagues and I documented the nature of whole grade 1 classrooms that work well. The finding I emphasize here is the main finding: There is remarkable consistency across the very best classrooms with respect to instruction:

- There is a great deal of skills instruction, with as many as 20 skills an hour covered, often in response to the needs of a reader or writer.
- Word-recognition skills are explicitly taught, with students instructed to sound out words, including using letter-sound associations, to use knowledge of larger chunks of words, and simply to read the whole word once it is known as a sight word. As these strategies are taught, students are also taught to coordinate their deployment, making sure the word sounded out makes sense given picture, story, and syntactic cues.
- Skills instruction is strongly balanced with holistic reading and writing, with students reading and experiencing substantial authentic literature and other texts that make sense for them to be reading given their needs (e.g., leveled little books). Students compose a great deal, typically in a plan-draft-revise framework, with increasing demands with respect to coherence and mechanics as the year progresses. That is, most of the time, students are doing things academic: actual reading and writing rather than low-level workbook exercises or art.
- Comprehension strategies are taught.
- There is lots of teaching, in whole group and small groups, with a centerpiece being teacher scaffolding of students as they read and write. Students are doing reading and writing that is within their zones of proximal development, so that each student is challenged but not frustrated.
- There is high academic engagement in these classrooms, in part because so much of teaching is aimed at motivating students. There is so much occurring to motivate students that Pressley, Dolezal, Raphael, Mohan, Bogner, and Roehrig (2003) required a whole book to catalog the many different motivational tactics used by engaging, effective teachers.

As my colleagues and I did this work on effective classrooms, we often found ourselves in schools where it was clear that the student receiving exceptional instruction in grade 1 would not be so fortunate in subsequent years. You see, we peeked in other classrooms when we were in these buildings, often noting that instruction in them was not like the instruction in the most effective classrooms. Of course, we also studied enough not very impressive classrooms that were recommended to us as terrific to have lots of field notes that made clear that many children are going to experience ineffective classrooms during their elementary years. (More about such nominees later!)

Effective schools

The realization that students in many schools did not have years of effective instruction led us to ask whether that happens anywhere. About three years ago, we began a quest for schools where such consistency might occur. At this point, my colleagues and I are in the process of studying our fourth such school. I think the easiest way to talk about what we are finding is to discuss one school.

Bennett Woods is an elementary school near the Michigan State University campus in East Lansing. What brought it to our attention is that in recent years it has produced more impressive state test scores in reading and writing than other schools in our area. For example, 95 to 98 percent of fourth graders pass the reading test, which is a solid 15 percent higher than the state average. More impressive, however, are the writing passing rates, which are always greater than 80 percent and sometimes greater than 90 percent—in a state where less than half the students pass, on average. More than doing better than other schools in the state, this school does better than other schools in the East Lansing vicinity, which, in general, do better than state averages by very big margins.

Lisa Raphael Bogaert, Lindsey Mohan, Lauren Fingeret, and I spent a semester in Bennett Woods, observing teaching, interviewing teachers, and analyzing documents. This meant distributing more than 250 hours of observation across the 14 classrooms in the school, with the team seeing enough that we were very confident of our conclusions by the end of the study, conclusions that members of the staff confirmed by reading carefully and critically preliminary versions of our report.

So, how does Bennett Woods do it?

- This is an academically focused school. The school days and weeks are routinized, with the routines all being in support of student learning, and especially of instruction in reading and writing. The district and school policies specify a rigorous academic program. There is frequent assessment, using tools that are complete enough to inform in detail about student progress in reading and writing, with decisions about the curriculum and individual students informed by the assessment data.
- The principal and all of the teachers are committed to a strong reading and writing curriculum, as well as a strong curriculum in general. At the center of that commitment is a determination to get professional development. An additional commitment is to prepare students for the reading and writing accountabilities they face, including the state tests, but to do so in ways that are consistent with a high quality reading and writing curriculum—not simply getting students ready for the test. The regular classroom teachers work well and closely with support teachers who are also committed to high quality reading and writing instruction. Even “specials” teachers (e.g., teachers of art or music) coordinate their efforts with the literacy program, with students frequently doing art projects connected to books they are reading, for example, and singing music that connects to readings in social studies. There is also a library specialist who puts together many activities (e.g., weekly read-alouds in the library for each class) intended to stimulate student interest in reading.

- At the center of the curriculum is a lot of reading, with students experiencing many books—ones read aloud to them in the classroom and library, ones they read as a class, ones that individual students elect to read. In support of such reading is much teaching of reading skills, including letter-sound, phonics, word-recognition, and spelling skills. Vocabulary instruction goes on continuously, as students hear read-alouds, as they read books, and as they experience content area curricula.
- Students are taught to use comprehension strategies.
- Reading instruction is complemented by writing instruction, most of which is in a plan-draft-revise framework, although there is explicit instruction of the skills required to transform a plan into words, sentences, and paragraphs (i.e., from teaching of handwriting to the grammar of sentences and the parts of a paragraph to the five-paragraph essay).
- For both reading and writing, there are progressive demands across the years of schooling, with reading and writing expectations and instruction progressing in an orderly way. The faculty has thought long and hard about the progression through the grades and how to ensure that students are appropriately challenged at each grade level. Reading and writing also connect strongly to content area instruction at all grades, with students experiencing many texts pertaining to social studies and science themes, writing in response to those texts, and writing research papers informed by such texts. Reading and writing also permit many opportunities to practice oral communications skills (e.g., through dialogues about texts, revision discussions).
- The school is an exceptionally positive environment, with many explicit attempts to motivate student literacy, from the many read-alouds in the library and classrooms to reading incentive programs to enthusiastic discussions about books being read by students in a class. Again, all the mechanisms covered in the Pressley et al. (2003) book happen daily at Bennett Woods. More than positive, Bennett Woods is virtually never negative. There is little sanctioning of students, or need for it. There is little failure, with students receiving supportive instruction that encourages them to grow from where they are at present, rather than be frustrated that they are not at some unattainable standard for them.

Of course, you will note that there are substantial similarities between the effective elementary classrooms that we studied and this effective whole school. A great deal of instruction in the context of substantial, authentic reading and writing occurs in great classrooms and in most of the classrooms of a great school. Individual teachers and entire schools of teachers who succeed in teaching students to read and write well seek out and obtain professional development to support their work. There are increasing demands in excellent classrooms and across the years in excellent schools. These are exceptionally positive places, with excellent teachers doing much to motivate literacy.

What this work accomplished was to provide visions of what excellent reading and writing instruction can be like, in individual classrooms and across whole schools. This was not a small accomplishment. For example, reflect on the vision of outstanding classrooms for a moment. Is it consistent with a vision of the outstanding classroom that is being thrust upon the United States through the No Child Left Behind (NCLB) Act? I

am certain that many of you immediately recognize that NCLB never mentions reading lots of literature or composing. There is no concern in that framework for creating a massively positive learning environment. And, of course, the central role of testing in NCLB contrasts greatly with its role in effective classrooms and schools: Yes, excellent teachers and schools prepare students for the test ahead, but testing does not drive the curriculum.

One person close to the National Reading Panel (NRP) process that so informed NCLB told me, off the record, that investigation of effective classrooms was on the minds of some members of the NRP as they did their work. They were determined that this work would never see the light of print in the panel's report! You might recall that only experiments made it into that report (National Institute of Child Health and Human Development [NICHD], 2000), despite urgings, at least by panel member Joanne Yatvin, that qualitative studies also should have informed the work. The one member of the panel who chose to speak to me about this did so to inform me that my qualitative work on the nature of effective classrooms was particularly bothersome to some on the panel, since it had the potential to "mislead."

In 2006, my view is that this work on effective literacy-instructional classrooms and schools should be leading much of the thinking about what should be done to improve reading education in this country. An hypothesis that definitely comes out of my work is that if we could produce more classrooms and schools like the ones I have studied, the literacy achievement of the nation would be higher. It is time to find out what is required to transform more classrooms and schools so that they are consistent with effective classrooms and to determine just how much difference such transformation makes on the achievement and lives of children.

The need to do this research is urgent. Why? In a decade of studying effective classrooms, my colleagues and I always sought classrooms that were effective, typically asking principals for nominations. Even with this bias toward being in classrooms that were very good, 20 to 30 percent of the time, we found ourselves in classrooms that I would not wish for any child. Along the way, we saw many classrooms where not much teaching of reading and writing skills occurred, not much reading and composing happened, children were often off task or doing tasks with little or no academic value, and there was little encouragement of academic engagement. Visits to these classrooms—as well as many walks through schools peeking into classrooms—have made me very aware that many elementary students every morning experience teaching that is not too good.

It is time to find out if elementary teaching can be made much better. Of course, an obvious means for doing so is greater professional development. But I am not certain that alone will do it. Let me tell you about one of the most consistent findings in our interviews of teachers over the years. It is always the most effective teachers who have told us that they have much more to learn. They are always the ones seeking the professional development. The weaker teachers are often very confident that they already teach well. So, I think that rather than simply providing professional development, it may be necessary to select teachers who know they need to get better and are open to getting better, actively seeking ways to do so.

As a teacher educator, I also know that there are people who seem to have more talent for teaching than others, with one dimension of talent being greater openness to

improvement. I think we have to get serious about figuring out who has talent for such work, doing all possible to keep them in the profession, and providing professional development to them. On the other hand, for those who lack talent, we need to get serious about counseling them out, diverting professional development resources that might have been directed at them (which many of them feel they do not need) to those teachers who are hungry to learn more and improve. The main point here, however, is that a major research direction has to be the improvement of the teacher corps and whole schools.

With respect to whole schools, I am mightily impressed that often the principal will make a huge difference, a finding in my own work but also a classic finding in the effective schools literature (e.g., Reynolds, Creemers, Stringfield, Teddlie, & Schaffer, 2002; Teddlie & Reynolds, 2000). The effective principals encountered in my own research have done much to ensure they have excellent teachers who work together to create an environment that promotes the literacy achievement of all students in their school. But recall that there are also principals who have nominated individuals as very effective who are anything but effective. Over the decade of doing this research, a very strong impression I have gained is that there are plenty of principals out there who are not providing anything like the leadership required to produce an effective literacy development environment in their school, who would not know an effective literacy teacher if they saw one. Of course, since such principals rarely venture down to the classrooms, they are not likely to see one!

Apologies for the cynical diversion, but it is on the way to an important point: We have to find out much, much more about principals who oversee effective schools and how they came to do so. Then, we need research on what can be done to develop more of them, and what is required for them to be able to transform a school that is not impressive in its delivery of literacy instruction into a school that is.

So, I have opened this talk on the research future that we need, making the case that we very much need research on how to develop excellent literacy teachers as well as principals who can encourage effective literacy, that we need to do much to discover how to transform many more classrooms and schools into effective literacy education environments. This is important work to do because classrooms and schools are the actual places where children experience much literacy instruction. What a child's classroom is like this year matters a great deal. Whether a child is in a school that consistently fosters literacy achievement makes a difference as well.

Of course, I could have made the argument that we should be looking at whole school districts or states that succeed in fostering literacy better than other school districts and states. I did not, simply because I have not done such work. Somebody needs to do so, however, as a first step in figuring out how to transform many more school districts and states.

Effective schools the federal government way?

That first step—actually looking to see what goes on in an effective educational environment—seems critical to me. It is also a step that the current U.S. federal administration, with its emphasis on “evidence-based” practice, seems to have forgotten. You are aware that the NCLB approach favors teaching of phonemic awareness, phonics, fluency, vocabulary, and comprehension strategies, with basically no mention of anything

else. Is there an effective classroom in the nation that is focused so heavily on those skills that nothing else even deserves mention? I doubt it. Indeed, I am not certain that I have ever encountered a classroom that is consistent with what was in the mind's eye of those who put together NCLB. Reid Lyon, have you ever been in a classroom that is so consistent with the NCLB envisionment? If you have been, might there have been a little something else going on besides reading skills instruction?

Without work describing effective environments that provide high focus on the five NCLB skills, I cannot even imagine providing guidance to schools as to how to implement instruction that will work well. Of course, that did not stop some developers of professional development that has been funded by Reading First. The bottom line is that never-validated approaches to professional development have enjoyed support from NCLB, despite the fact that this legislation wraps itself in an evidence-based flag.

At the very least, those who have forced on the nation an approach that emphasizes teaching of phonemic awareness, phonics, fluency, vocabulary, and comprehension strategies should evaluate it. Recall that this is the group that has so vociferously made the case that evaluations, to be credible, should be true experiments. So where is the true experiment on the NCLB approach, which is most completely represented by Reading First? It does not exist and is not coming. Rather, the best the government can offer is what is called a "regression discontinuity analysis" (see http://www.mdrc.org/project_28_65.html). This type of study could be telling if nothing besides NCLB and Reading First had been happening at with respect to literacy education in America's schools. But given that, in most states, there have been massive increases in reading and writing education standards during the same time period, any change could as likely be due to the shift in standards.

Shame on the federal government for not effectively evaluating a whole-school reform model they have advanced as evidence based. I think we should demand a true experimental evaluation of the Reading First intervention in the immediate future, and, if the government cannot provide it, its demands to move schools in the direction of the five-factor model should fall on deaf ears until data have been produced.

Shame on all the rest of us if we do not accelerate work to attempt to create more effective individual classrooms and schools based on broader models, based on what has been learned about the nature of effective classrooms and schools by spending time in them, systematically observing and analyzing what goes on in such environments. Shame on us as well, if, as we spend time in classrooms, we do not do research that permits evaluation of how our efforts to change classrooms and schools affect children and their literacy development. And finally, shame on us if we do not evaluate the efficacy of the alternatives we create against the conceptions of others determined to change schools, including those so strongly identified with NCLB. The responsible way to challenge NCLB and Reading First-type models is to create alternatives and then explicitly to pit the alternatives against NCLB/Reading First in as close to true experimental designs as possible.

Whole reading programs

Before leaving classroom-level and school-level interventions, I reflect on an important reality of American schooling. Many children experience contemporary reading programs

published by Houghton Mifflin, Harcourt, McGraw-Hill, and others. Many of these contemporary programs have done all they can within the constraints of a published curriculum to incorporate evidence-based instruction, so that they can be sold in California and Texas and across the NCLB-impacted nation. They include instruction of phonemic awareness, phonics, fluency, vocabulary, and comprehension strategies. They all go much farther, however, reflecting attention to other research-based practices—for example, plan-draft-revise composing instruction. They also go far in incorporating excellent children’s literature. As they do so, they connect with the rest of the curriculum—social studies and science, in particular, as must be the case when so much of the elementary school day is taken up by language arts (typically 2.5 to 3 or more hours of the 5.5 hours of each day).

Given that there are many, many children who are experiencing years of such instruction, you might think that we would know what difference such programs make on children’s literacy achievement. The bottom line is that we do not know for the most part. I think that we need to make a priority of evaluating these programs well to determine what they teach and whether students experiencing such programs become more literate or differently literate than children who experience other forms of instruction.

As I make this recommendation in the context of an IRA research conference, I realize that my comments occur in a potentially hostile environment. After all, there have been prominent discussions in *Reading Research Quarterly* about whether program evaluation should even be considered research (Reinking & Alvermann, 2005), with my clear sense being that some members of IRA think such work is not research. I disagree and so do many other members, as Reinking and Alvermann made clear.

Many IRA members, however, seem concerned about conflicts of interest among creators of programs if they also serve as evaluators of those programs, especially if they stand to benefit financially from the programs (Reinking & Alvermann, 2005). As I reflect on that concern, I am aware that many, many interventions are often first evaluated by those who invented them. Science has a natural corrective if the developer of an intervention tests it in a way that produces too-positive evaluations. When an investigator presents experimental or other data claiming effectiveness for an intervention, that is an invitation, one often taken, for others to do additional research on the intervention. I think we should be encouraging the developers of interventions to test them, report their tests in the literature, and be confident that there will be follow-up data that will confirm or challenge the conclusions that came out of the initial evaluations.

One analogy I have heard is that asking reading program publishers to evaluate their products is like asking the drug companies to evaluate theirs. Folks, a centerpiece of drug research is drug-company–conducted and –sponsored research. Without it, there would not have been nearly the progress in the development and evaluation of drugs that has occurred. I think it is perfectly appropriate to ask the publishers to conduct as good evaluations as possible of their programs and to pay for those evaluations. I also think it is appropriate for the profession to establish professional standards for such evaluations as well as for reporting and archiving them. If done well, such work will invite others besides the program producers to participate in the program evaluation process and, in doing so, lead to increased understanding about how such programs work, including how they might be refined to work better. Given the nation’s history of using such programs, research aimed at improving them seems to me to be a moral imperative, for such

programs are going to touch the lives of many children if history indeed predicts the future.

The child's language world

It has been known for a long time that, from the earliest days of life, economically disadvantaged children are less likely to be immersed in supportive communications interactions than children who are better off economically (e.g., Bernstein, 1965). This is critical because substantial progress in language development during the preschool years and beyond is an important correlate of later school success, especially with respect to literacy (see Scarborough, 2002; Snow, 1991).

One study in particular has caught the attention of many in the last decade. Hart and Risley (1995) observed 42 families carefully for 2 years, beginning when children in those families were between 7 and 9 months old. The researchers noted everything that went on, with especially careful coding and analysis of the language interactions. The outcomes of the study were striking: Both the quality and quantity of verbal interactions varied predictably as a function of social class. The higher the socioeconomic level, the more parents listened to their children, prompted children to elaborate their comments, talked to their children about what was worth remembering, and provided instruction about how to cope with situations, including verbally—teaching children how to let others know what they wanted and why.

With respect to quantity, children in professional families sometimes experienced as many as 4 million verbal interactions in a year, compared to about 250,000 for children in lower class families. Not surprisingly, the children from professional homes had better developed language, indexed, for example, by the extent of their vocabulary, an association observed in other studies as well (e.g., Huttenlocher, Vasilyeva, Cymerman, & Levine, 2002; Naigles & Hoff-Ginsburg, 1998; Pearson, Fernandez, Lewedeg, & Oller, 1997). Most important for this discussion, in the Hart and Risley (1995) study, the quality of language interactions and language development during the preschool years predicted reading achievement six years later, with the more language-advanced preschoolers better readers.

Of course, cause and effect cannot be inferred from such data. After all, there are a variety of alternative explanations for the associations between social class, language interaction, and child language and reading outcomes—most obviously that there may be general intelligence differences as a function of social class, as well as differences in other important environmental variables, such as the quality of preschool and elementary school experienced by the children. Still, when there is a correlation, there is always a causal possibility that the richer language interactions during the preschool years did, in fact, cause more complete language development and improved reading achievement.

At present this is an untested hypothesis. Yes, there are short-term interventions, such as the distinguished program of research carried out by Whitehurst and his colleagues, documenting that parents can be taught to interact verbally with their preschoolers over books with positive impact on the children's language development (see Whitehurst & Lonigan, 2002). But I think it is time for a study of what happens when massive efforts are made to improve the language environments of disadvantaged children. Such an intervention would require long-term and substantial parental support

and education, aimed at encouraging parents to talk more with their preschoolers and teaching them how to do it. It would help if efforts were made to ensure that the targeted preschoolers experience the cultural activities that provide conversational opportunities for many economically advantaged parents and their preschoolers, such as trips to zoos, museums, shows, book stores—and even quality toy stores! Provision of excellent preschool opportunities should be in the mix.

Would such experiences have an impact on children's language? Would such impact carry over to literacy achievement in the elementary schools? How long would such support be necessary? I am betting that it is likely to have maximum impact if there is sustaining support from birth through childhood, rather than support only during the preschool years. The work of Craig Ramey and his colleagues is very instructive on this point (Campbell & Ramey, 1994).

Concluding comment on whole interventions

I am certain that there will be policymakers who are hearing or reading this address and simply bristling, believing that even if the work I have called for were carried out, the costs of the whole-school or whole-class interventions that would promote literacy development would be too great. A meta-message is that as we do research to discover the sufficient conditions to produce better literacy outcomes in children, we should be prepared for the likelihood, if I am right, that much is going to be required and that it is going to be very expensive. Another way of thinking about this, of course, is that the future of the country, if it is to be a great future, might be expensive. A better world might require that those of us who are advantaged direct more of our income to supporting others, more of our income toward improving the lives of parents and children and the world of schooling those parents and children encounter.

Research on the “Parts”

Most research on reading and reading instruction is more modest in scope than the research I called for in the first half of this talk. Researchers typically have focused on parts in their work. Thus, what I am going to discuss in this section are “parts” of reading that most deserve attention, with my perspectives here, again, informed by research of the past. This section is about parts that are truly big ones in reading education, with each of these parts having the potential to transform much in many classrooms and schools.

Skills versus holistic instruction? The wrong question

The skills first versus whole language reading war of the 1990s was fiercely contested. Although I think my own work identifying a balancing of skills instruction and holistic literacy experiences in the most effective primary-grade classrooms went far in making the case that either extreme misses the mark, extremes persist. Indeed, one reading of much that is offered in the name of Reading First is that skills-first instruction is doing pretty well or, at least, commands a fair share of the federal dollars that support beginning reading education in this country.

There is recent evidence, however, that reinforces considerably my position, and that of many others, that excellent primary-grade teachers adjust instruction to the needs of individual children, balancing skills instruction and holistic experiences within their classrooms so that some children receive a greater dose of skills and others are more completely immersed in holistic reading and writing. The evidence comes from Morrison and his associates (Connor, Morrison, & Katch, 2004) and Juel and Minden-Cupp (2000). In both studies, students who entered grade 1 with low reading skills evidenced greater growth in reading during the year if they experienced skills-emphasis instruction rather than more holistic instruction. In contrast, however, students entering grade 1 with good beginning reading skills benefited more from more holistic instruction than skills-oriented instruction.

This potential interaction between instruction and reading ability on entering grade 1 deserves a great deal of follow up for, potentially, it is powerful evidence against one-size-fits-all instruction for beginning reading. If the interaction is consistently replicable, there should be great impetus to develop more differentiated beginning reading instruction. One particularly great need will be to get serious about developing teachers who can balance skills and holistic instruction differently for each child in their classroom, depending on the child's level of reading accomplishment and current needs.

Of course, one alternative would be not to promote balance but to segregate children who need skills instruction into classrooms that emphasize that and place children who enter grade 1 with better skills in holistically oriented classrooms. That would be tracking, however, and I suspect strongly that such tracking is unacceptable to many because of the dangers of dysfunctions potentially associated with it, regardless of whatever positive benefits might occur for beginning reading.

Thus, my guess is that the motivation for many to become balanced literacy teachers is going to increase as work on the interaction discovered by Morrison, Juel, and their associates continues. Exploring this interaction and how to develop instruction that provides the most benefit in grade 1 for the most children seems to me to be a high priority in beginning reading instruction. I note that the importance of this direction will be recognized by IRA this week, with the Connor, Morrison, and Katch (2004) paper being honored with the Dina Feitelson Research Award.

Fluency and the practice hypothesis

Beyond being able to sound out words, it is essential that students learn to read words fluently, recognizing most words as sight words, expending little effort to do so. My reading of the literature is that we know darn little for certain about how to develop fluency in children, although there are admirable compendia of volumes about instructional practices that good teachers believe are helpful in developing fluency. Tim Rasinski and his associates, in particular, have done a tremendous job in assembling this literature (e.g., Rasinski & Padak, 2006). As many of you know, the National Reading Panel report (NICHD, 2000) provided the most support for repeated reading with teacher guidance and feedback, although I find Steve Stahl's thoughtful additional analyses and reflections on the panel's position more helpful than the section on fluency in the original panel report (e.g., Stahl, 2004). For example, in Stahl's re-analysis, he identified that it

really did not matter if students repeated reading of the same text or read new text. What seemed to matter was the total amount of reading. Practicing reading is what counts.

That said, there is remarkably little evidence on reading practice conducted in ways that convince the most conservative in the reading researcher community (i.e., few true experiments). The National Reading Panel's (NICHD, 2000) most noticed citation of this point was with respect to the practice of Uninterrupted Sustained Silent Reading (USSR) or Drop Everything and Read (DEAR), with the panel not identifying enough experimental evidence to offer conclusions about these approaches. This point was interpreted by some that USSR and DEAR, in fact, do not promote reading achievement, which is definitely a conclusion that goes beyond the information known based on available data.

I think a major priority in the quest for understanding instruction that increases fluency should be a great deal of experimentation on reading practice—not just USSR and DEAR, but reading practice of all types. Are there some methods that produce more benefit than others, that are more likely to be carried out voluntarily by children and hence have more impact? For more than a century, with respect to a wide variety of tasks, there have been many, many confirmations that if practice does not make perfect, it makes better and faster (e.g., Ericsson, Krampe, & Tesch-Römer, 1993). We need to find out how much better and faster with respect to reading. As we do so and learn about fluency, there should be other reading measurements as well. For example, such studies would provide opportunity to determine the extent to which practice of reading affects vocabulary growth as well as development of other world knowledge, with it certainly reasonable to hypothesize that, if material being read is vocabulary and knowledge rich, readers might get substantially vocabulary and knowledge richer. I'll say a little more about this possibility in a few moments.

Before ending this comment on the need for a lot of research on fluency, I want to emphasize how distressing it is that speed of reading is such a focus of the current discussions of fluency. Millions of schoolchildren are now being tested for fluency several times a year with a measure that only taps speed of reading. Of course, I am referring to the DIBELS (Dynamic Indicators of Basic Early Literacy Skills), especially the oral reading measure. Some of you know about a study I did in which children read DIBELS passages, followed by immediate recall of the passages (Pressley, Hilden, & Shankland, 2006). Right after reading, they could only recall 15 percent of the ideas in the texts they read! DIBELS oral reading is the ultimate in fast word-calling.

I should add at this point that, as someone who did spend some time in his career studying very skilled readers, I am acutely aware that excellent reading often is anything but fast, but rather involves considerable reflection and reaction, sometimes rereading, and pausing to think about the images conjured by the text and the big ideas in the text (see Pressley & Afflerbach, 1995, for a review). In fact, those of you who are researchers, when you read research articles, that is exactly how you read, something I documented in a verbal protocol study more than a decade ago (Wyatt, Pressley, El-Dinary, Stein, Evans, & Brown, 1993). You do not read anything like the little kids zipping through DIBELS passages!

As work on practice and other variables that might influence fluency proceeds, there needs to be very hard thinking about how to measure fluency much more meaningfully than it is measured by DIBELS. At a minimum, fluent readers can read

words effortlessly and quickly, if they need to do so. But, as they do so, they are also accessing the meanings of the words read and constructing the meanings conveyed in phrases, sentences, paragraphs, and longer sections of text. Fluent reading involves more than word-recognition processes, which are emphasized in DIBELS. It also involves meaning making at all the levels that meaning can be made as a text is read.

Samuels and Farstrup (2006) have just published a book that collects the thinking of the best minds who have thought about fluency. I urge you to get the book and study it, reflecting hard on the ideas in there as you plan research on promoting fluency and measuring it. The essays in that volume give me hope there is better work ahead than the work we have at present. Even so, I stand by the message that opened this subsection: I suspect that the very simple variable of practice deserves a lot more attention as a powerful mechanism for promoting fluency. I'll add that I think it irresponsible of anyone, in the name of evidence-based practice, to suggest children should be reading less, including doing less sustained silent reading. Rather, we should be doing work on what it takes to get children to really, really drop everything and read intently, measuring carefully the consequences of such reading practice.

Developing children's vocabulary

Over the years, I have said a lot about teaching vocabulary to children, including adding a chapter on vocabulary in the most recent, third edition of my book on balanced teaching (Pressley, 2006). As I reflect on the work that has been done, I keep coming back to Bob Sternberg's (1987) historic insight: Most vocabulary is learned in context, either encountered in written text or in oral interactions. Thus, although I applaud the efforts of individuals such as Andy Biemiller (e.g., 2005), who is attempting to identify the words that children at various age levels need to know (i.e., the words that most kids will have learned) as part of determining what words should be taught in school, I am not optimistic that it is ever going to be the case that most vocabulary words are taught through reading lessons. Even a very vocabulary-ambitious elementary reading program only attempts to teach 1,000 words a year, with 400 learned considered a success (Biemiller & Boote, 2006). Even if lower boundary estimates of vocabulary size are closer to accurate than upper boundary estimates (i.e., high school graduates know 15,000–20,000 root words; Biemiller & Slonim, 2001), learning 400 words a year would not keep pace.

As I reflect on the various vocabulary learning hypotheses (e.g., see Pressley, 2006, chapter 7), I find myself not confident that any is likely to lead to a way of teaching that could keep pace. So, I am going to offer a new hypothesis, one that follows from the work of my colleagues and me in effective elementary classrooms and schools. In settings where literacy achievement is going well, teachers flood the classroom with vocabulary and vocabulary instruction. There is a great deal of reading of books filled with worthwhile vocabulary, with this reading prompting much instruction. Thus, in these classrooms, as a class reads a novel, the children often will be held responsible for vocabulary in the novel; they are provided the words and expected to establish their meanings through context clues and use of resources such as dictionaries, followed by learning of the words, which is often tested.

Current novels often inspire vocabulary word walls, with students also expected to use the new vocabulary in their written responses to the novels. Some effective classrooms have charts or books of “wonderful words” that children can use in their writing—for example, all the different ways of expressing *said*, each of which has a nuance of meaning (e.g., *shouted*, *whimpered*, *mouthed*, and so on). Such charts and word books provide students with many exposures to words differing in shades of meaning, improving word variety in writing and providing opportunity for vocabulary instruction in general. As teachers do read-alouds, novel words are noted, with the teacher often giving brief explanations of meanings.

And, by the way, there are a lot of read-alouds in effective classrooms. Content area lessons are chockfull of vocabulary, with each social studies, mathematics, and science unit complete with a vocabulary list that students are expected to learn. In effective classrooms, dozens of novel vocabulary words are experienced each day, with teachers attentive to when an unfamiliar word is mentioned, flagging it for students, making certain there is some discussion of its meaning.

Of course, as I said earlier, I have been in many not-so-effective classrooms, and when I review the field notes from those classrooms, it is apparent that vocabulary is not as big a deal in them. So, does vocabulary immersion make a difference in vocabulary development as well as reading more broadly (i.e., comprehension)? We do not know at present because no one has done a true experiment in which children randomly were assigned to classrooms receiving vocabulary flooding versus those not receiving such flooding. Such studies are very much needed, for they will provide critical information about whether a feature of teaching noted in effective classrooms is a large causal element for the achievement in those classrooms. If vocabulary flooding does promote vocabulary growth and reading achievement more broadly, there would be a strong case for encouraging much more flooding in the future. Such teaching would contrast considerably with some of the vocabulary instruction currently proposed as deserving more attention in classrooms—for example, the in-depth teaching of a relatively few words (e.g., Beck, McKeown, & Kucan, 2002). Flooding should be tested relative to such an alternative. Of course, I am hoping that the flooding hypothesis also will lead to big bumps in comprehension following vocabulary interventions, something generally missing in previous vocabulary research (see Pressley, 2006, chapter 7).

Building conceptual knowledge

Ever since the National Reading Panel report appeared (NICHD, 2000), whenever Richard Anderson or David Pearson has been in the audience during one of my talks, I have jokingly asked them, “Did it tick you off, after all that work that your Illinois center conducted on the impact of knowledge on comprehension, that the NRP never mentioned knowledge in its report?” Of course, despite the fact that the case that prior knowledge is strongly associated with comprehension is overwhelming (see Anderson & Pearson, 1984), the work on knowledge effects on comprehension was not carried out in true experiments, studies in which readers were assigned randomly to conditions, with some readers then acquiring relevant knowledge and others not. In such a research design, it could be determined whether knowledge is actually causal in affecting subsequent reading. Although I find it quite a stretch to attempt to explain the many knowledge

effects demonstrated in the reading literature as anything but causal, I recognize the logical possibility that they could be due to some third factors.

As I write this, reading and writing are demanding much more of the school day than was the case when Anderson and Pearson and their colleagues were doing their work. What that means is that social studies and science, increasingly, are being squeezed out of the school day, while at the same time, accelerating state standards demand students learn more social studies and science content than ever before. The only solution is that reading and writing are going to have to connect ever more completely with social studies and science. Of course, given that students must learn how to read and learn from social studies and science texts, this is a good thing in many ways.

It is also something that reading educators believe is possible. Reading educators have thought for a very long time that considerable social studies and science content can be acquired from reading high quality literature (e.g., Morrow, Pressley, Smith, & Smith, 1997). For example, a book such as Jean Craighead George's *Julie of the Wolves* provides opportunities to learn about Alaska, native Americans, and the survival of wolves, all topics that make sense for upper elementary students to learn about. And, of course, as expository texts become more common in the elementary reading curriculum (Duke, 2000), the opportunities expand for students to learn social studies and science as they experience the literacy morning.

Given the many opportunities for students to learn social studies and science from what they read, I think it is high time that researchers document the certainty and extent of such learning. It can be done in true experiments in ways that are highly ecologically valid. My colleagues Katie Hilden and Lauren Fingeret are currently assessing what is learned as children experience novels and informational texts in their actual classrooms. They are making these assessments with respect to books that are part of the ongoing curriculum, and in doing so are demonstrating that it is possible to evaluate experimentally how much is learned about social studies or science content from experiencing a book. I do not want to give away the entire design, but suffice it to say that we have come up with a design that permits estimation of between- and within-subject effect sizes and the variability in effect sizes that occur in elementary classrooms. In the very near future, we will be able to comment on the effects of experiencing novels and information texts on knowledge development in the short term. The goal is to continue such work to assess what difference such knowledge makes on subsequent comprehension of topic-related texts, as well as to assess long-term knowledge development. I suspect that Katie and Lauren are beginning a research program here that will take both of them to tenure!

I hope very much that as my group turns its efforts to studies of knowledge development in children, others will do so as well, for this is very, very important work. Reflect for a moment on the consequences if it becomes clear in true experiments that exposure to literature and informational text substantially affects children's knowledge in ways that impact their subsequent comprehension and other intellectual performances. That would strengthen considerably what is now simply an article of faith for many reading educators: that reading of authentic literature and informational texts should be at the center of reading instruction. That would strengthen considerably the position that reading policies favoring only phonemic awareness, phonics, fluency, vocabulary, and

comprehension strategies have an unacceptable gap when they completely neglect what children are reading.

Comprehension strategies instruction

As one of the first to conduct research on strategies instruction (e.g., Pressley, 1976), I have been there from the beginning and witnessed the evolution of the approach. Pressley (2000) summarized that evolution. In that chapter, I discussed the many investigations of single strategies with potential to improve reading comprehension, reviewed the events leading to the insight that modeling and explanation of strategies followed by long-term scaffolded practice is the instructional approach with the most compelling support, and explained why the teaching of small repertoires of comprehension strategies is a more sensible approach than teaching of single strategies. In fact, by 2000, when the data on reciprocal teaching (Palincsar & Brown, 1984; Rosenshine & Meister, 1994) and transactional strategies instruction (Brown, Pressley, Van Meter, & Schuder, 1996; Pressley et al., 1992) were considered together, the case was overwhelming in my mind for teaching small repertoires of comprehension strategies.

Unfortunately, some in 2000 paid little attention to the research progress—for example, the individuals responsible for the main comprehension section of the National Reading Panel report (NICHD, 2000). The panel basically generated a long list of comprehension strategies that they believed enjoyed experimental support (i.e., if you instructed children to use the strategy and arranged circumstances to maximize the likelihood they would do so, they did better on some comprehension test on some passages that were read). The implication was that sound teaching of comprehension was teaching these strategies. But the panel was not the only group creating such a list: There would be several prominent books aimed at the professional development market, at least one of which has sold many, many copies. That book and similar ones basically provided brief coverage of any comprehension strategy found in the literature. The implication was that comprehension instruction was teaching all these strategies. The work conducted by my colleagues and me on complete teaching of a small repertoire of strategies, teaching through modeling and explanation and scaffolded practice, was basically ignored from 2000 on.

Of course, before 2000, there was not much comprehension instruction, of strategies or otherwise, occurring in American elementary schools, something first documented by Dolores Durkin (1978–1979) and then reobserved several decades later, even after all that experimental work on comprehension strategies instruction (Pressley, Wharton-McDonald, Mistretta-Hampston, & Echevarria, 1998; Taylor, Pearson, Clark, & Walpole, 2000). Despite the urgings of the National Reading Panel (NICHD, 2000), the 2002 mandating of comprehension strategies instruction in Reading First, and the massive sales of those professional development volumes aimed at comprehension instruction, the bottom line is that there is no evidence of much comprehension strategies instruction occurring extensively now and certainly no evidence of children being taught such strategies to the point that they use them in a self-regulated fashion, which is the goal of such instruction. Even in the classrooms of otherwise very effective elementary teachers, the ones showcased in the work of my colleagues and me on effective elementary instruction, there is little comprehension strategies instruction occurring.

I might add that the lack of attention to comprehension strategies by teachers in this new century has been complemented by lack of attention by researchers, with research on the topic of comprehension strategies instruction simply not much evident in the journals in the past half dozen years. When there has been research on comprehension strategies in recent years, much of it has been documentation that teaching comprehension strategies is very challenging and anything but a certain outcome of existing professional development targeting comprehension strategies instruction (e.g., Hilden & Pressley, in press; Klingner, Vaughn, Arguelles, Hughes, & Leftwich, 2004).

What to do? It is time to do some serious research on how to develop teachers who can provide comprehension strategies instruction that does produce students who learn to use and do use the strategies in a self-regulated fashion. Based on what is known from my previous work (see Pressley et al., 1992; Pressley & El-Dinary, 1997), I suspect that successful professional development is going to require at least a school year. Such professional development will require developing modeling, explanation, and scaffolding skills in teachers, as well as a commitment to teach and encourage comprehension strategies use every day. The task of comprehension strategies instruction can become manageable, in part, by developing the understanding in teachers that very effective readers actually use a small repertoire of strategies: They make predictions based on prior knowledge, make inferential connections to ideas in text based on prior knowledge, construct mental images representing the ideas in text, ask questions and seek answers, reread and attempt to clarify when confused, and construct interpretive summaries of what they have read (see Pressley & Afflerbach, 1995). For students to acquire such skills to the point of internalization probably requires several years of instruction and scaffolded use, although comprehension gains should be quite pronounced even during the first year (Brown et al., 1996; Pressley et al., 1992). Yes, we have a vision of what it takes to create strategic elementary readers. What we now need is a lot of work to develop teachers who can create that vision, with a starting point being research on professional development of teaching reading comprehension strategies.

If you have not picked up that I believe the professional developers who are currently hawking such professional development do not know what they are doing—that, in fact, is my very strong, well-informed opinion about their work. If you want a five-page summary of what I think such professional development might look like, contact me and I will be happy to provide one for you, and I would be thrilled if someone would decide to do research on the professional development sketched in those five pages.

I'll add just one more comment. As is the case with effective teaching more generally, I am not optimistic that everyone can become an effective comprehension strategies teacher. The only way to find out whether someone can do it or not, however, is for them to try, receiving excellent professional development and support to do so. One anecdote provides some hope for me. The reading series that I codeveloped requires in every lesson that teachers model and explain and scaffold strategies use. Admittedly, this is not an ideal way to develop comprehension strategies teachers, but I know of enough teachers who have learned a great deal about comprehension strategies instruction through teaching with the program to believe that many more teachers can learn to teach comprehension strategies than are teaching them at present.

Testing as a stimulus for reading achievement?

Testing is a centerpiece of current educational policy, one that is at the heart of No Child Left Behind and publicly, openly embraced by President Bush and Secretary of Education Margaret Spellings. One justification is that testing can inform educators about who needs additional instruction and can even provide guidance about the particular type of instruction that children need. The assumption is that testing can, thus, ultimately produce improved achievement. The only problem is that testing does not seem to produce improved performance, except with respect to the particular test used; that is, being tested with one reading test produces improvement on that test (possibly a practice effect) but does not affect at all other reading tests (see Amrein & Berliner, 2002).

All right, Mr. President and Secretary Spellings, if you are as evidence-based and as committed to experimentation as a gold standard as you have claimed so often, it is time to put testing to an experimental test. It is very easy to imagine a true experiment in which children either receive all the testing that the federal and state governments want children to receive, or they do not. After a year or two of such an experiment, using other measures of reading besides the tests the children have already experienced, if testing does promote reading achievement, the tested children should do better than the children who were not tested on the not previously experienced tests. The nation very much needs this experiment and needs to act on it. If testing is not producing increases in achievement, it is time to dispense with much of the testing and use the money for other educational inputs—for example, instruction and materials.

Just so no one misses my drift here: I think it is high time to call the government on its policy with respect to testing. This is a very, very expensive policy in terms of dollars and opportunity costs. Every minute spent testing is a minute not spent instructing, and every minute spent preparing for testing (and there are many, many of those across this land) is a minute not spent instructing something else. Then, there is very good reason to believe that the harm goes even farther, with testing potentially contributing to behaviors that really undermine student achievement, up to and including students deciding to drop out of school (Amrein & Berliner, 2003). The most constructive way to call them on their policy is to do telling research, true experimental research, and then use the results of such inquiry to leverage better policy in the future.

I cannot comment on the government and testing without saying at least a few more words about DIBELS. I already mentioned briefly one of the results from my own study of DIBELS (Pressley, Hilden, & Shankland, 2006), which, basically, confirmed that DIBELS is revealing about reading speed when reading comprehension is low. So, if you are interested in knowing about reading speed with low comprehension and memory of text, DIBELS is a great measure!

I want to comment on another aspect of DIBELS, however. DIBELS proponents make the case for it as a “dip stick” measure, a quick indication of whether the child is making progress in reading. Now, when I heard this description, it led me to expect quite a bit from DIBELS. After all, the height of the oil on my dip stick in my Honda correlates very highly with the actual volume of oil in the engine. Moreover, assuming the engine has just been turned off, the impurities in the drops of oil on the dip stick are very representative of the impurities in the oil in the crankcase. If the height of oil on the dip

stick is low, I can be certain that I should add oil. If the oil on the dip stick is dirty, I can be certain I should change oil.

Not so with DIBELS. In my own study, DIBELS oral reading at the grade 3 level only predicted 20 percent of the variance on a more comprehensive reading test. If you go to the DIBELS website, <http://dibels.uoregon.edu/>, and read the predictive studies archived there, in the very best cases, DIBELS only predicts 50 percent of the variance in more comprehensive reading performance. What that means is that DIBELS often flags children as at risk who will do just fine on the comprehensive measure. It also means that it often signals that there is no problem when, in fact, performance on a more comprehensive test of reading would be troubling. DIBELS oral reading is a lousy dip stick! DIBELS does not have the reliability of a Honda. Maybe it is a Yugo!

When the entire body of research on DIBELS is read, the only reasonable conclusion is that this is not a very completely validated test. But, here is what really irks me. A claim is often made that DIBELS can be used to guide instruction. If you read the DIBELS manual, you will find, however, that there is absolutely no guidance at all about what should be instructed for children to do better on the DIBELS...or become better readers if DIBELS flags them as at risk for reading failure.

This administration wraps itself in claims of promoting practice that is evidence based, research based. Nobody who is really respectful of evidence would recommend a measure such as DIBELS as a “dip stick.” Educators should demand evidence that administering DIBELS improves reading performance broadly measured before agreeing to continue administering the assessment. Again, the hypothesis that DIBELS administration can produce data that affect teaching so as to improve student achievement is easily testable in a true experiment and must be tested if a case is to be made that DIBELS should be prominent in reading education decision making.

Finally, before departing this subsection on testing, I must fulfill a promise that I made to Richard Anderson. To meet that promise, I’m going to ask you to read and reflect on a poem, “Introduction to Poetry,” by Billy Collins. [See <http://www.loc.gov/poetry/180/001.html>] OK, now, I will test your comprehension of the meaning of the poem:

Select the best answer. The poem “Introduction to Poetry” means

- a. There is one best meaning to a poem.
- b. Poems can be read and appreciated by animals, including mice.
- c. Poems can be read at the beach.
- d. Only stupid people think poems have one meaning that can be tapped with a multiple-choice item.

What Anderson wanted me to tell you is that progress in reading, and especially reading comprehension, is going to be severely handicapped by continuing to rely on multiple-choice testing. As I usually do, I agree with Professor Anderson on this point. There, in fact, is a great deal of new thinking emerging about comprehension assessment (see Paris & Stahl, 2005), with this an active area of research, an area of research that I hope expands and leads to new thinking about how to measure comprehension. At present, testing probably is doing much harm—for example, prompting children and others to

think that a Billy Collins poem could have only one best meaning, a long outdated notion of response to literature (Rosenblatt, 1938, 1978).

I close by stating simply that testing, especially standardized testing, is not what it needs to be if it is to be helpful to educators. I also close by reflecting on the teaching of very effective teachers, something I have been doing for more than a decade. I have never once observed an effective classroom teacher use standardized test data in her or his decision making. I have seen effective schools do so to identify students in need of help, but I have never seen a school use the subscale scores of comprehension reading assessments to tailor instructional decision making, relying instead on clinical impressions and informal reading assessments to do so. As research on testing proceeds, there needs to be a lot of attention to the development of assessments that are truly helpful to educators, so helpful that effective educators will recognize they should use the data provided by the test.

I know that as I made my closing point in this section on parts that many of you are bristling, recognizing that in the current environment, testing is being used to judge educators, as part of an approach to educational improvement intended to weed out ineffective teachers and schools based on test scores. Well, my response to that is that if testing is to continue for such a purpose, there needs to be scientific study that testing so used, in fact, does lead to better student outcomes. That could be tested scientifically in decidedly true experiments, and, if the current administration were truly pursuing practice that is evidence based, they would be testing it. I see no sign, however, that this administration has an evidence-based perspective with respect to testing, and I truly believe that in the absence of such an evidence base, a very good case can be made for pulling back on testing considerably. I could go on for hours about the testing mess but will end now.

Closing Comments

This talk started with a reflection on wholes and parts. I then made the case that we very much need to expand research on the nature of effective classrooms and schools but, more important, on how to create more effective classrooms and schools. As I talked about whole classrooms, curricula, language worlds, and schools, inevitably I had to talk about parts. Given the limits of the human mind, it is the only way to conceptualize the complex in many ways. It is also a good way to think about the wholes, because reading educators and researchers are more experienced at focusing on parts, creating them, evaluating them, and improving them. The back end of the talk focused on some studies of parts that need to be done, and soon.

Of course, as this work is done, the hope is that many educators will fold these components into whole classrooms. I am very confident that the future of schooling will be better if we come to understand better how to differentiate instruction—for example, providing more phonics to students who will most benefit from it as well as more holistic instruction to students who will most benefit from it. Reading education will improve dramatically if better ways are found to improve fluency and vocabulary. Additional research on learning from literature and information texts has the potential to inform many teachers better about how to encourage children to get the most from the books

they experience. Personally, however, I am most excited that it might be possible to make comprehension strategies instruction more appealing. Of course, there will be time to incorporate the new teaching insights into classrooms and schools if time and other resources are freed up by eliminating testing that is not promoting children's achievement. The work on parts I have proposed this morning has great potential for transforming whole educational worlds. I'm going to do my best to be part of this work, and I urge all of you to think hard about how you can contribute.

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