



# Evidence-based decisionmaking: assessing reading across the curriculum interventions



Institute of Education Sciences  
U.S. Department of Education



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**June 2007**

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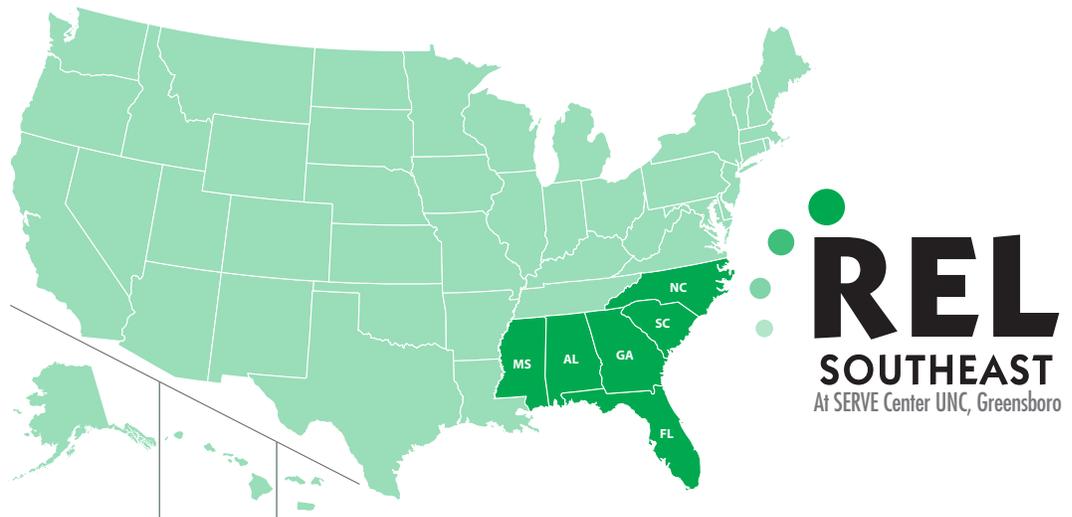
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## Summary

# Evidence-based decisionmaking: assessing reading across the curriculum interventions

**When selecting reading across the curriculum interventions, educators should consider the extent of the evidence base on intervention effectiveness and the fit with the school or district context, whether they are purchasing a product from vendors or developing it internally. This report provides guidance in the decisionmaking.**

Many states, districts, schools, and educational support organizations have identified improving adolescent literacy outcomes as a pressing need. For example, the Georgia Department of Education incorporated Reading Across the Curriculum Standards as part of its 2004 revisions to state performance standards. These new standards represented a significant challenge for content-area teachers. Georgia, among other states, was interested in information on the kinds of professional development interventions available to support teachers' efforts to integrate these new expectations about reading in the content areas into their teaching. This report looks at what reading across the curriculum interventions states and districts might consider in their plans to improve reading outcomes at the secondary level.

Seven interventions were identified for review: ReadAbout, Reading in the Content Areas, Concept-Oriented Reading Instruction (CORI), CCreating Independence through Student-owned Strategies (CRISS), Reading Apprenticeship, Literacy First, and Strategic Instruction Model–Content Literacy Continuum (SIM–CLC). While not an exhaustive list of the professional development interventions available, these seven represent the types of external support that schools might access. Of the seven interventions, only Concept-Oriented Reading Instruction has had several quasi-experimental studies and an experimental study conducted on its effectiveness. In addition, four interventions—ReadAbout, CCreating Independence through Student-owned Strategies, Reading Apprenticeship, and Strategic Instruction Model–Content Literacy Continuum—are currently the focus of federally funded studies that will examine the interventions' effectiveness through experimental studies.

A primary purpose of this report is to compare these interventions in a way that is helpful to decisionmakers. One important dimension of comparison is the extent of evidence of intervention effectiveness.

In addition, the report offers the following practical guidance to decisionmaking teams tasked with finding ways to support content-area teachers in improving reading across the curriculum:

1. Consider professional development interventions in light of a clear understanding of the changes desired and the local context.
2. Think about the selection of a professional development intervention as part of an evidence-based decisionmaking cycle.

3. Consider structuring a comprehensive planning process that goes beyond selecting a professional development intervention.

Following a thoughtful evidence-based decisionmaking process should enhance the likelihood that a district or school reading across the curriculum initiative will achieve the desired outcomes.

**June 2007**

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**When selecting reading across the curriculum interventions, educators should consider the extent of the evidence base on intervention effectiveness and the fit with the school or district context, whether they are purchasing a product from vendors or developing it internally. This report provides guidance in the decisionmaking.**

*Ensuring adequate ongoing literacy development for all students in the middle and high school years is a more challenging task than ensuring excellent reading education in the primary grades for two reasons: first, secondary school literacy skills are more complex, more embedded in subject matters, and more multiply determined; second, adolescents are not as universally motivated to read better or as interested in school-based reading as kindergartners (Biancarosa & Snow, 2004, p. 1).*

Despite the critical role that literacy plays for adolescents, national reading results from the National Assessment of Educational Progress show that the proportion of 12th graders scoring at the proficient level or better declined from 40 percent in 1992 to about a third in 2002 (NCES, 2003). Many states, districts, schools, educational support organizations, and foundations have identified improving adolescent literacy outcomes as a pressing need (Biancarosa & Snow, 2004; Bottoms, 2005; Kamil, 2003; Meltzer, 2001; National Association of State Boards of Education, 2006). Working across content areas with teachers at the middle and high school level and with adolescents who are generally less motivated to read the older they get (Kamil, 2003) makes this a difficult challenge. The problem cannot be solved simply by having all students take a reading course or by ramping up the reading requirements in state content-area tests.

The challenge requires a significant change in expectations for how content-area teachers embed reading materials, strategies, demands, assignments, and assessments into their courses. For example, when the Georgia Department of Education incorporated standards on reading across the curriculum as part of the 2004 revisions to the Georgia Performance Standards, it sought information on professional development interventions to support teachers' efforts to integrate these new expectations about reading into their teaching. In response to such requests this report provides information on state initiatives in adolescent

## BOX 1

**How the interventions were identified**

Interventions were selected for analysis in a three-phase process. The first phase involved gathering information from Southeast Region state education agency contacts and from documents on their initiatives in adolescent literacy. This information provides a context for how the six states in the region are beginning to address reading at the secondary level.

The second phase was a search for professional development or teacher-support interventions designed to help content-area teachers increase their attention to reading. The search for programs included lists provided by other regional educational laboratories, content centers, research centers and organizations, Southeast Region state departments

of education, and federally funded literacy projects. Information was also obtained from the Education Resources Information Center, conferences, and knowledgeable researchers and practitioners. The focus was on well-articulated, readily available external interventions designed to help content-area teachers improve their students' reading in that content area. These included programs that:

- Seemed to target all content-area teachers.
- Were aimed at improving teacher instruction and assessment at the classroom level (not aimed at small groups of students).
- Were relevant for 4th through 12th grade teachers.
- Provided enough information to determine their purpose, content, audience, and desired outcomes.

- Were currently in use (not under development).
- Were available for purchase from external vendors.

The following seven interventions were identified: ReadAbout, Reading in the Content Areas, Concept-Oriented Reading Instruction (CORI), CReating Independence through Student-owned Strategies (CRISS), Reading Apprenticeship, Literacy First, and Strategic Instruction Model–Content Literacy Continuum (SIM–CLC). This is not an exhaustive list, but it represents the types of external support that schools in the Southeast Region might access.

The third phase involved a search for evaluation reports and studies on the seven interventions so that the extent of the evidence base on effectiveness could be described.

literacy and on external professional development or teacher support interventions designed to help content-area teachers increase their focus on reading. The report also describes the available evaluation data on the interventions identified for review.

Seven interventions were identified (see box 1 and appendix A for methodology) and compared to provide a good understanding of their approach and evidence base. The evaluation results are described in a way that should help educators understand the limitations of certain evaluation methodologies in drawing conclusions about program impact. Of the seven interventions, only Concept-Oriented Reading Instruction (CORI) had several quasi-experimental studies and an experimental study conducted on its effectiveness. In addition, four interventions—ReadAbout, CReating Independence through

Student-owned Strategies (CRISS), Reading Apprenticeship, and Strategic Instruction Model–Content Literacy Continuum (SIM–CLC)—are currently the focus of federally funded studies that will examine the interventions' effectiveness through experimental studies.

The report also provides guidance to decisionmaking teams engaged in finding ways to support content-area teachers in improving reading across the curriculum. In particular, practical guidance is provided through three recommendations:

1. Consider professional development interventions in light of a clear understanding of the changes desired and the local context.
2. Think about the selection of a professional development intervention as part of an evidence-based decisionmaking cycle.

3. Consider structuring a comprehensive planning process that goes beyond selecting a professional development intervention.

Following a thoughtful evidence-based decision-making process should enhance the likelihood that a district or school reading across the curriculum initiative will achieve the desired outcomes.

### WHAT THE SOUTHEAST REGION STATES ARE DOING NOW

Although all six Southeast Region states (Alabama, Florida, Georgia, Mississippi, North Carolina, and South Carolina) have some form of adolescent literacy initiative under way, the intensity of efforts in professional development for content-area teachers varies. (Appendixes B and C provide background information on the work of each of the six state education departments.) A sample set of state activities is briefly introduced below as context (table 1).

#### Working on reading across the curriculum standards

Georgia began by creating new performance standards to ensure that literacy skills are expected of students in all content areas. These standards are expected to drive professional development planning for teachers at the local level. Georgia first implemented its performance standards in 2004/05. Its new Reading Across the Curriculum Standards have been developed in science, social studies, math, and language arts for all students in grades 6–12.

#### Providing professional development to support teachers

A key assumption of most states is that content-area teachers need support in making instructional and assessment improvements to strengthen reading. The Alabama Reading Initiative is an ongoing state-developed and -managed professional development program that offers an intensive two-week workshop each summer. The training is provided to school teams that must apply to participate. After much experience providing professional development at the elementary and middle school levels, the state is expanding its literacy efforts to professional development for high schools.

Content Area Reading Professional Development in Florida is an in-service program that qualifies participants to serve as reading-intervention teachers in their content areas. It will be available soon to provide educators with a reading endorsement (<http://www.justreadflorida.com/endorsement/>).

North Carolina provides several professional development options related to adolescent literacy. For example, LEARN NC provides online courses for content-area teachers addressing content-area reading comprehension in kindergarten through eighth grade (<http://www.learnnc.org> and <http://www.ncpublicschools.org/profdev/online/>).

#### Using literacy coaches to help teachers

The Southeast Region state education agencies are interested in literacy coaches as a way of helping teachers improve their instruction in reading. The

TABLE 1  
Summary of state adolescent literacy activities

Initiative component	Alabama	Florida	Georgia	Mississippi	North Carolina	South Carolina
Reading Across the Curriculum Standards			✓			
Professional development currently offered for content-area teachers	✓	✓	✓		✓	✓
Literacy coaches	✓	✓			✓	✓
Evaluation of professional development	✓	✓				✓

North Carolina Governor’s Office recently funded 100 literacy coaches to work in the lowest performing middle schools. Florida requires districts to include literacy coaches to work with content-area teachers on improving reading skills as part of their district plans. South Carolina uses regional and district literacy coaches. These coaches work in classrooms to provide support to South Carolina Reading Initiative teachers, guide twice monthly discussion meetings, and participate in monthly summer groups to better understand the reading process. The regional literacy coaches provide ongoing support to district literacy coaches to ensure that teachers can make the connection between what they are learning and how they apply it in the classroom. Although the use of literacy coaches is prevalent, the states are still trying to determine whether the coaches are an effective means of improving student literacy.

Some states are conducting evaluations of their professional development efforts to inform their decisionmaking

stages of improving reading instruction in content areas. However, Alabama and South Carolina have examined the impact of their professional development work on teachers and students. A report on the Alabama Reading Initiative noted that the initial delivery of the professional development was “one size fits all” with content focused on the elementary grades (Bacevich & Salinger, 2006). Secondary teachers had to adapt the materials to the needs of their students. As part of an in-depth study of the South Carolina Reading Initiative, South Carolina collects data from participating teachers and coaches to monitor changes in practice and discern how teachers are applying information from professional development to the classroom. The study also looks at changes in students’ skills and strategies (South Carolina Reading Initiative, 2003). Florida has research under way through work with the RAND Corporation to study the impact of reading coaches on student achievement.

Evaluation of professional development initiatives is limited

Evaluation reports describing the implementation or impact of professional development programs or other kinds of support in adolescent literacy are limited, because most states are in the planning

IDENTIFYING WHAT INTERVENTIONS ARE AVAILABLE TO SUPPORT TEACHERS

With the Southeast Region state departments of education still exploring strategies and professional development approaches designed to improve reading outcomes at the secondary level and

TABLE 2  
Summary of selected interventions and status of research on effectiveness

Intervention	Grades served	Status of research on effectiveness
<i>Category 1: Supplementary materials</i>		
ReadAbout	3–8	Research in progress
Reading in the Content Areas	6–12	None yet
<i>Category 2: Professional development programs</i>		
Concept-Oriented Reading Instruction (CORI)	3–12	Completed
CReating Independence through Student-owned Strategies (CRISS)	3–12	Research in progress
Reading Apprenticeship	6–12	Research in progress
<i>Category 3: Professional development as schoolwide effort</i>		
Literacy First	6–12	None yet
Strategic Instruction Model–Content Literacy Continuum (SIM–CLC)	6–12	Research in progress

with few evaluations of state programs available, it is important that decisionmakers know about the types of interventions available.

The main question addressed in this section is what reading across the curriculum interventions might be considered in plans to improve reading outcomes at the secondary level. Seven interventions were identified for review (see box 1 and appendixes A and B) and organized by type (table 2).

### Brief description of the seven interventions

*Category 1: supplementary materials in support of content-area reading skills.* At the simplest level of support content-area teachers may need supplementary materials to provide instruction in reading comprehension. These types of approaches assume that teachers just need more materials. The materials are organized and sequenced to bring strategies identified by research into the classroom. They provide materials for teachers to use in direct instruction of strategies along with reading materials for students to practice.

1. *ReadAbout*, developed by Scholastic, Inc., is intended for use in mixed-ability classrooms in grades three to eight as a way of differentiating reading instruction and giving students practice in nonfiction texts. ReadAbout offers students self-managed, online supplementary readings and strategy instruction. Recommended for use for 20 minutes, three times a week, the program includes:

- ReadAbout software.
- Independent reading cards.
- Teacher's guide.
- Two days of teacher training on the ReadAbout software and two half-day supplemental seminars on reading motivation and writing strategies.

The strategies taught include 10 comprehension skills and 7 strategies, vocabulary acquisition, and

writing. Students build their content-area knowledge with readings in science, social studies, and life experiences. The software includes motivating activities with immediate feedback, video segments, and continuous online assessment. Extra support is provided for English language learners and struggling readers.

2. *Reading in the Content Area*, developed by Globe Fearon Publishers, is intended to build content literacy through high-interest, real-life readings for grades four to seven (Shanahan, 2005). The materials can be used by any teacher as part of regular instruction, not just in remedial situations. The intervention includes:

- A vocabulary handbook and workbooks on reading strategies for four content areas (social studies, science, mathematics, and English).
- Teacher's guide for each workbook and a guide with tips for helping students read to learn.
- Placement guide.

The strategies taught include use of graphic organizers and study strategies for before, during, and after reading; Cornell note-taking; outlining; survey, question, read, recite, review; and strategies for dealing with content area vocabulary (Kinsella, 2000). It uses a direct-instruction strategy teaching model (introduce the strategy, model it, use a think-aloud lesson plan, review the strategy, and use workbook for guided practice).

**At the simplest level content-area teachers may need supplementary materials to provide instruction in reading comprehension**

*Category 2: professional development course or program.* Category 2 approaches assume that teachers need professional development in helping students become more effective readers in the content areas.

3. *Concept-Oriented Reading Instruction (CORI)* was developed by University of Maryland College

Park researchers John Guthrie and Allan Wigfield to increase the time students are engaged in reading. The objective is for students to be engaged in reading 60 minutes daily. Therefore, the professional development associated with it works with teachers to envision what a classroom of engaged readers would look like. The classroom goals focus on improved reading comprehension, writing, science (as the content area of emphasis), and student motivation (Guthrie & Davis, 2003). Although the program was developed for use by third and fourth grade teachers, it is included here because of its focus on components that are hypothesized as critical for engaged reading in the classroom and its expansion to 6th through 12th grade teachers (Guthrie et al., 2004). The professional development program helps teachers to:

- Use practices to motivate students to read independently.
- Teach cognitive strategies for reading comprehension.
- Provide a deep knowledge base in science as the source of content reading.

**Category 2 approaches assume that teachers need professional development in helping students become more effective readers in the content areas**

Ten days of training are required for teachers to learn about the strategies and plan for implementation of the 12 weeks of science materials. The curriculum guides include sample daily plans, sample weekly plans, booklists for student reading, and student worksheets for summarizing and portfolio

use. Two books, *Monitoring Reading Comprehension: Concept Oriented Reading Instruction* and *Concept Oriented Reading Instruction: Engaging Classrooms, Lifelong Learning*, explain the practices and components and help teachers plan integrated units of instruction for creating engaged readers.

4. *CRreating Independence through Student-owned Strategies (CRISS)* dates back to 1979, when a small group of Kalispell, Montana, teachers developed a

professional development program for secondary teachers. The program was designed to provide content-area teachers and their students with a common vocabulary for strategies in reading to learn. Professional development includes 12–18 hours of staff development that prepares teachers in grades 4–12 to implement, in their respective content areas, the strategies outlined in a teachers resource guide and a materials packet (Santa, 2004). Two teachers from each content area and school-level and district-level administrators are invited to the training. The strategies include:

- Identifying the author’s craft and design.
- Organizing information.
- Developing memory.
- Writing reports and taking essay tests.
- Writing strategies.
- Developing vocabulary.
- Discussing strategies.
- Evaluating students.

The strategies are intended as part of regular course instruction when students are learning content.

5. *Reading Apprenticeship*, developed by WestEd’s Strategic Literacy Initiative, began in 1995 as a support system for content-area teachers in San Francisco. Reading Apprenticeship involves a complex set of interrelated components that together enable content-area teachers to engage students as critical readers. The goal of the professional development is to help content-area teachers develop more confident, engaged, and strategic readers who can read to learn in their content courses. The professional development program uses case studies to encourage participants to rethink their approach to teaching content. The program assumes that there are specific ways of

reading and thinking in each discipline and that teachers need to become experts in modeling these processes for their students. It is articulated as an “instructional framework” rather than an isolated set of strategies for students to use. “In Reading Apprenticeship classrooms teachers reconceptualize subject-area learning as an apprenticeship in discipline-based practices of thinking, talking, reading, and writing” (Schoenback, Braunger, Greenleaf, & Litman, 2003, p. 134).

There are four dimensions of the instructional framework that organize the work (Greenleaf, Schoenbach, Cziko, & Mueller, 2001):

- Social dimension, such as sharing book talk and sharing reading processes.
- Personal dimension, such as developing reader fluency and stamina, assessing performance, and setting goals.
- Cognitive dimension, such as monitoring comprehension and using problem-solving strategies.
- Knowledge-building dimension, such as vocabulary, knowledge of text structures, and developing topic knowledge.

Overarching the four dimensions is an emphasis on helping teachers implement “metacognitive conversations” in which students reflect on their mental processes in reading and learning and share their reading processes and strategies (RAND Reading Study Group, 2002).

*Category 3: professional development as a schoolwide effort.* Two interventions are described as structured support for schoolwide efforts to rethink how literacy expectations are embedded in content courses. As Lenz, Ehren, & Deshler (2005, p. 61) explain, “Positioning literacy improvement efforts as a sidebar to other goals in secondary education has lessened the importance of secondary schools in preparing our children to compete in society and has consistently and

systematically left millions of students behind.” A schoolwide approach to literacy seeks to engage every teacher in coordinated literacy improvement efforts.

Like the other interventions the two interventions in this category pay attention to the use of cognitive learning strategies, but unlike the others they do it within the context of a schoolwide, multiyear goal of improving students’ literacy skills across content areas.

6. *Literacy First Middle and High School Content Area Process*, developed in 1998 at the Professional Development Institute, is one of four Literacy First models. The other three models address early childhood, elementary and middle school, and high school struggling readers. The goal of the content-area process is to significantly increase achievement of all students in every content-area class and requires a commitment from the whole school, demonstrated by a three-year strategic reading plan.

Principals, literacy specialists, district administrators, and all content-area teachers participate in professional development. The program for teachers is spread over five days during each school year for three years. Principals, secondary literacy specialists, and district administrators attend an annual two-day Leadership Institute to develop their instructional leadership skills. In addition, a Literacy First consultant provides eight consulting days a year for three years. Professional development includes:

- Lesson planning techniques.
- Instructional strategies to engage students in the content.
- Instructional strategies to increase student vocabulary.

**Category 3 interventions provide structured support for schoolwide efforts to rethink how literacy expectations are embedded in content courses**

- Comprehension strategies customized to the content areas.
- Strategic reading and thinking tools.
- Strategies to help students with metacognition.

Teachers in the content area receive a teachers manual and three resource books that focus on comprehension skills, strategic reading and thinking tools, metacognitive processes, and vocabulary development.

7. *Strategic Instruction Model–Content Literacy Continuum (SIM–CLC)*, developed by the University of Kansas Center on Research and Learning, aims to help secondary schools develop and implement a comprehensive literacy plan over three to four years (Lenz, Ehren, & Deshler, 2005). Initially, the researchers hoped to identify strategies that would meet the needs of adolescents with disabilities and low-achieving students who struggled with the challenges of reading in content-area classes, but they believed that the same strategies were important to help all students learn. The Content Literacy Continuum builds on the Strategic Instruction Model research and focuses on literacy as a schoolwide effort.

The program introduces teachers to a complex array of strategies for use with a wide range of students. It includes five levels: content mastery,

embedded strategy instruction, explicit strategy instruction, intensive skill development, and intensive clinical intervention. The levels are explained in various manuals and on a CD-ROM. The program is implemented over four phases, beginning with planning and analysis of student and school data. The intent is to support schools over a sustained period in helping all students learn critical content, regardless of their literacy skills.

### Comparing interventions by expressed and measured teacher outcomes

Before selecting an approach to support content-area teachers in improving reading across the curriculum, the decisionmaking team must be able to articulate the key knowledge or skills that teachers are supposed to gain from the professional development experiences. What does the intervention program provider say about the aspects of teaching that will be improved? Will teachers learn concrete practices that can be used immediately or will they learn a framework and have to figure out how to apply what they learned on their own?

*Expressed intervention outcomes for teachers.* This section compares interventions in terms of their expressed goals for participating teachers (table 3).

- *Cognitive strategies.* All the interventions focus on providing teachers with additional

TABLE 3

#### Main focus of five interventions

Intervention	Cognitive strategies	Content-specific planning	Writing	Student engagement	Social interactions (discussions)	Assessment and meta-cognitive strategies
Concept-Oriented Reading Instruction (CORI)	✓	✓	✓	✓	✓	✓
Creating Independence through Student-owned Strategies (CRISS)	✓		✓		✓	✓
Literacy First	✓		✓		✓	✓
Reading Apprenticeship	✓		✓	✓	✓	✓
Strategic Instruction Model–Content Literacy Continuum (SIM–CLC)	✓	✓	✓		✓	✓

instructional strategies in reading comprehension, vocabulary, and sometimes critical-thinking skills and fluency. The instructional strategies are key to all these interventions, but the form of the support differs (ranging from resources used by individual teachers, as in Reading in the Content Area, to phasing in for an entire faculty over 3–4 years, as in Strategic Instruction Model–Content Literacy Continuum).

- Approaches to content planning.* Concept-Oriented Reading Instruction, Literacy First, and Strategic Instruction Model–Content Literacy Continuum focus on changing teachers’ approaches to planning in the content areas. Concept-Oriented Reading Instruction expects teachers to develop units in the content area that embed the research-based cognitive and motivational strategies they are taught. Strategic Instruction Model–Content Literacy Continuum spends 28–32 hours of workshop time on content organization and planning during the first two phases of implementation. Although some approaches assume that teachers know their content and can readily incorporate new strategies, others recognize the need to provide support for lesson and unit planning to make content more accessible and interesting to students.
- Motivation and engagement in reading.* Teachers are expected to learn motivation strategies in ReadAbout (if they take the supplemental seminar), Concept-Oriented

Reading Instruction, and Reading Apprenticeship. Concept-Oriented Reading Instruction and ReadAbout are explicit about teachers learning motivational strategies. ReadAbout offers optional half-day seminars that address motivation. Concept-Oriented Reading Instruction expects teachers to learn how to promote engaged reading through hands-on activities, student choice, interesting text, and collaboration. Reading Apprenticeship offers an instructional framework of four dimensions for content teachers to consider in planning instruction. One is the personal dimension, which includes practices that lead to increased confidence and engagement of student readers.

*Measured intervention outcomes for teachers.*

Interventions that have a heavy focus on improving teacher practice should provide a way to measure the growth in teacher practice over time to see whether the desired growth occurs. Data may come from classroom observations, teaching artifacts, teacher interviews or surveys (table 4), or interviews with students (asking them to report on teachers’ use of strategies taught in the professional development). Teachers’ self-reporting of their use of practices is often not very reliable; students may be better able to report on what their teachers are doing.

Studies of Strategic Instruction Model–Content Literacy Continuum (for example, Bulgren, Deshler, Schumaker, & Lenz, 2000) have included classroom observers who used a checklist in examining

TABLE 4  
**Methods used in assessing outcomes for teachers vary by intervention**

Intervention	Self-report/survey	Classroom observation	Interviews	Artifacts <sup>a</sup>
Concept-Oriented Reading Instruction (CORI)		✓	✓	✓
CReating Independence through Student-owned Strategies (CRISS)	✓			
Reading Apprenticeship		✓	✓	✓
Strategic Instruction Model–Content Literacy Continuum (SIM–CLC)	✓	✓	✓	

a. Journals, reflections, lesson plans, assignments, and student work.

teacher use of particular strategies (table 4). Reading Apprenticeship reports have mentioned collecting teacher journals, lesson plans, assignments, and student work in describing the extent of teacher implementation of the four dimensions. CReating Independence through Student-owned Strategies reports have summarized data from teacher self-report surveys that asked teachers about their use of specific instructional strategies. Studies of Concept-Oriented Reading Instruction have examined teacher implementation of lesson plans created during the professional development sessions and have observed in the classrooms to assess teachers' use of the cognitive and motivational strategies learned in professional development.

It is important for potential users to examine the instruments available from the intervention programs for assessing and providing feedback to teachers on their implementation of desired practices. Reviewing these instruments will help in understanding what kind of teacher change the intervention is focused on and how the school might monitor classroom implementation.

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#### What evidence is there on the effectiveness of interventions?

In choosing among interventions, evidence of effectiveness is critically important. What levels of evidence are available for the various interventions examined here?

*Some interventions build on prior empirical research.* A central aspect of all the interventions reviewed is a focus on helping teachers across the content area with *cognitive strategies* for teaching adolescents to read more efficiently and effectively. This is consistent with the *Report of the National Reading Panel* (National

Reading Panel, 2000) that cites research studies on the positive effects of cognitive strategies for increasing reading comprehension. Such strategies include questioning, concept mapping, summarizing, and monitoring comprehension.

Whether particular strategies or combinations of strategies can be used to improve poor reading performance has received considerable attention from researchers. Much of the adolescent literacy research since 1990 has focused on strategies to improve the reading skills of adolescents who are experiencing difficulty. For example, the Strategic Instruction Model–Content Literacy Continuum intervention emerged from 20 years of research at the University of Kansas on strategy instruction that works with students with disabilities. That research showed that students can learn the steps of a particular strategy, such as “paraphrasing,” at a high level of proficiency.

However, the Florida Center for Reading Research (2006, p. 8), which provides summaries of interventions, points out in a review of the Strategic Instruction Model–Content Literacy Continuum that the link between strategy use by students and reading outcome measures is not fully established: “studies reviewed found inconsistent results of the impact of strategy use on reading comprehension or found no differences in reading comprehension between students who learned a strategy and those who did not use a strategy.”

The implication of this research on special populations is that it is unclear which strategies in which combinations are most effective for use across the curriculum. Existing empirical research cannot inform teachers about how often to use a strategy or when to use it in a particular content-teaching application. The Strategic Instruction Model–Content Literacy Continuum developers emphasize that there is no single foolproof strategy. Rather, their goal is to provide teachers with an array of possible learning strategies to teach students, with the understanding that teachers will need flexibility in adapting the strategies to the needs of different classrooms. Similarly, the CReating Independence through Student-owned Strategies program models an array of strategies, but it is up to the teacher to choose among them.

Still other interventions add to the focus on cognitive strategies—a focus on strategies to *improve*

**Existing empirical research cannot inform teachers about how often to use a strategy or when to use it in a particular content-teaching application**

reading motivation and engagement. Guthrie et al. (2004, p. 403) developed the Concept-Oriented Reading Instruction intervention to address this component:

*Relatively little investigation has been conducted on how multiple strategies can be combined in long-term comprehension instruction within the classroom, and more studies of this kind are needed. Even fewer investigations have addressed issues related to motivation in reading instruction. It is increasingly evident that the acquisition of reading strategies and reading comprehension skills demands a large amount of effort and motivation and that outstanding teachers invest substantial time and energy in supporting students' motivation and engagement in reading.*

They explain that motivated students may want to understand a text more deeply and therefore take the time to process the text more completely. Motivated students would tend to read more frequently with a more engaged mindset and thus should gain in reading proficiency.

Guthrie et al. (2004) conducted a study that directly compared a combined-delivery model for teachers (cognitive strategies plus motivation strategies—Concept-Oriented Reading Instruction)—with a single cognitive strategy-only model and also with a traditionally instructed group. The study found that the Concept-Oriented Reading Instruction students measured higher than the other two groups on indicators of reading comprehension, reading motivation, and reading strategies. However, the study was conducted with third graders, so it is not known whether the findings would generalize to secondary teachers.

Another intervention that focuses explicitly on incorporating motivation into work with teachers is Reading Apprenticeship, which proposes that content-area teachers organize classrooms around four overlapping dimensions of students' reading development (social, personal, cognitive,

and knowledge building). The personal dimension is connected to motivation and is defined as the things teachers do that help students develop a reader identity, metacognition, reader fluency and stamina, and reader confidence and range, as well as assess performance and set goals.

*Before and after data reported by developers is a first basis for claims of effectiveness—but a weak one.*

One of the most common approaches developers use to describe the added value of their interventions for teachers is to look at how teachers or students change from before to after the professional development. For example, the two following interventions report before and after data on students in their descriptive materials:

**Changes in reading achievement after program implementation can reflect the influence of many variables**

#### *Reading Apprenticeship (RA):*

*In five studies conducted since 1997, students whose teachers participated in RA training have become more confident, engaged, and strategic readers. In one study, students in RA classrooms gained two years' reading proficiency in seven months. In another study, students in RA classrooms made significant gains in their national reading percentile ranking. In one urban district, English learners grew as much as their fluent-English speaking peers, and students initially scoring the lowest quartiles made the most rapid gains (<http://www.wested.org/cs/we/view/serv/10>).*

#### *Literacy First:*

*Principals in Literacy First schools in Florida, North Carolina, and Washington all report a significant increase in students passing state or nationally normed assessment as a result of implementing the Content Area Process (<http://www.literacyfirst.com/content.asp>).*

Although these reports help potential users understand the impacts they may experience from using the intervention, they do not represent high-quality information about effectiveness. Changes in reading achievement after program implementation can reflect the influence of many variables. Developers often report score increases at schools they have worked with, but it is very difficult to interpret these data as reflecting the impact of a single intervention. Many interventions are likely going on at the same time in most schools.

Another concern with statements such as that from Literacy First is that it is difficult to know how many schools they worked with did not experience positive increases. Typically, intervention developers will report the achievement data from schools they worked with most intensively (their success stories), which makes it difficult to know whether it was just the unusual combination of people in the school who took the ideas from the intervention, adapted them, and made them work—or whether it was really the intervention that made the difference. Thus, developers who

report having worked with schools that experienced significant increases in achievement are providing a beginning basis for their intervention's claim of effectiveness, but a very weak one.

**Three interventions report findings based on quasi-experimental studies**

*A few quasi-experimental studies are available and show mixed results.* The next level of evidence an intervention might explore is whether participants in their program experienced more positive results on desired outcomes than a comparison group (identified for the evaluation because it was similar in make-up to participants in the intervention). Three interventions report comparison data: Read-About, CReating Independence through Student-owned Strategies, and Reading Apprenticeship. Although having comparison data is important and provides more information about outcomes than before and after data with no comparison group, finding existing groups that are equal to the participant group on all dimensions is difficult. Thus, there are limitations to drawing solid

conclusions about intervention effectiveness from quasi-experimental evaluation designs in which participant results are compared with a selected group of nonparticipants.

In contrast to quasi-experimental designs, true experimental designs use random assignment of potential participants to either the intervention group or the control group. Random assignment ensures that there are no preexisting differences between the two groups (such as higher motivation in the intervention teacher group if teachers volunteer). True experimental design provides potential users with greater assurance that any differences between the two groups are due to the intervention and not to preexisting differences between participants and nonparticipants.

Three interventions report findings based on quasi-experimental studies:

- *ReadAbout.* This intervention recently concluded a quasi-experimental study with fifth grade students in New York. The results are not yet available.
- *CReating Independence through Student-owned Strategies.* O'Neil and Associates conducted an evaluation during the 2001/02 and 2002/03 school years in two large Utah school districts using a pre-test and post-test design with a comparison group. As mentioned, a general limitation of this design is that teachers who choose or are selected to participate in the intervention group may be better, more motivated, or more experienced. Thus, positive differences in their students' outcomes compared with those of students of a comparison group of teachers may reflect this preexisting difference rather than the impact of the intervention.

The outcome measure, a free-recall assessment developed by the program, was used following student reading of a particular content-area selection. Free-recall assessment is a fairly narrow measure of what students

should be gaining from the multiple strategies teachers learn from participating in CReating Independence through Student-owned Strategies. The finding that students of program-trained teachers did better on this measure of free recall does not necessarily mean that they understood the selection any better. No correlational data between this measure and standardized measures of reading comprehension were found; thus, the relation between this program-developed measure and typical reading achievement measures is not clear.

- *Reading Apprenticeship.* WestEd analyzed student data from implementation of a ninth grade Academic Literacy course for below grade-level students that incorporates the four dimensions of the Reading Apprenticeship instructional framework. Significant differences were reported between Reading Apprenticeship students' fall to spring gains compared with the performance of the nationally normed group for the standardized test (Degrees of Reading Power test). This kind of comparison of intervention student results with results for a nationally normed group is fairly weak because the comparison group is not selected for its similarity to the participant group. Nothing is known about how alike or different the characteristics of the comparison group are to those of the participating group.

No reports of studies could be found that used comparison groups to examine how content-area teachers who go through Reading Apprenticeship training but are not implementing the ninth grade Academic Literacy Course change their practice compared with a comparison group of similar teachers or how their students compare on student achievement measures.

*Only one true experimental study with random assignment is available, but others are under way.* Rigorously designed experiments that use random assignment of teachers or schools to the intervention or a control group and then examine differences between the groups in measured outcomes

are time consuming and challenging to conduct. Concept-Oriented Reading Instruction has conducted the most extensive set of experimental and quasi-experimental studies. Because the development of this intervention emerges from an ongoing research program at the University of Maryland, research on the intervention builds on prior research on the relationship between reading motivation and reading achievement (Guthrie & Wigfield, 2000; Guthrie et al., 2006).

The question addressed by Guthrie and colleagues is whether an intervention that teaches teachers research-based cognitive strategies and student motivation and engagement strategies will improve student outcomes. In a series of quasi-experimental and experimental studies, they examined whether teachers trained in both the cognitive and motivational strategies (Concept-Oriented Reading Instruction group) got better results than either comparison teachers who received no training or teachers trained in the use of cognitive strategies alone.

- A study using random assignment of schools to two training conditions found that Concept-Oriented Reading Instruction-trained third grade teachers surpassed teachers trained in strategy instruction only in student performance on reading comprehension, reading motivation, and reading strategy measures (Guthrie et al., 2004).
- Using a quasi-experimental design, Concept-Oriented Reading Instruction teachers surpassed comparison group teachers in student performance on reading comprehension and reading strategy use (Guthrie et al., 1998).
- Using a quasi-experimental design Concept-Oriented Reading Instruction teachers surpassed comparison group teachers in student

**Several of the interventions are currently the focus of federally funded studies that will address the intervention's effectiveness through experimental studies**

performance on reading motivation (Guthrie, 2004).

Although several of these studies are quasi-experimental, they are included in this section because the studies as a whole constitute a well-developed research program with both quasi-experimental studies and true experimental studies (with random assignment). Ideally, an intervention that claims to be scientifically based should have replicable findings across various methodologies. Guthrie and colleagues have conducted both rigorous quasi-experimental and experimental studies that show that Concept-Oriented Reading Instruction has a significant impact on student outcomes. Their published research provides enough information to examine and critique the designs and replicate the evaluation designs in various settings, grade levels, and content areas to continue to explore effectiveness.

Several of the interventions are currently the focus of federally funded studies that will address the intervention's effectiveness through experimental studies:

- The U.S. Department of Education's Institute of Education Sciences is studying the effectiveness of four reading comprehension programs. ReadAbout and

CREating Independence through Student-owned Strategies are two of the four programs that were randomly assigned to fifth grade classrooms in nine districts across the country (U.S. Department of Education, 2006).

- An experimental study on CREating Independence through Student-owned Strategies is being planned by the Northwest Regional Educational Laboratory. The study will focus on ninth graders, and schools will be randomly assigned to participate or not.
- WestEd received an award from the U.S. Department of Education's Institute of Education

Sciences in 2005 to study the efficacy of Reading Apprenticeship in high school history and science teaching.

- Strategic Instruction Model–Content Literacy Continuum is also proposed for an experimental study of its effectiveness, to be conducted by the regional educational laboratory system. In addition, it is being studied by Brown University and RMC Research Corporation through a U.S. Department of Education Striving Readers Grant.

## MAKING DECISIONS ABOUT INTERVENTIONS TO IMPROVE LITERACY ACROSS THE CURRICULUM

This section provides practical guidance for decisionmaking to improve reading across the curriculum. It considers professional development interventions in light of a clear understanding of the changes desired and the local context. It suggests thinking about the selection of a professional development intervention as part of a decision-making cycle. And it recommends structuring a comprehensive planning process that goes beyond selecting a professional development intervention.

Consider professional development interventions in light of a clear understanding of the changes desired and the local context

Interventions designed to provide support to teachers can have impacts at two levels: teacher practices and student outcomes. The decisionmaking team needs to articulate its own desired outcomes in order to choose a professional development intervention that aligns with its goals and to be able to follow up on whether teachers and students change in the desired ways. For example, the following scenarios for desired outcomes are very different and lead to consideration of different interventions.

*Scenario 1. Goal : to find supplemental material to use with students.* Content-area teachers at a school have expressed concern that they do not have the curriculum materials to embed more reading

**Decisionmaking to improve reading across the curriculum should consider professional development interventions in light of a clear understanding of the changes desired and the local context**

comprehension into the content-area instruction in their courses, as required by the state's new reading across the curriculum standards. State reading achievement scores at the school are very high, so increasing reading achievement is not the primary focus. Rather, the decisionmaking team, curriculum director, and literacy coach are focused on finding the best supplementary materials for teachers to use to increase students' opportunities and success in reading to learn in the content area. Thus, the primary desired outcomes are that teachers will be able to use the supplementary materials and that students will find them helpful and engaging.

Since the investment in teachers' time and effort is modest, the decisionmaking team may decide to have a few teachers pilot various published materials and then compare them on dimensions that matter to them, such as ease of use, student responsiveness, and student-engaged reading time.

*Scenario 2. Goal: to support content-area teachers in embedding cognitive and motivational strategies into instruction.* A school improvement team is looking for a professional development experience for teachers across the content areas to help them teach students cognitive strategies for improving reading comprehension. The school wants to help teachers teach students more explicitly how to organize and process information when students read their assignments.

One thing decisionmakers may need to think about before sending a team of teachers to learn new strategies is how to support teachers in incorporating the strategies into their lesson plans and how to continue to enable teacher discussions about the impact of the strategies on students' reading assignments. The desired outcome is that teachers return from the professional development with concrete strategies for their content-area teaching to support deeper student reading and understanding in the content-area reading assignments. Someone in the school will need to be assigned to monitor the use of strategies after the professional development to determine whether follow-up is needed.

Consider finding out more about:

- *CRreating Independence through Student-owned Strategies*—2–4 days with local observation.
- *Concept-Oriented Reading Instruction*—5 days in summer, 5 days during the year, with 4–6 months for planning and implementation of a unit.
- *Reading Apprenticeship*—up to 8 days.

*Scenario 3. Goal: to engage in systematic long-term school change around the teaching of literacy across content areas.* A school improvement team is thinking about a multiyear, schoolwide literacy across the curriculum initiative to change how teachers think about literacy so that all students become more confident, engaged, and strategic readers. The team understands that achieving this comprehensive goal will take involvement by all teachers over time in reflecting on their current lesson and unit planning, with a new understanding of how students become literate in course content. The desired outcomes are that teachers will:

- Provide more frequent opportunities for supported reading experiences.
- Give regular and explicit coaching in discipline-based strategic-thinking processes.
- Foster a collaborative, inquiry-oriented classroom environment.
- Support and model metacognitive conversation with students.

For this broad vision of content-area teaching to emerge, school-based expertise will need to be developed to support teachers as they experiment with ways of moving toward the vision. An

**Someone in the school will need to monitor the use of strategies after the professional development to determine whether follow-up is needed**

ongoing relationship with the external provider may also be critical to keep the school focused over several years. Monitoring teachers' progress and student motivation and engagement in reading will be important. A secondary goal for the planning team may be to reduce the amount of pull-out reading remediation that is needed.

Consider finding out more about:

- *Literacy First*, which is staged over three years (used primarily for Title I schools to “accelerate reading achievement”).
- *Strategic Instruction Model–Content Literacy Continuum*, which is staged over 3–4 years.

Consider the selection of a professional development intervention as part of a decisionmaking cycle

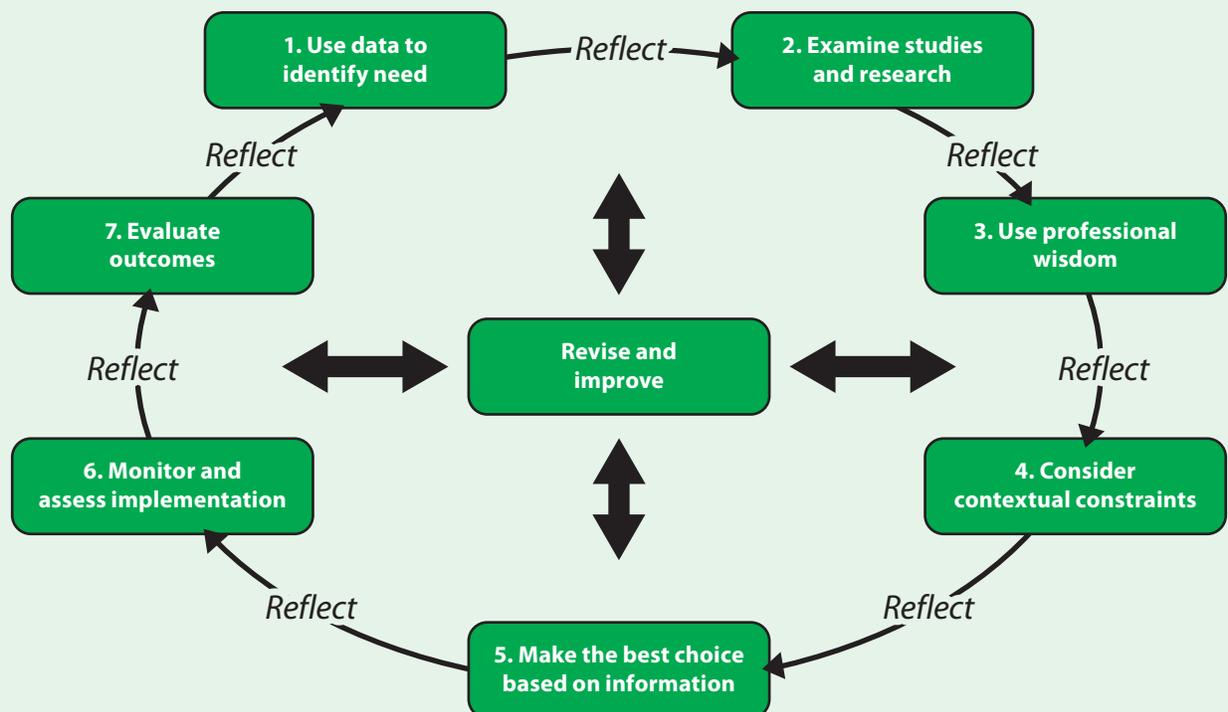
The Institute of Education Sciences of the U.S. Department of Education has defined evidence-based

decisionmaking as routinely seeking out the best available information on prior research and evaluation findings before adopting programs or practices that demand extensive material or human resources (including funding and teacher time) and affect significant numbers of students (Whitehurst, 2004).

This report should help school and district decisionmakers faced with deciding how best to provide support to content-area teachers at the middle and high school level in ratcheting up their focus on reading in the content area. This review of seven interventions is designed to help secondary school teachers improve reading outcomes across the curriculum through changes in instruction and assessment. The decisionmaking cycle illustrated in figure 1 shows how various inputs or sources of information can be used in selecting and implementing an intervention. The figure is a way of describing what evidence-based decisionmaking might look like in action.

FIGURE 1

**The evidence-based decisionmaking cycle**



Following a thoughtful decisionmaking process about interventions as outlined below should enhance the likelihood that a district or school reading across the curriculum initiative will result in the desired outcomes.

*1. Use data to identify need, assess the current situation, and know what level of change is expected.* The seven interventions (and any others under consideration) represent different levels of expectations for teacher change. For example, the supplementary materials, such as Reading in the Content Areas, represent the least amount of expected change for teachers, whereas Strategic Instruction Model–Content Literacy Continuum requires significant work by teachers in content organization. Reading Apprenticeship and Concept-Oriented Reading Instruction both support a fairly complex instructional framework that incorporates many features into instruction that research has shown to be related to increased engagement and motivation to read. Decisionmakers may want to think about how to pilot various interventions with small groups of teachers to build internal expertise and help to decide about the kind of teacher change envisioned.

Some of the instruments available from the various interventions might be useful for conducting an initial needs assessment. For example, student motivation surveys such as those used in the Concept-Oriented Reading Instruction research could be useful for understanding where students in the school are at baseline and for convincing teachers of the need to work toward more engaged reading by students.

*2. Examine studies and research.* All the interventions examined focus on assisting teachers with cognitive strategies to help students process information from texts (such as paraphrasing, word identification, and summarizing). This focus reflects the finding of a number of research studies that reading comprehension improves when such strategies are used with struggling readers in small groups. However, it is important to understand that this strategy instruction approach has generally not been researched in classrooms

of students with mixed abilities. Also, research cannot inform teachers about which strategies to use with which reading assignments or how much repetition in strategy instruction is needed. So, much remains to be discussed and monitored by the implementing teachers.

The question raised by the Concept-Oriented Reading Instruction research is central in thinking about desired teacher changes to improve reading outcomes: does the addition of research-based motivation strategies (using content goals in reading instruction, promoting student-to-student collaborative learning about texts, and so on) lead to increased student engagement in reading (which is hypothesized to lead to greater reading comprehension)? Guthrie's research provides evidence (at the upper elementary level) that adding motivation strategies to cognitive strategies is more powerful than using cognitive strategies alone.

**Research cannot inform teachers about which strategies to use with which reading assignments or how much repetition in strategy instruction is needed**

*3. Use professional wisdom.* Professional wisdom means that decisionmakers apply information about what has been learned from experiences with teacher change or what others are learning about the use of interventions. In a report from the Center for Evaluation and Assessment at the University of Iowa on interviews with 54 high school teachers who had attended a range of professional development offerings for improving reading outcomes, the authors conclude:

*Nearly all the teachers interviewed believed their school's efforts to incorporate reading had been overall worthwhile and effective. They described how students' confidence, motivation, and ability with reading-related tasks had improved. Additionally, most teachers felt that low-performers, especially, benefited from the strategies. Some teachers felt that the strategies were not beneficial for high-performers, and some*

*teachers felt that the reading programs were leading to a narrowed educational focus. (Stevenson & Waltman, 2006, p. 1)*

This is an example of the kinds of information and food for thought in planning that can be gained from talking to teachers and others about their experiences with an intervention. The report

stresses that the majority of teachers interviewed lamented the lack of time for continuing application, implementation, and discussions of the strategies learned. This is a common reaction of teachers to professional development experiences and should be taken seriously in planning.

**The reading across the curriculum initiative may need to start small—in one school with a few teachers developing a better understanding of the need**

**4. Consider contextual constraints.** Elements of the school or district context that need to be considered when selecting professional development include leadership, funding, teacher attitudes and understanding of the need for change relative to students' reading outcomes, and available internal expertise for facilitating a new vision for instruction in the content areas. Teachers may be overwhelmed with other professional development requirements. Thus, the reading across the curriculum initiative may need to start small—in one school with a few teachers developing a better understanding of the need through interventions such as CReating Independence through Student-owned Strategies and ReadAbout. Another school may be responding to a districtwide strategic plan that expects significant, schoolwide attention to improving reading motivation and outcomes, with all teachers expected to be involved over time.

**5. Make the best choice based on information.** As noted, the evidence base for most interventions is weak. Except for Concept-Oriented Reading Instruction (studied only at the upper elementary level), no well-designed experimental studies with random assignment could be found that clearly describe a treatment group that experienced superior outcomes to those of a control group. CReating Independence through Student-owned

Strategies reports data on significant differences between participating and nonparticipating teachers on a measure of students' free recall. But because this is a program-developed measure, it is not clear what significance the measure has for students' overall reading comprehension. Thus, in terms of evaluation findings, the evidence base is not yet a significant help in decisionmaking. Before and after data presented by program developers in schools with which they have worked cannot be given much weight.

**6. Monitor and assess implementation (and adjust professional development as needed).** Decisionmakers should consider how to monitor instructional changes that are expected to result from the professional development experience. Monitoring may be part of the role of a literacy coach, curriculum coordinator, or other teacher leader. Teachers will need time to plan, implement, and discuss what worked and what did not with their peers. Student feedback may also be helpful to gain additional perspectives.

**7. Evaluate outcomes (and adjust or plan new professional development as needed).** In addition to tracking student progress on measures of reading comprehension and possible strategy use, Guthrie's work argues for tracking measures related to student engagement in reading (attitudes toward reading assignments, difficulties experienced, interest in texts assigned, amount of choice in reading selections offered, and so on). Overall, it will be important to evaluate both teacher and student outcomes.

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Consider structuring a comprehensive planning process that goes beyond selecting a professional development intervention

A potential weakness in this process of improving literacy across the curriculum is that selecting a professional development intervention could become the end rather than the means. The professional development selected may be written into a school or district improvement plan as the strategy for the year, without an individual or

team accepting ownership for the bigger goal of improving reading in the content areas. That is, once the teachers participate in the professional development selected, the school assumes that the goal has been accomplished.

Planning an initiative to improve complex student outcomes such as reading to learn involves more than picking a program or vendor. Ownership of the initiative should lie with those invested in achieving better outcomes for students.

The selection of a program implies some front-end and back-end work. On the front end the planning team should:

- Develop a common understanding of the end goals of the initiative for student competencies as readers.
- Know where the district or school's students stand as readers.
- Understand what is reported in the literature as effective practices in reading across the curriculum.
- Know where content teachers stand in their beliefs, knowledge, and skills with these practices.

On the back end the planning team should:

- Be able to explain the logic for the selection of the professional development approach.
- Think through the details—timelines, incentives, support needed from school leaders and participants, and other implementation considerations.
- Prepare to monitor both teacher response to and implementation of practices in the professional development intervention.
- Monitor student reactions and any improvements in reading.

- Adapt the support provided to teachers as needed based on data.

Below is a possible set of seven planning steps, described in the context of a reading across the curriculum planning effort (Comprehensive School Reform Quality Center, 2005; Hassel, Hassel, Arkin, Kowal, & Steiner, 2006; Schwartzbeck, 2002; Walter, 2004):

*1. Identify a planning committee with good representation across stakeholders.* The purpose of a planning committee is to ensure that the initiative is owned by those closest to the need. During planning it is critical that stakeholders provide input into decisionmaking. A school may choose to have a wide range of role types as part of the initial planning. Sometimes, external facilitators can be helpful in ensuring open and honest discussions about data, needs, resources, and potential problems in implementation. Including someone with research or evaluation expertise can help the group engage in discussions of published research and think about how impact will be assessed.

*2. Clearly articulate expectations for students in literacy, understand the focus of reading assessments available for students, and describe students' strengths and weaknesses as readers.*

For both teachers and students it is important to understand expectations for students in reading. The standards-based movement, as reflected in the No Child Left Behind Act of 2001, is built on the assumption that educators and students know what is expected of them. The Georgia Department of Education included Reading across the Curriculum Standards in its revised curriculum standards to make it clear to teachers and students that the state had expectations in this area. Districts and school teams will need to discuss and process these kinds of standards as a first step toward planning instruction.

**A potential weakness is that selecting a professional development intervention could become the end rather than the means**

In addition to states' work on reading across the curriculum standards, others are also doing development work in this area. A project led by P. David Pearson, a reading researcher and dean of the College of Education at the University of California at Berkeley, identifies this step as the starting point for refocusing instructional efforts on reading comprehension across the curriculum. Pearson (2006) describes the process this way:

**For both teachers and students it is important to understand expectations for students in reading**

*“So how do you design a reading comprehension curriculum? You need. . .*

- *A framework for determining what we should expect of students at what points along the way in their school careers.*
- *Some clear and compelling illustrations of what it would mean to meet these expectations.*
- *A set of instructional routines that we can count on to help students meet those expectations.*
- *Some assessment tools to help us as teachers and our students determine: how well we are meeting those expectations and what we could do to make things better.*

The New Standards Project at the National Center on Education and the Economy is working on intermediate grade standards that accomplish the first two items. The goal for developing these standards is to present a “thoughtful vision of comprehension reflecting 30 years of cognitive and instructional research and to present compelling performances of students that demonstrate what it means to meet the expectations we hold for students in grades 4 and 5” (Pearson, 2006). Although these standards are developed for elementary school grades, the developers are attempting to build the comprehension curriculum on the

findings of prominent cognitive psychologists, and the findings may therefore be instructive for states, districts, and schools trying to infuse clearer expectations for reading across the curriculum into middle and high school.

Another effort that should inform state and district initiatives for standards in reading across the curriculum is that of the National Assessment Governing Board of the National Assessment of Educational Progress. The governing board has developed a new reading framework (American Institutes for Research, 2005; Kamil, 2006) to guide item development for 2009 and beyond. This new framework for assessing reading achievement defines reading as an active and complex process that involves understanding written text, developing and interpreting meaning, and using meaning, as appropriate, to type of text, purpose, and situation (American Institutes for Research, 2005, p. iv). The new reading framework includes a new vocabulary component, use of both literary and informational types of texts, and three cognitive targets: locate/recall, integrate/interpret, and critique/evaluate.

In addition to reflecting on standards for reading across the curriculum, it is also important to reflect on the extent to which state, district, school, and classroom assessments currently focus on reading in content areas and thus provide baseline data. Understanding students' strengths and weaknesses as readers in content areas is important background information for planning.

*3. Develop an understanding of the ways researchers and practitioners describe “effective” adolescent literacy practices and compare those with current conditions.* A planning team needs to understand what researchers are concluding about strategies that may improve adolescent literacy outcomes. There is some agreement among researchers on the features of effective literacy programs for adolescents, as a comparison of the features mentioned in some recent research reviews indicates (table 5).

The research suggests that school- or district-improvement teams need to think about the quality of teachers’ practices in the school relative to:

- Direct instruction, modeling, and practice in reading comprehension strategies.
- Structuring of content area instruction and reading assignments to make them more accessible to students.
- Selection of texts for students to read in a way that builds motivation and persistence.
- Structuring of group work and rigorous peer discussions to reinforce the notion of reading for a purpose and to encourage a classroom social environment that values reading to learn.
- Use and availability of diverse texts.
- Use of writing to extend and reinforce reading.
- Use of technology to reinforce skills and keep students motivated.

- Use of appropriate formative and summative assessments that reinforce goals for reading.
- Use of tutoring as needed to assist individual students.

Professional development for teachers should inform them about this larger set of practices, even if the professional development focuses on a narrower set as a starting point.

**Understanding students’ strengths and weaknesses as readers in content areas is important background information for planning**

4. *Compare programs available from vendors in terms of local conditions and needs.* The underlying assumption of the planning initiative is that teachers will need some structured support to make reading a reality across the curriculum. Often, schools or districts look to external professional development programs or support materials for this purpose. Understanding what researchers are concluding about effective practices can inform a review of the interventions that planning teams are considering.

TABLE 5

**Comparison of features mentioned in some research reviews on literacy**

Key components of a literacy program	National Institute of Child Health and Human Development, 2000	RAND Reading Study Report, 2002 (focus on comprehension only)	Kamil, 2003	Biancarosa & Snow, 2004	Phelps, 2005
Direct, explicit instruction in reading comprehension	✓	✓	✓	✓	✓
Involvement of academic content areas	✓	✓	✓	✓	✓
Motivation and self-directed learning		✓	✓	✓	✓
Text-based collaborative learning	✓		✓	✓	✓
Diverse texts	✓	✓		✓	✓
Writing			✓	✓	✓
Technology		✓	✓	✓	✓
Assessments (ongoing, formative, and summative)		✓		✓	✓
Strategic tutoring				✓	✓

Done well, evidence-based decisionmaking requires a tremendous amount of staff time in searching out available interventions and understanding what they are and how developers have studied or evaluated effectiveness. District and school planning teams will need to consider the evaluation studies completed on these programs and what they say about program effectiveness.

However, making an evidence-based decision does not necessarily mean that a district or school team should automatically choose the intervention that has the most convincing studies on effectiveness. Contextual factors, such as cost, fit of intervention with school context and teachers' expressed interests, and other factors may be more important. For example, an intervention may be too narrowly focused or too prescriptive for the experience and knowledge level of the teachers in the school. In addition, a school or district may not have the resources (budgetary, literacy expertise) needed to implement some interventions. A school or district with extensive internal expertise might pick a more loosely developed approach, knowing that it can develop, adapt, and evaluate as it moves forward.

One caveat is to beware of a natural attraction toward the simplest or easiest approach to teacher change, a "just give the teachers something they can take back and use" philosophy. It is important

for a planning group to ask: even though a particular intervention might fit the resources and context, is it going to make a difference in student outcomes? The possible payoffs for more difficult and challenging interventions should be considered.

*5. Consider the pros and cons of different approaches to teacher support.* It makes sense to start a review with an understanding of the interventions that are available for purchase, because developing a high-quality professional development program is very time intensive. Having done that, a school or district may decide that none is a

good fit. Some districts or schools have extensive internal expertise in reading or have invested in literacy coaches over the years and so may decide to develop their own training or coaching program for content-area teachers. For example, several states and districts are considering funding literacy coaches so that they can deliver what teachers need on a more individualized basis, providing feedback and coaching in more effective practices in real classroom settings. The International Reading Association (2006) suggests that literacy coaches are a popular means to support struggling students and to help content-area teachers assist their students to become better readers.

Despite increasing use of literacy coaches as a strategy for improving instruction, however, there is little research confirming a relationship between coaching and improved student achievement. In a review of research on instructional coaching Burney, Corcoran, & Lesnick (2003) found very few studies linking coaching to measurable improvements in student achievement. They report that support for coaching models is based on the intrinsic appeal of the idea rather than evidence (p. 6). In addition, there are some anecdotal reports that coaches can be ineffective if their roles are not clearly specified (Neufeld & Roper, 2003). It is also likely that the quality of coaching is correlated with the skills and knowledge of the coach.

Professional learning teams and teacher study groups are another popular avenue for building teacher capacity to implement improved instruction. In districts or schools where teachers have an interest or extensive experience in forming teacher study or learning teams, teacher group processes may be considered as a vehicle for structuring teacher exploration and learning toward improving reading across the curriculum. Conclusive research on the effectiveness of this approach is not yet available, however (Manouchehri, 2001; Spraker, 2003). One hypothesis about this approach is that it empowers teachers, but follow-through in the classroom may be difficult to ascertain.

**Despite increasing use of literacy coaches there is little research confirming a relationship between coaching and improved student achievement**

All three approaches—a relationship with an external provider, literacy coaches, and teacher study groups—may be considered. Based on evidence, collective professional wisdom, and contextual constraints, the planning team can decide on the best approach to support teachers. During this stage, it is important to share information with teachers and decisionmakers. All stakeholders should have the opportunity to provide input and discuss the challenges of each approach.

School and district leaders can also affect the quality of implementation of an initiative to support teacher change. Leadership is crucial to ensure teachers are held accountable for continuous movement toward the desired goal.

*6. Develop a plan to monitor teacher implementation and student progress.* The better articulated the plan, the more likely it is that the implementation will go smoothly. Selecting an external intervention is not itself the objective, nor is it a release from responsibility for taking ownership of the vision for change. Schools should guard against professional development becoming the goal rather than a means to the end of a more explicit focus on reading across the curriculum. Interim goals need to be defined as well, so that if the selected strategies or interventions do not work, they can be adjusted more strategically.

*7. Plan how to evaluate implementation and impact.* Educators are continuously looking

for ways to improve the achievement of their students. For a reading across the curriculum initiative to have staying power, resources should be provided for evaluating the quality of implementation, tracking progress on key indicators, and looking at student outcomes in greater depth than is provided for on most state tests. Whatever approach is selected (external provider, internal literacy coach, teacher study groups, or other), it will be necessary to look at what happens with instruction in the classroom and whether students make progress in developing the reading motivation, persistence, and strategies needed for success in the content areas. Evaluating the initiative should be part of a continuous process of decisionmaking about strategies to achieve the goal of reading across the curriculum.

**Schools, districts, and states should choose based on what approach best fits their context using an evidence-based decisionmaking model to ensure that high quality information informs their decisions**

Many interventions claim to address literacy across the curriculum, but schools, districts, and states should choose based on what approach best fits their context using an evidence-based decisionmaking model to ensure that high quality information informs their decisions. Doing so should enhance the likelihood that a reading across the curriculum initiative will achieve the desired outcomes.