Community Literacy Journal

Volume 3
Issue 1 *Fall*

Article 2

Fall 2008

Literacy Across the Lifespan: What Works?

Timothy Shanahan
The University of Illinois at Chicago, shanahan@uic.edu

Recommended Citation
Shanahan, Timothy. "Literacy Across the Lifespan: What Works?" Community Literacy Journal, vol. 3, no. 1, 2008, pp. 3–20, doi:10.25148/clj.3.1.009478.

Literacy Across the Lifespan: What Works?

Timothy Shanahan

This article explores similarities in literacy learning across various lifespan stages and considers what actions must be taken to improve literacy attainment and achievement, whether the delivery site is prekindergarten, elementary, secondary, adult, family, workplace, volunteer, or community literacy. The emphasis here is on what it takes to successfully teach individuals to read and write well separate from any adjustments that must be made for context or learner characteristics. Research is examined for five essential variables in literacy learning, including (1) amount of teaching; (2) content of instruction; (3) quality of instruction; (4) student motivation; and (5) alignment and support.

This article explores what must be done to improve literacy attainment and achievement, whether the delivery site is prekindergarten, elementary, secondary, adult, family, workplace, volunteer, or community literacy. What it takes to successfully teach individuals to read and write well does not change with context or learner characteristics. This does not mean that no adjustments in the values of these essential variables are needed to teach literacy successfully, only that appropriate adjustments in them can only be made if literacy providers have a clear idea of what these commonplaces are and how they work.

The most fundamental idea that must be understood to support literacy growth is that, when it comes to literacy, teaching nothing matters more than the learner's experience. Educators and policymakers often get drawn into ideological debates over instructional approaches and resource deployment, but these arguments are often irrelevant when it comes to affecting students' actual classroom experiences. Actions that improve or extend the students' actual learning experiences are worth expending.

There are five essential variables in literacy learning, and each will be explored here briefly. These essentials are (1) amount of teaching; (2) content of instruction; (3) quality of instruction; (4) student motivation; and (5) alignment and support.

Amount of Teaching

According to research, amount of teaching is the single most important determinant of amount of literacy learning (Carroll, 1963 Seidel & Shavelson 2007; Walberg, 1986). Research has not been very precise about what counts as teaching, but it certainly would include teacher presentations, modeling, and explanations. It would also usually include many student activities such as

guided practice or independent practice. Some researchers make the valuable distinction between allotted time and engaged time, noting that the amount of "teaching" delivered by teachers can be discrepant from the amount of teaching that children actually receive. Whatever the specific definition, it is essential that literacy instruction—wherever and by whomever it is delivered—provide substantial amounts of reading and writing instruction. There are all kinds of indirect indicators of the importance of time. Think, for example, of the close correlation between years of schooling and literacy levels (Kirsch, Jungeblut, Jenkins, & Kolstad, 1993; Meehan, 1999; OECD, 1995; Wagner, 1992); the reason senior citizens often have the lowest literacy levels in a community is due to the fact that members of their generation were relatively less likely to attend school or to attend it for extended and continuous periods of time. A similar pattern is often discernible within our immigrant communities as well. Historically, the amount of schooling available and the proportion of a population enrolled have determined national literacy levels (Kaestle, 1991). In 1900, the average amount of schooling for white men in the United States was eight years; now it goes beyond a high school education (and with each increase in educational participation, literacy levels have climbed).

Research supports calls for the establishment of a universal pre-K education system (Molfese & Westberg, in press), and efforts to make kindergarten all-day are also solidly supported by studies (Fusaro, 1997). Other approaches to improving literacy that can help to increase literacy levels are extended school days (Hartry, Fitzgerald, & Porter, 2008), extended school years (Frazier & Morrison, 1998), summer school (Cooper, 2001); parent involvement, especially those efforts that involve children in school-like activities away from school (Lonigan, Escamilla, & Strickland, in press; Sénéchal, & Young, in press), and truancy prevention and high school dropout prevention (New York City Board of Education, 1989) can all help to increase literacy levels.

Unfortunately, even when lots of literacy teaching is available, there still can be enormous variations in the amount of teaching received (ACT, 2006; Fisher & Berliner, 1985; Smith, 1998; Stallings, 1982). Observational studies suggest that students lose, on average, about one day of instruction per week due to problems with classroom management and discipline, lack of adequate teacher preparation, and other factors that interfere with teaching (Smith, 1999). These studies suggest that students tend to wait a lot, but they also suggest that classrooms vary greatly in how much teaching is actually delivered to engaged students—even within the same schools.

There are so many studies showing the importance of amount of instruction that the first question when evaluating any kind of literacy program should always be, "How much teaching is provided?" And it should be obvious that this question really has two parts, one concerning the amount of teaching allotted and the other on what is received. For example, the nationally-funded Reading First effort required primary grade classes to provide 90-minutes of daily "uninterrupted" reading instruction. But observational studies of Reading First implementation reveal that these classrooms provide less than an hour of such

daily teaching—meaning that more than a third of the promised instructional time is not being delivered (Gamse, Bloom, Kemple, & Jacob, 2008).

There are, of course, other events and circumstances that need to be accounted for in considering time use, these include student and teacher absences, tardiness, mobility, field trips, assemblies, classroom parties, test-preparation, public address system announcements, and so on. Sometimes the classroom schedule itself is the culprit. I recently visited a middle school that had purchased a very expensive reading intervention program for use with their low-achieving students; the program required 90 minutes per day of instruction, but the school was using it within a 45-minute language arts period, an approach that surely will reduce the positive impact of the program.

Literacy programs based outside of schools have even more serious time challenges. It is well documented that volunteer literacy programs struggle to keep both students and volunteer tutors in place long enough to allow for sufficient amounts of teaching (Darkenwald & Silvestri, 1992; Denny, 1992). Most instructional programs aimed at adults–no matter how well designed and delivered—struggle to compete for a place in adult schedules: transportation, health, child care, and work demands often undermine the amount of time students will be available to be taught, and not being in a compulsory education system makes motivation a very big time issue.

Content of Instruction

Iron rusts due to moisture, but rusting or oxidation is not an immediate phenomenon; it, too, takes time. Amount of teaching surely matters, but as with oxidation there is some process taking place during that time that is the real cause of the outcome. In teaching, the active ingredient is the teaching of some curriculum. The second biggest determinant of student learning is what we teach (Walberg, 1986).

In some fields, what is taught is a matter of choice or values. History teachers debate the appropriate mix of American history and world culture; science teachers debate the relative importance of life science and physical science. These choices determine what is learned (students who spend more time studying life sciences end up knowing more biology than would have occurred had they spent that time on physical science), but they are arbitrary and there are many ways someone could focus such curricula (Walker & Schaffarzik, 1974)

Literacy learning is not arbitrary. Since it is more a skilled activity than a mastering or memorizing of information, there are particular things that must be learned to allow someone to read or write adequately. Over the past decade, several authoritative reports have synthesized research findings on teaching literacy and these have highlighted the key aspects of literacy that must be emphasized if students are to become literate (August & Shanahan, 2006; NELP, in press; NICHD, 2000). These elements of learning should be the main content of a literacy program, and they need to be emphasized in any kind of literacy program since their mastery is essential to increased levels of literacy attainment.

The key elements of literacy learning that have been described so far include phonological awareness (the ability to hear and think about the sounds of the language), phonics (the ability to use the sound-letter relationships to decode or spell words), vocabulary (the knowledge of word meanings), oral reading fluency (the ability to read text accurately, with sufficient speed, and prosody), reading comprehension (being able to understand and remember ideas presented in text), and writing (being able to compose one's own ideas in written form for others to read).

Each of these elements meets five key criteria that should give us confidence in their value. First, each of these elements is *teachable* (August & Shanahan, 2006; NELP, in press; NICHD, 2000); research has shown that a learner's ability can be increased to hear language sounds, to decode words and know their meanings, to read text so that it sounds like text, to think about ideas presented in text, and to write. Phonological awareness instruction tends to improve phonological awareness and oral reading fluency instruction tends to improve oral reading fluency. This is important because it only makes sense to focus valuable instructional time on teaching things that learners can learn or that teaching can really facilitate.

Second, each of these aspects of literacy learning has been found to possess *generalizability.* This means that the teaching of any of these elements can be sufficient to improving overall literacy attainment at least for some students (August & Shanahan, 2006; NELP, in press; NICHD, 2000). Research has shown, for example, that phonics teaching improves reading comprehension; similar findings are available for vocabulary, oral reading fluency, and the other elements of literacy (NICHD, 2000).

Third, research demonstrates the combinability of these components as well (Bowey & Patel, 1988; Shanahan, 1984; Lonigan, Schatschneider, & Westberg, in press, b). This means that measures of the various elements tend to be positively correlated with each other, and that progress in each component correlates positively with overall reading achievement. Students who learn more vocabulary tend to pick up decoding more easily; those who comprehend well, tend to write well, and so on.

Fourth, there is evidence that shows the possible independence or separability of the different elements, too. Such evidence includes case studies of precocious, learning disabled or brain-injured subjects who have been able to make gains in one component without commensurate or similar development in the others, or who struggle with one component while showing reasonable progress with the others (Ewing-Cobbs & Barnes, 2002; Stanovich, 1986). Most experienced literacy teachers are aware of a student who could sound out words, but who had no idea what he or she was reading, or the student who could read fluently, but without understanding (a phenomenon even more common with second-language learners). Research has even documented the occurrence of proficient writing performance in the absence of good reading skills (Tierney & Shanahan, 1992). That the various literacy elements can operate separately (or in surprising sequences—such as phonics instruction improving phonemic awareness skills or comprehension

instruction improving fluency—reveals why it is critical that all elements be taught (one simply cannot assume that the teaching of one element will necessarily and automatically lead to gains in another for all learners).

Finally, these literacy elements each have their own unique growth curves that must be attended to in teaching (Chall, 1996). Phonological awareness is important early in the learning sequence (preschool, kindergarten, grade 1), but it matters very little once students can decode adequately. Of course, if an adult learner is struggling to decode, a lack of sufficient phonological awareness could be the problem. Sufficient decoding skill needs to be accomplished by the time students are at about a second or third grade reading level, though there still might be some minor benefits to some small amount of decoding teaching (e.g., multisyllable words) beyond these levels of attainment, and, again, older learners still might not have sufficient decoding skills despite their ages. That these elements are learned at different speeds or at different points along the developmental continuum highlights the importance of instructional attention being devoted to each.

It is essential that instructional time be devoted to all of these elements given that each of them can be taught successfully, that they are positively correlated with each other, that teaching each element improves general literacy (and not just performance with the specific element), and that despite positive correlations it is impossible to ensure adequate learning of any element without direct instructional attention. For young readers, instruction in all of these elements is necessary. With older readers and second-language learners who may be literate in a home language, phonological awareness and phonics might already be sufficiently developed to a point that instruction can safely ignore these particular skills. However, it is rare that any of the other skills can be ignored at any level, and many older readers still need attention to the various aspect of decoding because of important gaps in their learning.

Phonological Awareness

English is an alphabetic language, meaning that the letters and spelling patterns correspond to the language sounds within words. In order to learn to match letters and sounds, it is essential that students be able to hear the individual sounds or phonemes (Torgesen & Mathes, 2000). The development of phonological awareness is a natural aspect of language development, but it is relatively late in its onset, and is usually absent or weak when children are first being taught literacy. The National Reading Panel reviewed 52 studies that showed that phonemic awareness (the most sophisticated of phonological awareness skills, the ability to hear the individual phonemes within words) could be taught and that such teaching facilitated later literacy development, particularly decoding skills (NICHD, 2000).

That research review found that students did not necessarily need extensive amounts of phonemic awareness instruction (approximately 16-18 hours of such teaching was usually sufficient for kindergartners and first graders). Phonemic awareness instruction was most effective when it was kept simple. More recent analyses (Lonigan, Schatschneider, & Westberg, in press, a) suggest

that development in other phonological skills are the basis of later phonemic awareness. This means that young children (preschoolers and kindergartners) benefit from an emphasis on larger phonological units–word and syllable awareness—as well as on rhyming and distinguishing onsets from rhymes.

Phonics

The English language has 26 letters and these letters, along with various combinations, correspond to approximately 45 phonemes. The connection of sounds to letters and spelling patterns is a complex one in English because each letters can stand for one or more sounds, combinations of letters can have single sound associations (such as /sh/ or /th/), and more complex spelling patterns may determine which sound a letter takes in a particular word environment (such as silent "e"). Readers, however they are taught, must ultimately come to interpret these relationships between sound and spelling.

Although it is certainly possible for at least some readers to infer how the alphabetic system works without explicit teaching, the National Reading Panel review concluded, on the basis of 38 studies of phonics instruction, that systematic and explicit teaching of decoding improved reading achievement (NICHD, 2000). The reports of the National Literacy Panel for Language Minority Children and Youth (August & Shanahan, 2006), and the National Early Literacy Panel (in press) also found that phonics and phonemic awareness instruction were beneficial to second language learners and young children (preschoolers and kindergarteners). Explicit teaching is direct with clear and intentional learning outcomes, and it is systematic if there is a clear curriculum specifying each of the skills to be taught in sequence. These studies of phonics were conducted with children in grades K through 2, and with older struggling readers. Decoding instruction with young children was implicated in improved spelling, decoding, and comprehension, while later decoding instruction seemed to have a positive impact only on decoding itself. Thus, this kind of teaching seems especially appropriate when learners are starting out with English reading instruction, and it becomes less useful as they get beyond a second or third grade reading level.

Vocabulary

It is difficult to understand a text if one does not understand the meanings of the words in a text. Thus, it is not surprising that the National Reading Panel's review of 45 studies showed that word meaning instruction (and the teaching of meaningful word parts like prefixes, suffixes, combining forms, etc.) improved reading comprehension (NICHD, 2000). The National Literacy Panel for Language Minority Children and Youth found vocabulary instruction to be especially important for second language learners; such instruction had even bigger effects on their learning than was found with first language learners (Shanahan & Beck, 2006). Vocabulary development was clearly implicated in the reading, writing, and spelling development of young children, too (Lonigan, Schatschneider, & Westberg, in press, b).

According to these various reviews, effective vocabulary instruction requires more than a brief exploration of a word's definition, such as copying definitions from dictionaries. Effective vocabulary instruction leads to a thorough consideration of a word's meaning and its relationship to other words. Such instruction provides a great deal of exposure to a word through reading, listening, speaking, and writing, and opportunities for continuous review.

Fluency

Although fluency—the ability to read a text accurately, with sufficient speed and proper expression—refers both to silent and oral reading, the research suggests that oral reading instruction is most effective for developing this ability (NICHD, 2000). Activities like paired or assisted reading, in which students take turns reading portions of a text aloud to each other, giving each other feedback, and rereading the text multiple times until it can be done well have been found to be effective from the primary grades through high school.

Explicit teaching is direct with clear and intentional learning outcomes, and it is systematic if there is a clear curriculum specifying each of the skills to be taught in sequence.

Students who are fluent can usually read a text with only about one mistake per hundred words, and they can read the text smoothly and quickly (not speed reading, but reading something akin to the speed of oral language) (Betts, 1946). By the end of first grade an average reader can read about 50 words per minute, while eighth-grade readers commonly can read about 150 words per minute (Hasbrouck & Tindal, 2006). This reading would include appropriate pausing and emphasis so that the text sounds like language.

Reading Comprehension

Although decoding, fluency, and vocabulary instruction all can lead to improvements in reading comprehension, so can explicit teaching in comprehension. The National Reading Panel reviewed more than 200 studies on the explicit teaching of comprehension and found such teaching to be effective (NICHD, 2000). Comprehension instruction should emphasize the nature of the information to be attended to during reading, how text is organized, and strategies that can guide the reader's independent thinking during reading to facilitate greater understanding and recall. For beginners, learning what information to pay attention to during reading might be tied to general ideas such as knowing that good readers focus on literal information that the author explicitly tells, inferences based upon interpretation of the information the author provided, and prior knowledge or the information that the reader himself or herself brings to a text. As children get older, and

the reading demands get more challenging and more disciplinary in nature, instruction needs to show them what kinds of information to seek when they are reading history, science, mathematics, literature or technical text (Shanahan & Shanahan, 2008).

Text organizations vary greatly across narrative and expository text (Graesser, Golding, & Long, 1996; Weaver & Kintsch, 1996; Wolfe & Mienko, 2007). Students need experience and instruction in dealing with both of these. For reading narratives, children need to learn about plot structure, including characters, problems, solutions, and outcomes. By knowing the organizational structures of a story, readers are better able to identify key information and to remember the story later. Similarly, readers need to know how expository texts are organized (such as problem-solution, cause-effect, comparison-contrast), including knowing that particular types of information will be provided in particular texts. They also need to understand how information is organized on Web pages, in work manuals, and in other real-life texts that could profitably be the focus of a community literacy program.

Finally, it is essential to remember that students benefit from comprehension instruction—not just practice. Many teachers give students reading assignments that require the answering of questions, but such practice alone is inadequate and insufficient. Students can be taught how to think about text effectively. There are a plethora of techniques that can be used by readers to guide their thinking about a text (NICHD, 2000). Teaching students to monitor their reading (to make sure that they are understanding and to ask for help when they are not), to ask their own questions, to summarize, and to translate text into graphic form, such as comparison charts or Venn-diagrams that show overlapping ideas, are just a few of the techniques that can be taught.

Writing

The ability to compose one's own text, and not just read the texts of others, has become increasingly valuable in American life. Writing matters on its own, so it needs to be taught, but it also has importance in the context of trying to teach reading, since reading and writing depend on many of the same skills and knowledge, including knowledge of spelling patterns, sound-symbol relations, text organization, and vocabulary (Shanahan, 1984). Learning to read and write simultaneously can give learners an advantage (Fitzgerald & Shanahan, 2000; Shanahan, 2006; Tierney & Shanahan, 1992). Writing allows for a powerful exploration of reading skills. When students try to spell words by the way they sound, they are thinking about sound-symbol relationships in a productive manner that can provide valuable extensive practice. Similarly, when writers try to organize their thoughts in particular ways or to use particular vocabulary, they gain insights to these aspects of text that can help them to read better.

So what do writers need to learn (MacArthur, Graham, & Fitzgerald, 2006)? Writing instruction should teach students how to re-tell events (narrative writing), explain and analyze information (exposition), and argue

a position effectively (persuasion). It should teach students how to fit their voice and messages to meet the needs of diverse audiences, and how to write appropriately elaborated, focused, and organized text that uses proper mechanics, usage, grammar, and spelling. Writing instruction should help students to gain a variety of ways that they can use effectively to prepare for writing and to revise and edit what they have drafted. Research shows that there are many effective and efficient ways of providing such writing instruction (Graham & Perin, 2007).

Quality of Instruction

The term *quality of instruction* is used here to describe any characteristic of teaching that influences learning, but is not about the amount of teaching or the content being taught. Anything a teacher can do to improve learning can fit within the quality label if it facilitates greater learning. For example, studies have shown that teachers differ in their quality or clarity of explanations of thinking during reading comprehension, and that these differences lead to more or less learning (Duffy, Roehler, Sivan, Rackliffe, et al., 1987). Thus, quality of teacher explanation is a factor in quality of instruction.

Similarly, the reading levels of the text materials used to teach reading can be too easy or too hard to promote learning (Morgan, Wilcox, & Eldredge, 2000; O'Connor, Bell, Harty, Larkin, et al., 2002). Generally, if a text is too hard for a learner to read (i.e., the reader can read few of the words in the book), then very little learning is likely to occur from working with that particular text. If a text is too easy (i.e., the reader can read all the words in it and understand it without instruction), then it is doubtful that much more could be gained from any amount of engagement with this text.

Instruction can differ in how much involvement it requires of students. For instance, "round robin" reading, in which a teacher has one student reading aloud while the others listen, is very engaging for the reader, but not for the listeners. In fact, studies suggest that the student doing the oral reading in such circumstances is learning something about reading (Stallings & Mohlmna, 1982), but the other students typically are not. An approach like paired reading, in which half the students in a class might be practicing their reading simultaneously, fosters more learning than round robin reading.

How instruction is delivered can make a difference as well. For example, research shows that writing instruction that allows students to use word processors, as opposed to handwriting, have a bigger impact on learning (Graham & Perin, 2007). This may be attributable to time issues (students can often type faster than they can write, so more writing actually gets done within a given period), or motivational ones (students might be more engaged because they like working with computers). It could also be that students are more likely to be involved in meaningful revisions of what they have written because of the affordances of word processors, which would mean they were being more deeply engaged in the writing process.

Intensity and thoroughness of instruction are other important aspects of quality of instruction. The studies reviewed by the National Reading Panel

reveals thoroughness, in successful experimental instructional treatments (NICHD, 2000). For example, successful comprehension instruction did not jump sporadically from strategy to strategy, but instead focused continuously on a single strategy or a single combination of approaches for several weeks, giving the students opportunities to use them under various circumstances and with a variety of texts. The same was true of successful strategy instruction in writing (Graham & Perin, 2007).

Sometimes effective instruction is just particularly responsive to student needs. Studies suggest that monitoring student learning and adjusting instruction based on this assessment information can be particularly effective (Meisels, Atkins-Burnett, Xue, Nicholson, et al., 2003). For example, if students are having difficulty learning phonics, it might be wise to check to see that they have the phonemic awareness development that would allow them to benefit maximally from this instruction. Or, another example, teachers might assess student learning and provide additional teaching as necessary for those who aren't mastering the new skills or information sufficiently.

Motivation

Quantity, content, and quality of instruction are all critical factors in literacy development, and all of these are directly under the influence of the literacy teacher. However, another critical dimension of the learning situation is the student's own motivation. Teaching is likely to be most successful under circumstances when students are trying to learn, rather than when they are resistant to a teacher's efforts. Motivation matters at all levels of teaching, but in literacy teaching the need for it is most apparent as students grow older or after they have confronted failure; the need for motivation is especially evident when attending a literacy class is the choice of the student, such as when an adult decides whether or not to seek adult literacy education.

Research on motivation does not provide the same kind of clear prescriptions for programs as the more cognitive research on what and how to teach. There are few "gold standard" experimental studies of motivational regimes that will consistently make learners try to learn. Nevertheless, this research does suggest what people commonly find to be motivational and suggests some avenues that teachers might explore in their design of successful instruction. Reading motivation researchers talk about the so-called "4 C's" of motivation (Turner, 1995; Turner & Paris, 1995), and writing researchers touch on many of the same variables in their conceptualizations of what writers find motivational (Hidi & Boscolo, 2006). Instructional designers would be wise to heed their insights.

The first C is for curiosity or choice (Wigfield, Guthrie, Tonks, & Perencevich, 2004). Learners are interested in their world and they want to be able to exert some voice over what they pursue. In school assignments teachers support this motive force by letting the students pick some of the stories or novels that the class will work with, instead of just reading ones the teacher has imposed, and this kind of balance can provoke interest. With adults the issue is more serious as they might not be willing to participate at all in a literacy program if they are

not able to exercise some choice and to pursue their own interests or purposes (a common strategy for adult literacy teachers is to allow their students to help set the learning goals at the beginning of the program).

The second C is for competence (Guthrie, Wigfield, Metsala, & Cox, 1999). Human beings strive to accomplish. We want to be good at doing things; that makes us feel good about ourselves and competencies can meet important functional needs. Unfortunately, literacy teaching may be anything but motivational, because it often undermines the student's feeling of competence (Turner, 1995). The adults in a community who seek literacy services sometimes have had little opportunity for education, and for them literacy seems positive, though perhaps unattainable. With such learners initial motivation may not be such a big deal. However, many more adults who seek such services have usually had the opportunity to learn, but have failed to be successful for some reason. Such failure disrupts their sense of confidence and does not encourage them to want to engage in learning. Students, under such circumstances, may flee from instruction when the literacy learning gets too difficult.

It is critical that literacy instruction give students a clear idea of their success. It is not enough that they make progress, but they must be aware that they are making progress. Literacy teaching often seems amorphous to students and it can be unclear to them what they are actually learning. It is important that teachers make it obvious to students what they are learning and what value this has.

The third C is for challenge and this represents the idea that people are motivated to do things that they think are difficult. Human beings want to be competent, but they strive for competence in actions that represent, to them, real accomplishment. Even effective literacy programs for teens can seem so disconnected from real life uses of literacy; that the students are not persuaded of the value of what they are learning. Teachers cannot expect learners at any age to be excited about going from a third-grade reading level to a fourth-grade reading level. Although that is important, for the student it may not represent a meaningful goal. However, if students can see that as a result of the teaching they can now read certain books to their children, pay their own bills, complete a job application, figure out how to get to where they want to go on mass transit, or read their own training manual from work, they will be more likely to strive to learn.

The final C is for collaboration and it refers to the human desire to connect with other human beings (Morrow, 1996). Studies show that cooperative learning activities in which students work together to accomplish their goals can be quite powerful (NICHD, 2000). Adults may be embarrassed by their limitations in literacy learning, and for awhile this might mean they want to conceal their involvement in a literacy class or they might be more comfortable working on a computer than with a live instructor. But even under these circumstances, faster progress is likely when ways can be found to help learners to connect their learning with other people. For example, in one community literacy program that I worked with, the women students

created a reading group or book club and they would get together to discuss the books they were reading. Or, in some cases students find ways of involving their family members in their learning efforts.

Alignment and Support

There are many actions that can have a positive impact on student learning. Professional development for teachers (Ross, 1992), adoption of high quality instructional materials and technology (What Works Clearinghouse, 2007), more careful supervision of the teaching efforts Hallinger & Heck, 1996), the use of assessments that can better inform instruction (Meisels, Atkins-Burnett, Xue, Nicholson, et al., 2003), and on and on. Why aren't such efforts listed as essentials here, co-equal with quantity, content, and quality of teaching and motivation? The reason is that these kinds of alignment and support variables, although they can be beneficial, lead to higher literacy learning only to the point that they somehow enhance quantity, content, quality, or motivation. In other words, variables such as professional development for teachers and tutors matter, but only to the extent that they actually lead teachers to increase instruction, to focus on neglected content, to improve the quality of the teaching, or to better motivate the students.

Consider this. A program has received a grant to set up a computer lab. The availability of such technology could have a very powerful and positive impact on student learning. The question is: Will it? It is possible that the availability of computers could be used to extend the amount of teaching time, or to increase the amount of student practice once regular teaching is completed. However, it is also possible that instructional time will not rise despite the computers because your center hours will remain the same and your schedule, or the students', might not allow them to stay longer to work on their lessons.

Improving literacy for all is a cherished goal among educators and policymakers who recognize the role that literacy plays in the economic, social, political, and personal spheres of our lives.

Perhaps the computers will allow you to purchase some instructional programs that delve into content that is currently being neglected, but, if you have a fairly complete program of instruction in place already, then that would not be a likely outcome of the purchase. Maybe your teaching force is made up mainly of inadequately trained volunteers, and you believe that the electronic instruction can do a better job of explaining particular skills or may be more consistent in getting students to understand particular spelling patterns, word meanings, or text structures. But, research suggests that technological programs are rarely better than human ones, so quality improvement might not actually occur.

Finally, it could be that your students will be motivated by the new machines, by the opportunity to pursue their own choices, by the chance to

develop competency in something challenging (e.g., working with computers), and this could help increase their literacy learning efforts. But, there are big individual differences in what motivates different people, so you are likely to have some students who are stimulated by the new computers and others who are stultified or uncomfortable because of the possible loss of the human interaction that they were seeking.

Although variables such as materials, assessments, and professional development can help to make literacy programs more powerful, their effects will only improve student literacy to the extent that they alter the students' learning experiences in key ways (by increasing the amount of teaching, focusing the teaching on neglected but essential areas of instruction, improving the quality of the teaching, or increasing the students' motivation to learn). For this reason, it is worthwhile to align *all* program variables with those first four variables that define student learning experiences. Every decision about schedules, books, training, supervision, assessment, and so on, should consider what impact the changes will have on those four variables.

Conclusions

Improving literacy for all is a cherished goal among educators and policymakers who recognize the role that literacy plays in the economic, social, political, and personal spheres of our lives. As educators, we have to ask ourselves four key questions about every choice we make in the design and delivery of literacy programs. First, given the clear importance of amount of instruction, what can be done to provide sufficient amounts of instruction to meet the needs of students? The answer to this question can range from the establishment of policies that make more instruction available to more people or for greater amounts of time to very specific decisions about how to use class time in a literacy program or when to schedule classes.

Second, given the substantial research on the importance of what we teach, what can be done to make sure that the key elements of literacy development are taught explicitly and thoroughly? It is imperative that instruction emphasize the learning of key elements of literacy, including phonological awareness, phonics, oral reading fluency, vocabulary, reading comprehension, and writing.

Third, what can be done to improve the quality of teaching? Research has identified a small number of actions that teachers can take—beyond increasing the amount of teaching or focusing on key instructional content —that improve achievement. These include matching text difficulty to student reading levels; improving modeling and explanation; recognizing lapses in learning and responding in a timely way with re-teaching; increasing amount of student attention, engagement, and response; and other similar points.

Finally, what can be done to best encourage students to take advantage of the teaching that we are able to provide? In learning, the teacher's efforts are important, but so are the learner's efforts. Motivation matters, and teachers can do much to structure literacy programs and lessons in ways that students encourage student participation and effort.

Works Cited

American College Testing. (2006). *Reading between the lines.* Iowa City: American College Testing.

August, D., & Shanahan, T. (Eds.). (2006). *Developing literacy in second-language learners: Report of the National Literacy Panel on Language-Minority Children and Youth.* Mahwah, NJ: Lawrence Erlbaum.

Betts, E. A. (1946). *Foundations of reading instruction.* New York: American Book Co.

Bowey, J. A., & Patel, R. K. (1988). Metalinguistic ability and early reading achievement. *Applied Psycholinguistics, 9*, 367-383.

Carroll, J.B. (1963). A model of school learning. *Teachers College Record, 64,* 723–733.

Chall, J. S. (1996). *Stages of reading development* (2nd ed.). Orlando: Harcourt Brace College Publishers.

Cooper, H. (2001). *Summer school: Research-based recommendations for policy makers.* Washington, DC: Office of Educational Research and Improvement.

Darkenwald, G.G., Silvestri, K. (1992). *Analysis and assessment of the Newark Literacy Campaign's Adult Tutorial Reading Program: A report to the Ford Foundation.* New York: Ford Foundation. (ERIC Document ED354366).

Denny, V. H. (1992). Access to literacy programs: Perspectives of African-American adults *Theory into Practice, 31,* 337-341.

Duffy, G.G., Roehler, L.R., Sivan, E., Rackliffe, G., Book, C., Meloth, M.S., Vavrus, L.G., Wesselman, R., Putnam, J., & Bassiri, D. (1987). Effects of explaining the reasoning associated with using reading strategies. *Reading Research Quarterly, 22,* 347-368.

Ewing-Cobbs, L., & Barnes, M. (2002). Linguistic outcomes following traumatic brain injury in children. *Seminars in Pediatric Neurology, 9,* 209-271.

Fisher, C. W., & Berliner, D. C. (Eds.), *Perspectives on instructional time.* New York: Longman.

Fitzgerald, J., & Shanahan, T. (2000). Reading and writing relations and their development. *Educational Psychologist, 35,* 39–51.

Frazier, J.A., & Morrison, F.J. (1998). The influence of extended-year schooling on growth of achievement and perceived competence in early elementary schooling. *Child Development, 69,* 495–517.

Frederick, W. C. (1977). The use of classroom time in high schools above or below the median reading score. *Urban Education, 11*, 459-464.

Fusaro, J. A. (1997). The effects of full-day kindergarten on student achievement: A meta-analysis. *Child Study Journal, 27*, 269-279.

Gamse, B. C., Bloom, H. S., Kemple, J. J., & Jacob, R. T. (2008). *Reading First impact study: Interim Report (NCEE 2008-4016).* Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U. S. Department of Education.

Graesser, A., Golding, J. M., & Long, D. L. (1996). Narrative representation and comprehension. In R. Barr, M. L. Kamil, P. Mosenthal, & P. D. Pearson (Eds.), *Handbook of reading research* (vol. 2, pp. 171-205). Mahwah, NJ: Lawrence Erlbaum.

Graham, S., & Perin, D. (2007). A meta-analysis of writing instruction for adolescent students. *Journal of Educational Psychology, 99,* 445-476.

Guthrie, J. T., Wigfield, A., Metsala, J. L., Cox, K. E. (1999). Motivational and cognitive predictors of text comprehension and reading amount. *Scientific Studies of Reading, 3,* 231–256.

Hallinger, P., & Heck, R. H. (1996). Reassessing the principal's role in school effectiveness: A review of empirical research, 1980-1995. *Educational Administration Quarterly, 32,* 5-44.

Hartry, A., Fitzgerald, R. & Porter, K. (2008). Implementing a structured reading program in an afterschool setting: Problems and potential solutions. *Harvard Educational Review, 78,* 181-210.

Hasbrouck, J., & Tindal, G. A. (2006). Oral reading fluency norms: A valuable assessment tool for reading teachers. *Reading Teacher, 59,* 636-644.

Hidi, S., & Boscolo, P. (2006). Motivation and writing. In C. A. MacArthur, S. Graham, & J. Fitzgerald (Eds.), *Handbook of writing research* (pp. 144–157). New York: Guilford Press.

Kaestle, C. (1991). *Literacy in the United States.* New Haven: Yale University Press.

Kirsch, I. S., Jungeblut, A., Jenkins, L., & Kolstad, A. (1993). *Adult literacy in America: A first look at the results of the national adult literacy survey.* Princeton, NJ: Educational Testing Service.

Lonigan, C. J., Escamilla, K, & Strickland, D. (In press). Impact of home and parent programs on young children's early literacy skills. In *The Report of the National Early Literacy Panel. Washington*, DC: National Institute for Literacy.

Lonigan, C. J., Schatschneider, C., & Westberg, L. (In press, a). Impact of code-focused interventions on young children's early literacy skills. In *The Report of the National Early Literacy Panel.* Washington, DC: National Institute for Literacy.

Lonigan, C., Schatschneider, C., & Westberg, L. (In press, b). Results of the National Early Literacy Panel research synthesis: Identification of children's skills and abilities linked to later outcomes in reading, writing, and spelling. In *The Report of the National Early Literacy Panel.* Washington, DC: National Institute for Literacy.

MacArthur, C. A., Graham, S., & Fitzgerald, J. (2006). *Handbook of writing research.* New York: Guilford Press.

Meehan, M. (1999). *Understanding adult literacy: A predictive/classification model.* Unpublished doctoral dissertation, University of Illinois at Chicago.

Meisels, S. J., Atkins-Burnett, S., Xue, Y., Nicholson, J., Bickel, D. D., & Son, S. H. (2003). Creating a system of accountability: The impact of instructional assessment on elementary children's achievement test scores. *Education Policy Analysis Archives, 11*(9), 1-19.

Molfese, V., & Westberg, L. (In press). Impact of preschool and kindergarten programs on young children's early literacy skills. In *The Report of the National Early Literacy Panel.* Washington, DC: National Institute for Literacy.

Morgan, A., Wilcox, B. R., & Eldredge, J. L. (2000). Effect of difficulty levels on second-grade delayed readers using dyad reading. *Journal of Educational Research, 94,* 113-119.

Morrow, L. M. (1996). *Motivating reading and writing in diverse classrooms* (NCTE Research Rep. No. 28). Urbana, IL: National Council of Teachers of English.

National Early Literacy Panel. (In press). *Report of the National Early Literacy Panel.* Washington, DC: National Institute for Literacy.

National Institute of Child Health and Human Development (NICHD). (2000). *Report of the National Reading Panel. Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction. Reports of the subgroups.* [NIH Publication No. 00-4754]. Washington, DC: U.S. Government Printing Office. On-line: http://www.nichd.nih.gov/publications/nrp/report.html.

New York City Board of Education. (1989). *Attendance improvement and dropout prevention (AIDP) demonstration and replication.* Brooklyn: Office of Research, Evaluation, and Assessment Program. (ERIC Document ED326600).

O'Connor, R. E., Bell, K. M., Harty, K. R., Larkin, L. K., Sackor, S. M., & Zigmond, N. (2002). Teaching reading to poor readers in the intermediate grades: A comparison of text difficulty. *Journal of Educational Psychology, 94,* 474-485.

Organization for Economic Cooperation and Development & Statistics Canada. (1995). *Literacy, economy and society.* Paris: Office for Economic Cooperation and Development.

Ross, J. A. (1992). Teacher efficacy and the effects of coaching on student achievement. *Canadian Journal of Education, 17,* 51-65.

Sénéchal, M., & Young, L. (In press). The effect of family literacy interventions on children's acquisition of reading from kindergarten to grade 3: A meta-analytic review. *Review of Educational Research.*

Seidel, T. & Shavelson, R. J.(2007). Teaching effectiveness research in the past decade: The role of theory and research design in disentangling meta-analysis results. *Review of Educational Research, 77,* 454-499.

Shanahan, T. (1984). The reading-writing relation: An exploratory multivariate analysis. *Journal of Educational Psychology*, *76*, 466–477.

Shanahan, T. (2006). Relations among oral language, reading, and writing development. In C. A. MacArthur, S. Graham, & J. Fitzgerald (Eds.), *Handbook of writing research* (pp. 171-186). New York: Guilford.

Shanahan, T., & Beck, I. L. (2006). Effective literacy teaching for English-language learners. In D. August & T. Shanahan (Eds.), *Developing literacy in second-language learners* (pp. 351-364). Mahwah, NJ: Lawrence Erlbaum.

Shanahan, T., & Shanahan, C. (2008). Teaching disciplinary literacy to adolescents: Rethinking content-area literacy. *Harvard Educational Review, 78,* 40-59.

Smith, B.A. (1998). *It's about time: Opportunities to learn in Chicago's elementary schools.* Chicago: Consortium on Chicago School Research.

Stallings, J.A., & Mohlmna, G.G. (1982). *Effective use of time in secondary reading classrooms*. ERIC Document 216 343.

Stanovich, K. E. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly*, *21*, 360–407.

Tierney, R., & Shanahan, T. (1991). Reading-writing relationships: Processes, transactions, outcomes. In P. D. Pearson, R. Barr, M. Kamil, & P. Mosenthal (Eds.), *Handbook of reading research* (pp. 246-280). New York: Longman.

Turner, J. C. (1995). The influence of classroom contexts on young children's motivation for literacy. *Reading Research Quarterly, 30,* 410-441.

Turner, J., & Paris, S. G. (1995). How literacy tasks influence children's motivation for literacy. *The Reading Teacher, 48,* 662-673.

Wagner, D. A. (1992). *Life-span and life space literacy: Research and policy in national and international perspective.* Philadelphia: National Center on Adult Literacy.

Walberg, H. J. (1986). Syntheses of research on teaching. In M. C. Wittrock (Ed.), *Handbook of research and teaching* (pp. 214–229). New York: Macmillan.

Walker, D.F., & Schaffarzick, J. (1974). Comparing curricula. *Review of Educational Research, 44,* 83–111.

Weaver, C. A., & Kintsch, W. (1996). Expository text. In R. Barr, M. L. Kamil, P. Mosenthal, & P. D. Pearson (Eds.), *Handbook of Reading Research* (vol. 2, pp. 230-245). Mahwah, NJ: Lawrence Erlbaum.

What Works Clearinghouse. (2007). *Beginning reading.* Washington, DC: U.S. Department of Education, Institute of Education Science. http://ies.ed.gov/ncee/wwc/reports/beginning_reading/topic/

Wigfield, A., Guthrie, J. T., Tonks, S., & Perencevich, K. C. (2004). Children's motivation for reading: Domain specificity and instructional influences. *Journal of Educational Research, 97,* 299–310.

Wolfe, M. B. W., & Mienko, J. A. (2007). Learning and memory of factual content from narrative and expository text. *British Journal of Educational Psychology, 77,* 541-564.

Timothy Shanahan is Professor of Urban Education at the University of Illinois at Chicago. His research emphasizes reading-writing relationships, reading assessment, and improving reading achievement. He was a member of the National Reading Panel, and chaired the National Early Literacy Panel and the National Literacy Panel for Language Minority Children and Youth. Professor Shanahan is past president of the International Reading Association. He has authored or edited more than 150 publications, incuding the book, Developing Reading and Writing in Second-Language Learners (Routledge, 2008). For more information, visit his blog site at www.shanahanonliteracy.com