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Paper

**RESEARCH ON PROFESSIONAL
DEVELOPMENT AND
THE SCHOLASTIC RED MODEL**

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INTRODUCTION

Ensuring that every child learns to read is a fundamental goal of every school system. Yet, while many children easily become capable readers, some reach adolescence and even adulthood without becoming proficient readers. The consequences of being a poor reader are profound. Students' prospects for academic success, even high school graduation, are severely limited if they reach middle or high school without adequate literacy skills (Lyon 2003).

Many factors related to individual children and their families—poor English language skills, inadequate phonological awareness, biological or psychological influences, and students' family circumstances (e.g., poverty and lack of reading role models at home)—lead to reading problems (Lyon 1996; Honig, Diamond, and Gutlohn 2000). Other factors related directly to school-based instruction negatively affect students' reading development. In elementary school, some students receive ineffective or insufficient instruction or their schools offer undemanding curricula (Snow, Burns, and Griffin 1998). In middle and high schools, struggling readers may receive insufficient reading instruction, and teachers may lack either the training to help these students or the school resources needed to support them (Hall and Moats 2002).

To ensure that all students can achieve their full academic potential, efforts to improve reading have taken center stage in school reform models, school accountability systems, and federal and state decisions about education funding. Improving teaching is one of the key strategies in all of these efforts. There is widespread agreement that schools must have capable reading teachers to increase students' reading achievement. To be successful in teaching all students to read, teachers need solid knowledge and practical skills.

Improved professional development is one of the pillars of federal, state, and local efforts to provide teachers with the knowledge and skills that lead to effective reading instruction. This focus reflects recent research that suggests professional development can improve teachers' skills and practice in the classroom (Porter et al. 2000; Wilson and Lowenberg 1991; Desimone et al. 2002) and that better teaching improves student performance (Cohen and Hill 2000; Smylie et al. 2001; Wenglinsky 2002).

This Scholastic Professional Paper has two objectives. The first is to inform teachers and school administrators about conceptual work and empirical research on “what works” in professional development. In particular, the paper offers a set of principles for effective professional development and explores adult learning theory and studies of teacher professional development, emphasizing research on professional development for reading instruction. The second objective is to inform readers about Scholastic Red, a teacher professional development program for reading instruction that incorporates these principles and research findings.

Improving reading is the centerpiece of federal and state school improvement efforts.

To be effective in raising student academic achievement, schools need capable reading teachers who improve their teaching practice through research-based professional development.

BACKGROUND

There is a growing consensus that professional development must lie at the center of education reform and instructional improvement (Elmore and Burney 1997; Haslam and Seremet 2001). As a result, improving teaching has become a cornerstone of efforts to create better schools. In the words of one researcher, “unless a child is taught by competent teachers, the impact of other education reforms will be diminished. Simply put, students learn more from ‘good’ teachers than from ‘bad’ teachers under virtually any set of circumstances” (Wenglinsky 2000).

Although education research is expanding what we know about how to improve schools, teachers cannot translate even the most persuasive findings about teaching and learning into successful classroom practices without research-based professional development. As a result of research on the characteristics of successful professional development, many school districts have turned away from broad, but shallow, one-shot workshops and large group meetings. Instead, they have embraced more focused, long-term, and site-based approaches that directly target specific teacher practice (Willis 2002). According to researchers, these new models of professional development should give teachers opportunities to apply what they learn, adapt new approaches to their specific classroom settings, and receive feedback on their efforts (Joyce and Showers 1995; Meier 1992).

New approaches to professional development give teachers opportunities to apply their learning, adapt it to the classroom, and receive feedback about their practice.

This new approach to professional development requires—and has generated—both commitment and resources from policymakers and education leaders at all political and administrative levels. Federal officials, in particular, have made professional development one of the most important levers to improve the quality of public education. Most significantly, since the 2002 reauthorization of the Elementary and Secondary Education Act, known as No Child Left Behind (NCLB), teacher professional development has become a major strategy for improving educational outcomes, especially for disadvantaged children.

The No Child Left Behind Act of 2002 highlights teacher professional development as one of the most important mechanisms for improving the educational outcomes of children.

States have joined the federal government in this effort. They have made standards-based education the fulcrum of school reform and recognized that focusing on standards requires states to play a more active role in promoting professional development consistent with those standards.¹

State-level approaches to improving teacher professional development vary depending on states’ individual needs and philosophies. Some states are attempting to reduce disparities that exist across districts in teachers’ access to professional development. Others are targeting professional development resources to particular grades or subject areas such as reading in the early elementary grades or mathematics in middle schools (Hirsch, Koppich, and Knapp 2001).

State education leaders are applying research that suggests broader access to professional development can improve teacher quality and raise student academic achievement. This research has suggested that there is a link between the intensity of state efforts and results for students. For example, a 1997 report by the National Commission on Teaching and America's Future, *Doing What Matters Most*, indicated that states with active efforts to improve teaching during the 1990s showed the greatest improvements in student academic achievement (McDay 1997).

Decision-makers at the federal, state, and local levels have increased their investment in professional development that is based on research.

At the local level, school districts are also investing considerable resources in professional development. Although surveys of districts showing annual expenditures by category are not widely available, a 2002 study estimated that in the late 1990s, school districts allocated nearly 3 percent of their total expenditures to instructional staff support (Killeen, Monk, and Plecki 2002). This figure translated into more than \$9 billion annually in spending in 1998 dollars. While district allocations for professional development did not increase substantially during the 1990s, they have certainly grown substantially since then due to strong state support and the new NCLB professional development requirements.

Professional development has captured the attention of school improvement proponents, who are devoting significant resources to improving schools through enhanced professional development. Focusing on literacy instruction in particular, this paper addresses the following question: What does research tell us about the professional development approaches or elements related to literacy instruction that make a difference for teaching and students' ability to read well?

KEY QUESTIONS ABOUT RESEARCH ON TEACHER PROFESSIONAL DEVELOPMENT

What Do We Know About the Efficacy of Professional Development for Improving Reading Instruction and Student Performance?

According to the National Reading Panel (2000), teacher education must change both teacher and student behavior to be effective. Do we have evidence that professional development produces these changes? At this point, the best answer is a tentative "yes." While much has been written on how teacher professional development can influence both of these outcomes, few studies related to reading teachers meet current definitions of rigorous scientifically based or evidence-based research.²

¹ By early 2004, 48 states and the District of Columbia had established academic standards in the core academic subjects of mathematics, English/language arts, science, and social studies (Doherty 2004).

Nevertheless, a couple of recent efforts have gathered results from many relevant studies based on diverse research approaches. They concluded that reading-related professional development can have direct, positive effects on specific teacher and student outcomes.

Two large research compilations have summarized results from research on reading-related professional development. They conclude that professional development can have positive effects on teachers and their students.

A comprehensive review article for the Handbook of Reading Research (Anders, Hoffman, and Duffy 2000), for instance, summarized findings from 140 studies of reading professional development for classroom teachers. This review identified many studies indicating that professional development had positive effects on both teachers and students. In particular, these studies showed that reading-related professional development can positively influence teacher knowledge (e.g., Sawyer and Taylor 1968), attitudes (e.g., Stieglitz and Oehlkers 1989), beliefs (e.g., Bean, Bishop, and Leuer 1981; Scheffler, Richmond, and Kazelskis 1993), and practices (e.g., Strickler 1976). The studies reviewed also demonstrated positive effects on students' decoding skills (e.g., Strickler 1976), comprehension (e.g., Kurth and Stromberg 1983; Mosenthal 1987; Miller and Ellsworth 1985), cooperation (e.g., Talmadge, Pascarella, and Ford 1984), and attitudes (e.g., Streeter 1986).

Another, more scientifically rigorous study by the National Reading Panel (2000) attempted to determine if professional development for reading instruction is linked to improvements in teacher and student outcomes. The Panel set a very high standard for including studies of in-service professional development in their review, selecting only scientifically based studies that used an experimental design and appeared in professional journals. The Panel could identify only 21 studies that met the selection criteria and examined the effects of in-service professional development on teacher and student outcomes. Findings from these studies were largely positive. Among the 17 of the 21 studies that examined teacher outcomes, 15 showed significant or modest improvements in teachers' knowledge or practice. Among the 15 studies that explored student outcomes, 13 showed improvements in student achievement.

Observations from these two research compilations are promising for what they suggest about a link between professional development and student reading achievement. However, on the crucial issue of "what works" in professional development for reading teachers, the U.S. Department of Education's Institute of Education Sciences (IES) says that the jury is still out. The Institute recently called for expanded emphasis on evidence-based research stating that

² According to the NCLB Act (2002), evidence-based research "involves the application of rigorous, systematic, and objective procedures to obtain reliable and valid knowledge relevant to education activities and programs." Randomized experiments or carefully designed quasi-experiments are the most appropriate methods for meeting this definition of the kind of research that can determine "what works" (Beghetto 2003; Raudenbush 2002).

“particularly in reading, we have little evidence as to what constitutes good professional development that will... change teacher practice, lead to improved student achievement and can be sustained” (U.S. Department of Education 2003, p.2).

Two conclusions emerge from this summary research on reading-related professional development and the IES analysis of that research. First, more research is needed because, although existing findings are suggestive, only a few evidence-based studies have addressed this issue to date. The promising research that is starting to accumulate should form the basis of additional studies that meet the exacting research standards currently promoted by IES.³ Second, while acknowledging that there are current research limitations, federal and state policymakers and educators appear to be on the right track in emphasizing the potential importance of professional development for improving reading instruction and student literacy.

Despite research limitations, current research supports the potential benefits of professional development for improving reading instruction and students' reading performance.

What Approaches to Professional Development Show Promise of Making a Difference?

The following discussion presents a set of principles based on expert professional judgment and a substantial body of conceptual and empirical work related to teacher professional development. Together, they suggest that certain features of professional development can affect teacher knowledge and practice and student outcomes. This literature addresses two broad aspects of professional development that influence whether teachers who participate in professional development apply their knowledge and skills in the classroom and are able to raise students' reading achievement levels. These aspects are the design and delivery model used for teacher training and the content of the program.

³ Equally stringent standards for conducting scientifically based research have been applied to research on reading development by the National Institute of Child Health and Human Development.

RESEARCH AND EXPERT OPINION HAVE LED TO PRINCIPLES OF EFFECTIVE PROFESSIONAL DEVELOPMENT

In the mid-1990s, the U.S. Department of Education's Professional Development Team identified 10 principles of effective teacher professional development (U.S. Department of Education 1995). These principles were developed from a large-scale effort to summarize the best existing research on professional development and the judgments of many experts about promising models that schools should follow (U.S. Department of Education 1997). The Department used these principles to create the National Awards Program for Model Professional Development. According to these principles, effective professional development

Principles of effective professional development recommend a guiding role for teachers, participation by the larger school community, and a process that includes planning, sustained effort, and evaluation.

- focuses on teachers as central to student learning, yet includes all other members of the school community.
- focuses on individual, collegial, and organizational improvement.
- respects and nurtures the intellectual and leadership capacity of teachers, principals, and others in the school community.
- reflects best available research and practice in teaching, learning, and leadership.
- enables teachers to develop further expertise in subject content, teaching strategies, uses of technologies, and other essential elements in teaching to high standards.
- promotes continuous inquiry and improvement embedded in the daily life of schools.
- is planned collaboratively by those who will participate in and facilitate that development.
- requires substantial time and other resources.
- is driven by a coherent long-term plan.
- is evaluated ultimately on the basis of its impact on teacher effectiveness and student learning; and this assessment guides subsequent professional development efforts.

Many of these principles stem directly from a large body of conceptual work on adult learning theory described later in this report. Empirical research also provides evidence concerning the promise of these principles for shaping professional development that improves teaching practice and student academic achievement. The following sections review elements of adult learning theory that are relevant for teacher professional development and the empirical work that is accumulating about effective professional development approaches.

PRINCIPLES OF ADULT LEARNING PROVIDE A FRAMEWORK

Adult learning theory plays an important role in current thinking about what works in teacher professional development. The principles that are part of this theory suggest certain design and delivery strategies aimed at increasing program effectiveness. While researchers have not conducted evidence-based research to test the validity of these principles in relation to learner outcomes, several of these principles are now widely held by those in the adult education field, and they strongly influence how instructional designers shape adult learning programs. Three major principles of adult learning theory are particularly relevant to delivering effective teacher professional development:

- Adult learning depends on critical self-reflection.
- Adults benefit from instruction that addresses differences in learning styles.
- Adults need self-direction.

Critical Reflection Is an Essential Component of Adult Learning

According to adult learning theorists, effective adult learning models capitalize on adults' ability to reflect critically on their experiences. Critical reflection is the process through which individuals make meaning of their experiences and transform old beliefs into new ones. In developing this idea, theorists such as Schon (1983; 1988) have built upon the work of Dewey, Lewin, and Piaget to argue that learning cannot occur without integrating experience and reflection (Imel 1992).

Engaging in reflection is important for learning because it helps individuals analyze their own actions and reactions in situations that call for them to change. In particular, reflection helps them “identify the assumptions and feelings that underlie their practice and then to speculate about how these assumptions and feelings affect practice” (Kottkamp 1990; Osterman 1990; and Peters 1991, cited in Imel 1992). This kind of self-reflection is especially important when teachers are asked to question long-held assumptions about how students learn and to adopt new teaching strategies.

However, Brookfield (1995) suggests that critical reflection is a learner trait that varies among individuals, and it also may be “domain specific.” That is, some adults can be more or less self-reflective than others, and all adults can be more or less reflective in various areas of their life. For example, some individuals frequently reflect on their personal relationships but are less likely to examine their actions in professional settings. If teachers display significant differences in their self-reflective behavior, an important component of effective professional

Adult learning theory stresses adults' need for self-direction, opportunities for self-reflection, and instruction that addresses multiple learning styles.

Self-reflection is central to adult learning, especially when individuals are asked to question long-held assumptions.

development aimed at changing teaching practice may involve supporting and enhancing critical reflection in teachers who already engage in this behavior and helping other teachers to develop this skill. Encouraging teachers to maintain a journal to reflect on their learning experiences and providing opportunities for teachers to share these reflections support this component of the learning process.

Adults' Diverse Learning Styles Require Multiple Instructional Strategies

Adult learning theory suggests that adults, like children, have a variety of learning styles. Also like children, they bring to new learning situations different levels of experience and understanding that affect their understanding of new material and openness to change. In response, effective professional development acknowledges teachers' diverse learning styles, backgrounds, and experiences in its delivery strategies (Learning First Alliance 2000).

The National Staff Development Council's Standards for Staff Development (2001) support this principle of adult learning theory and recommend that professional development programs address differences in learning styles among teachers. Their guidelines state, "The most powerful forms of professional development often combine learning strategies. [For example], . . . to promote the development of new instructional skills, training may be combined with coaching, study groups, and action research."

Research supports the ideas behind these standards. Studies show that professional development has the greatest influence on teacher knowledge and practice when it combines several instructional elements, such as coaching, theory, demonstration, practice, and feedback (Bennet [1987], cited in Snow, Burns, and Griffin 1998). One study of professional development in reading is particularly instructive. It demonstrated that neither lectures nor cooperative learning alone was as effective as both were together in helping teachers learn reading instruction concepts (Wedman, Hughes, and Robinson [1993], cited in National Reading Panel 2000).

Research demonstrates that professional development has greater effects on teacher knowledge and practice when it combines several approaches such as coaching, theory, demonstration, practice, and feedback.

Self-Direction Motivates Adult Learners

An early assumption that emerged in adult learning theory was the idea that adults have a deep need to be self-directing (Lindeman 1926). This idea was later developed in the work of Knowles (1980), Cross (1980), and Lowry (1989) who emphasized that adults and children do not have the same learning needs. In particular, these studies indicated that adults need to initiate the learning process and take an active role in what and how they learn. As an outgrowth of this assumption, adult-learning theorists, such as Lawler (1991), argued that designers of professional development must recognize and accommodate the voluntary or self-directed nature of adult learning. Professional development that offers teachers choices about how and when to learn will likely produce greater

A professional development program will be more engaging to teachers when it offers choices about how and when learning takes place.

interest and more sustained involvement in learning.

Some adult learning theorists, however, have challenged the idea that all adult learning is self-directed. They believe that self-directed learning should be viewed as more of a continuum, with individuals exhibiting varying degrees of self-directedness (Lowry 1989; Heimstra 1994; Merriam 2001). This modified formulation not only acknowledges the importance of and variations in self-direction, but also emphasizes the influence of external factors that help learners take responsibility for learning (Heimstra 1994). In other words, adult learners take responsibility for constructing meaning in learning situations, while the participation and support of others helps to confirm what is worth learning (Garrison 1997).

Recognizing that not all adults are self-directed to the same extent, designers of professional development programs can play an important role in helping instructors empower their adult students to take more responsibility for learning. To do so, they can use delivery approaches that model learning strategies but also encourage teachers to apply and refine these practices in their own classrooms.

The concept of self-direction in adult learning is also important for instructional delivery in the context of another principle of adult learning: adults evolve from simpler to more complex ways of knowing, and they move through these sequential development phases at different paces (Drago-Severson et al. 2001). Extrapolating from this principle, a professional development delivery model that encourages flexibility and self-direction will allow adult learners to pace their learning activities so that they are in sync with their own developmental stage in specific content areas. They can move quickly through material that is familiar and concentrate on new ideas and practices.

Professional development instructors can empower teachers to direct their own learning by modeling learning strategies and encouraging ongoing practice.

Research on Effective Professional Development Addresses Both Delivery Models and Content

Research on professional development contains a variety of findings that relate to potentially effective delivery models and program content. Included among them are studies that show:

- Professional development is more effective when it is part of a collaborative school-improvement process.
- Teachers are more likely to apply new knowledge and instructional methods when they participate in professional development that combines individual practice and mentoring with group activities.
- Teachers improve their practice and students achieve greater learning gains when professional development delivers research-based content and focuses on content-related instruction.

Research indicates that both delivery methods and content influence the effectiveness of professional development.

COOPERATIVE LEARNING ENHANCES PROFESSIONAL DEVELOPMENT

In recent years, the focus of professional development has shifted from changing individual teachers' practice to involving the entire staff in collaboration on common goals and initiatives (DuFour and Eaker 1998; Friedkin and Slater 1994). This new direction is derived from research on successful professional development at high-achieving schools and international research on teacher quality and professional development. It reflects the conclusion that professional development aimed at school-wide improvement requires active collaboration and mutual support (Learning First Alliance 2000).

Although teachers spend a significant part of their day working alone in the classroom, they also function in professional communities—communities of teachers and administrators—that provide the ongoing context for professional learning. Research highlights the importance of informal structures that connect teachers to their colleagues and identifies how these structures influence teachers' norms and knowledge (Lieberman and Grolnick 1996; Lord 1994; Siskin and Little 1995). For example, according to Koppich and Knapp (1998), teacher networks create a “safe” environment for teachers to express what they do not know and want to learn; they encourage dialogue about teaching and learning; and they provide opportunities for collaboration.

According to the National Staff Development Council (2001), “staff development that improves the learning of all students organizes adults into learning communities whose goals are aligned with those of the school and district.” Many studies have shown that teachers support these learning communities and illustrate the value of these collaborative professional development models. Teachers, who have often worked in isolation, report favorably on programs that bring them in close contact with colleagues in active work on improving practice (Garet et al. 2001). In an evaluation of the Coalition of Essential Schools reform, MacMullen (1996) found that for professional development to have an impact the whole faculty must help develop the vision, understand the mission and purpose in which they are engaged, and decide how to carry them out. Similarly, Peterson, McCarthy, and Elmore (1996) found that for school restructuring to be successful, teachers must meet together as an entire staff or in teams.

Other studies, using a variety of research methods, have explored the relationship between professional learning communities and improved student achievement. In doing so, they have arrived at positive conclusions. For example, a study by WestEd (2000) found that in eight award-winning public schools, professional development programs were characterized by collaborative structures, diverse and extensive professional learning opportunities, and an emphasis on accountability and student results.

Studies suggest that teacher collaboration through professional learning communities improves academic outcomes for students.

Another study of 11,000 students enrolled in 820 secondary schools (Lee, Smith, and Croninger 1995) found that in schools with professional learning communities, students achieved larger academic gains in mathematics, science, history, and reading than students in traditionally organized schools. In addition, a longitudinal study by McLaughlin and Talbert (1993) reported that 16 high schools in California and Michigan used professional communities to “offer the most effective unit of intervention and powerful opportunity for reform.” And, when examining characteristics of schools that successfully connected restructuring initiatives to improved student learning, Newmann and Wehlage (1995) observed that these schools functioned as professional learning communities.

James W. Stigler and James Hiebert (1999) used the TIMSS (Third International Math and Science Study) 1999 Video Study to examine teacher professional development in countries where students demonstrated high scores on the TIMSS tests. They found that Japan has long implemented a professional development approach called “lesson study.” Lewis (2000) describes lesson study as a process where teachers jointly plan, observe, and discuss lessons throughout the school year.

This large body of research on collaborative adult learning has several implications for designing effective professional development for teachers.

- First, professional development will be more effective when it becomes part of a school-wide improvement process that requires groups of teachers and administrators to become active participants and to collaborate.
- Second, professional development will have a greater influence on teachers’ classroom practice when they can exchange ideas and share successes and problems with colleagues who are also trying out new approaches.
- Third, professional development instructors and facilitators can enhance their effectiveness when teachers view them as part of the collaborative process.

By modeling new behaviors and following them up with classroom observation and feedback, instructors can raise teachers’ awareness of themselves as learners. They can also provide teachers with opportunities to share their experiences adapting new instructional practices to the needs of their individual classrooms.

Practice and Feedback Help Teachers Become Experts on the Complex Process of Effective Teaching

Continuous learning models of professional development combine delivering new knowledge and ongoing practice of new skills.

Through practice, feedback, and opportunities for reflection, professional development helps teachers develop genuine expertise on the individual components of effective instruction.

As educators have recognized the deficiencies of one-shot, short-term professional development events, they have turned to continuous improvement models that deliver both concrete information about classroom strategies and opportunities for teachers to practice these skills through active learning. Practice in the classroom and ongoing interaction with colleagues or mentors are two frequent forms of active participation (Moats 1999).

According to the Learning First Alliance (2000), effective professional development gives teachers sufficient information and practice opportunities to develop genuine expertise on individual instructional components. For example, research suggests that high quality professional development gives teachers opportunities to reflect on their teaching and learning through activities such as analyzing student work and by receiving feedback on their efforts (Desimone et al. 2002).

Practicing new skills—whether in the classroom, in a workshop, or through technology-based learning—and receiving and responding to feedback are mutually reinforcing activities. Research has shown that when teachers receive feedback they practice new strategies more frequently and further develop their instructional skill (Showers 1982). According to Haslam and Seremet (2001), a professional development approach that uses this kind of continuous learning model (Fullan 1995) is also consistent with adult learning theory, which “assumes that learning is an ongoing process of reflection, experimentation, and discussion that requires more than a single event.”

Effective Professional Development Includes Both Research-based Content and Content-related Pedagogy

An emerging consensus holds that promising professional development includes a strong focus on content and content-related pedagogy.

A consensus that promising professional development programs include a strong focus on content knowledge and content-related pedagogy is beginning to emerge. Most of the relevant literature in this area relies on expert opinion and best practices models—rather than rigorous scientific approaches—to make this argument. For example, Haslam and Seremet (2001) present three explanations why focusing on content and content-related pedagogy should produce positive outcomes. First, if they are to communicate content to students, teachers must master this content and appropriate content-related instructional strategy. Teachers cannot teach what they do not know. Second, at the secondary level, many teachers have teaching assignments outside the fields in which they were prepared, and they have not received sufficient content instruction⁴. Third, as described earlier, almost every state requires schools to use a curriculum based on

⁴ Implementation of NCLB is reducing the number of teachers who teach outside their fields. However, particularly in rural areas, this is likely to continue to be an issue.

state standards, including standards in language arts. Teachers need to learn these state standards and effective strategies for teaching new curriculum materials based on those standards.

Several studies of teacher professional development highlight the potential benefits of a strong emphasis on content or on a combination of content and content-related pedagogy. Most of these studies are drawn from research on mathematics and science teachers, but others refer to professional development more generally.

Porter et al. (2000) studied 1997-98 survey data from 300 teachers involved in the U.S. Department of Education's Eisenhower Professional Development Program in Mathematics and Science and a national probability sample of other teachers. They concluded that three characteristics related to the substance of professional development led teachers to report that their professional development experiences increase their knowledge and skills and changed their classroom practice. These elements were a focus on content knowledge, opportunities for active learning, and linkage to other learning activities.

Teachers report that three characteristics of professional development improve their knowledge and skills: a focus on content knowledge, active learning, and connections to other learning activities.

Cohen and Hill (2000) studied schools participating in a California mathematics education reform initiative. They observed that a focus on mathematics content in professional development was important for improving teachers' classroom practice and students' mathematics achievement. Specifically, this study concluded that the more time teachers spent learning about the framework and curriculum underlying the mathematics improvement initiative, the more they incorporated that knowledge into classroom practice and the higher their students scored on tests of mathematics concepts related to the initiative.

In 1999-2000, the U.S. Department of Education's National Center for Education Statistics asked 52,000 public and private school teachers about the usefulness of their professional development experiences. More than half of the teachers who were involved in professional development activities in each of six content areas indicated that these activities were useful or very useful (rating 4 or 5 on a 5-point scale.) Teachers were most positive when they participated in indepth study in their main teaching field, with 71 percent indicating that these activities were very useful (MPR Associates, Inc, unpublished tabulations).

One of the largest pieces of research relating characteristics of professional development to teacher and student outcomes is Kennedy's (1998) study of inservice education for teachers of mathematics and science. That meta-analysis began with 93 studies on the effectiveness of teacher professional development. Only ten of the studies addressed student outcomes. Analysis of these ten revealed that the content addressed in professional development is important. Programs that focus on both subject matter knowledge and how students learn a particular subject have larger positive effects on student learning than programs that stress changes in teacher behavior.

Professional development that stresses both subject matter knowledge and how students learn particular material has a stronger positive effect on student learning than programs that focus on changing teacher behavior.

Other research has drawn a direct connection between improved student achievement and professional development that delivers new content knowledge and shows teachers how to use that knowledge. Hawley and Valli (1999) indicate that four teacher outcomes are addressed in the professional development literature: greater awareness, attitude change, skill development, and use of newly acquired knowledge (Joyce and Showers 1995). However, among the four, only using new knowledge improves student achievement, and this occurs only when professional development includes content that focuses on curriculum, instruction, or technology.

Conclusions About Research on Teacher Professional Development and Principles Derived From Best Practices Models

Based on new models of research on teacher professional development, studies on this important subject are moving from anecdotal evidence to a firmer research base. Although the field still lacks definitive scientific evidence, an emerging consensus points to several aspects of professional development approaches that improve teaching practice and help raise student achievement.

- The substantive focus of instruction should be on both content and content-related pedagogy.
- Professional development initiatives should involve the larger school community in a sustained educational improvement effort.
- More sustained professional development efforts should incorporate opportunities for teachers to practice new skills and reflect on the learning process.
- Teachers should be given significant control over the pace and emphases of their learning.
- Professional development experiences should include ongoing opportunities for teachers to share information and experiences—both positive and problematic—with their colleagues.
- Delivery models should include multiple instructional approaches that acknowledge teachers' individual differences in learning styles.

Together, these conclusions suggest that professional development is more likely to be effective when it is ongoing and integrates teachers' dedicated learning experiences, such as time spent in a workshop or using interactive software, with practice in their own classrooms. Programs that provide extensive opportunities for practice give teachers opportunities to try out new strategies and adapt them to the needs of their students. When teachers have sufficient opportunities for practice, they can thoroughly learn new information and strategies, reflect on this information, and integrate what they have learned into their existing understanding of what works to raise student achievement.

TRANSLATING RESEARCH INTO A PROFESSIONAL DEVELOPMENT MODEL – SCHOLASTIC RED

In the second part of this paper, we describe an approach to teacher professional development that is built on the conceptual and empirical research and key design principles described earlier. Scholastic Red is a professional development program for teachers in grades K–12 that is grounded in

- principles of effective adult learning and teacher professional development that have achieved wide acceptance in the field.
- results of research on professional development, particularly, but not exclusively on reading.
- evidence-based research on how to teach reading.

The value of building a professional development model based on these components is clear. Schools are being held to a higher standard of accountability than ever before. As a result, educators and parents have high expectations about the returns they should receive from investing in teacher professional development. When administrators devote their limited district resources to a professional development program, they expect significant improvements in the form of more effective classroom instruction that leads to higher reading achievement.

A Theory of Change Underlies Scholastic Red Professional Development

How, precisely, does the Scholastic Red approach to professional development help teachers achieve aggressive targets for improving students' reading achievement? The best way to understand this process is to examine the Scholastic Red Professional Development Theory of Change.

The Scholastic Red Professional Development Theory of Change specifies a set of causal relationships that link the activities in which teachers participate to a set of results.⁵ It articulates in specific, directional steps how this program—which is a teaching and learning improvement intervention—produces anticipated changes in schools and school districts and in teacher and student behaviors or outcomes. In other words, the theory specifies the process through which introducing the Scholastic Red professional development program changes the school and district instructional environment, affects teachers' classroom practice, and improves student learning.

Scholastic Red incorporates principles of effective adult learning, research on professional development, and evidence-based studies of how to teach reading.

The Scholastic Red Theory of Change identifies components of the professional development process that lead to increased reading achievement for students and enhanced content knowledge and improved practice for teachers.

⁵ The theory is based on a foundation of earlier conceptual work, empirical research, and a consensus on principles of effective teacher professional development.

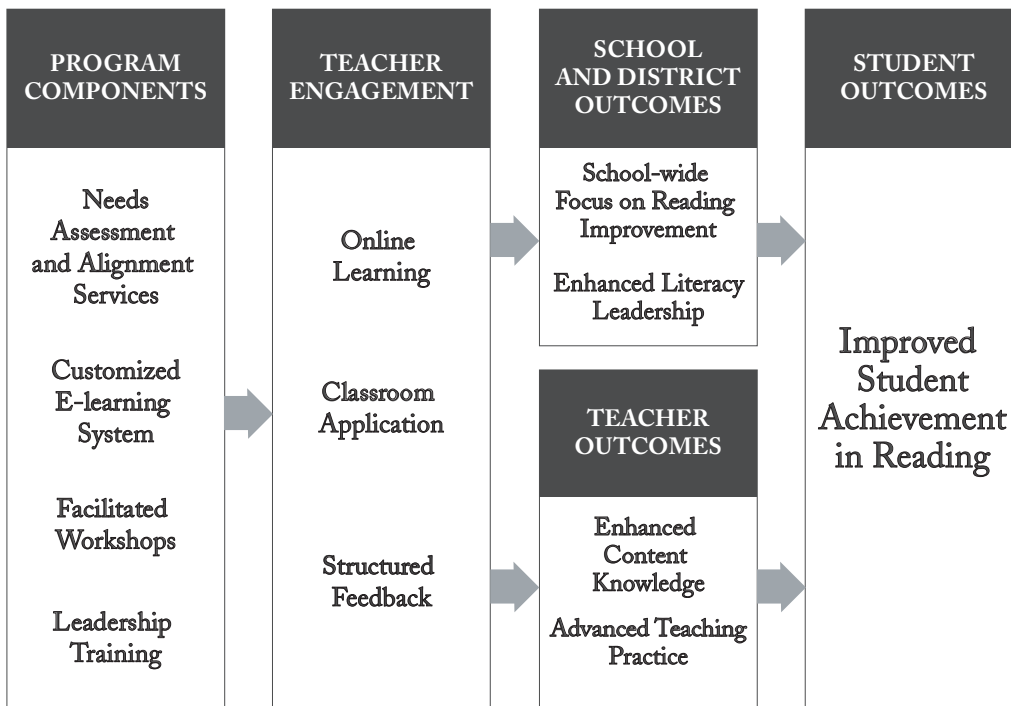
The Scholastic Red Theory of Change addresses both the delivery approach (the “how”) and the content of the program (the “what”).

- The delivery model incorporates elements from adult learning theory, principles of effective professional development, and empirical research on professional development. It also reflects Scholastic’s experience creating curriculum strategies and materials that are accessible and engaging and fit into the lives of busy teachers.
- The content of the program reflects research on professional development and on reading instruction. Both of these emphasize the importance of giving teachers appropriate content knowledge and research-based instructional strategies.

A GRAPHIC REPRESENTATION OF THE THEORY OF CHANGE

The Scholastic Red Professional Development Theory of Change is shown in graphic form in Figure 1. The right half of Figure 1 shows the three sets of professional development program goals or outcomes: (1) increased reading achievement (the student outcome); (2) enhanced content knowledge for teachers and improved teaching practice (the teacher outcomes); and (3) increased capacity and an ongoing structure for schools and districts to help teachers provide effective literacy instruction.

Figure 1: Scholastic Red Theory of Change



The left half of Figure 1 shows the parts of the system that Scholastic Red puts into place in participating schools and the three specific professional development activities that engage teachers in the learning process. These activities are the vehicles through which teachers learn new research-based methods of teaching reading.

The first system component, needs assessment and alignment services, includes analysis of student achievement data to determine professional development needs and a customized plan, as well as content correlations that align Scholastic Red to state standards and instructional programs. The second

The Scholastic Red Theory of Change includes a customized e-learning system, facilitated workshops, as well as school- and district-level supports.

system component is Scholastic’s customized e-learning system that supports individual, self-directed learning activities. The third is a set of facilitated workshops in which expert reading coaches model new teaching strategies and offer teachers feedback on their progress. The fourth, leadership training, includes materials and activities for principals and expert reading coaches to develop their leadership roles in reading improvement.

In Scholastic Red’s Theory of Change, school/district, teacher, and student outcomes are closely linked. Specifically, by introducing Scholastic Red, districts aim to create a new structure for reading improvement that includes a common language around reading for teachers and school administrators and a framework for ongoing improvement efforts. Two major elements in this structure are an expanded set of stakeholders who are involved in helping raise students’ reading performance—including school and district reading facilitators—and a system that connects school and district efforts. An established system is particularly important because it can accommodate a growing number of participating teachers and changes in school personnel.

By participating in Scholastic Red professional development, teachers gain enhanced knowledge of research-based instructional strategies and learn to use these strategies in the classroom. Increased teacher knowledge and improved classroom practice are the elements of the change process that drive increases in students’ reading performance.

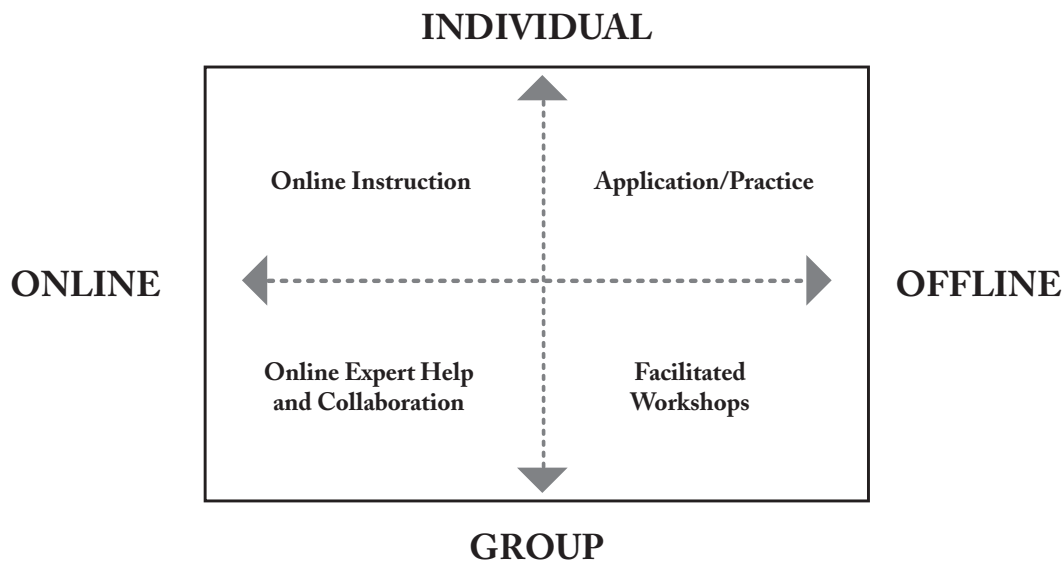
How do changes in teachers’ classroom behavior come about? Scholastic Red’s Theory of Change asserts that changes in teacher knowledge and classroom behavior occur when teachers

- are exposed to new knowledge about how to teach reading and help struggling students increase their reading achievement.
- learn specific reading improvement strategies and the skills that are needed to put these strategies into practice.
- practice these skills at their own pace first, through online exercises, and then in the classroom.
- receive feedback and encouragement when experimenting with new strategies from program facilitators and colleagues.
- receive support from school and district administrators who have invested in and understand the program, encourage teachers to spend time on learning activities, and encourage online and classroom experimentation.

Elements of Red Professional Development

Scholastic Red engages teachers in the learning process by offering multiple, mutually reinforcing learning opportunities. Figure 2 shows the Scholastic Red delivery model in graphic form. It demonstrates how through Scholastic Red teachers engage in individual and group activities performed online and offline.

Figure 2: Professional Development Through E-learning



SCHOLASTIC RED COMBINES PRINCIPLES OF EFFECTIVE ADULT LEARNING AND RESEARCH ON PROFESSIONAL DEVELOPMENT

The final section of this paper summarizes the major features of Scholastic Red and links them to the earlier discussion on adult learning theory and professional development research.

Scholastic Red combines advanced technology and personalized coaching.

- Through online instruction, electronic bulletin boards, facilitated sessions, and opportunities for practice and application in the classroom, Scholastic Red capitalizes on both advanced technology and the skills of expert reading coaches.
- Interactive learning opportunities can be accessed 24/7 through the Internet, while experienced coaches help teachers adapt what they are learning to specific classroom needs.

Scholastic Red offers self-paced instruction and encourages teacher collaborations.

- The customized e-learning system includes both self-paced individual activities and collaborative activities that capitalize on the benefits of a school-based professional learning community.
- Individual participation occurs through Internet-based courses and in teachers' own classrooms. Group participation occurs and is sustained over a period of months through interaction on electronic bulletin boards, workshops, and informal conversation with other teachers.
- By combining both types of learning, Scholastic Red gives teachers an opportunity to self-direct the amount of time they spend on particular program components while also sharing their experiences within a school-based learning community that includes other teachers.

The Scholastic Red model uses multiple instructional approaches to deliver research-based content and teaching strategies designed for various grade levels.

- From its foundation in adult learning theory, the delivery approach recognizes that a combination of teaching methods addresses the varying learning styles of teachers.
- All teachers can benefit from this exposure to multiple learning approaches, but they can spend more or less time involved with each one depending on their personal learning needs and preferences.

The content of Scholastic Red courses offers teachers knowledge about research-based, validated approaches to teaching reading.

- Teachers learn about research on how young children learn to read, how targeted literacy instruction can help struggling older readers, and how all students develop more advanced reading skills.
- Teachers build their practice on this evidence-based research and new ideas about what works in the classroom.
- Research on Scholastic Red has shown that many teachers have previously been exposed to some of the ideas in the program (Haslam 2003). For these teachers, participation in Scholastic Red reinforces knowledge about how to improve reading skills and either reviews or introduces new strategies for using this knowledge in the classroom.

Scholastic Red offers teachers many opportunities to practice new teaching strategies as part of the Scholastic e-learning system and in the classroom.

- Opportunities to practice new skills online gives teachers a safe setting to practice unfamiliar material.
- Practice in the classroom allows teachers to become comfortable with new teaching strategies and to customize them to the circumstances of their own students.
- Successful online practice leads to experimentation in the classroom. Experimentation in the classroom leads to further skill development. Together, the two types of practice activities reinforce new knowledge and skills.

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