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Literacy and Intervention

Research-Based
Literacy Intervention

MCI (MAKING CONNECTIONS® INTERVENTION)

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INTRODUCTION

MCI (Making Connections® Intervention) is a direct, systematic, highly interactive program for students who struggle with literacy in middle school and beyond. *MCI* provides a blended program for maximum effectiveness, combining print-based and online instruction. Blended learning, which combines the most effective and motivational attributes of the human teacher, traditional paper-based print materials, and online, computer-based instruction, provides for transformative learning that maximizes the depth and intensity of the educational experience (Staker, 2011).

MCI is a comprehensive program correlated to statewide and Common Core national standards for reading and literacy. It incorporates the most current research findings on adolescent literacy and online learning to meet a wide range of student needs in reading comprehension *(MCI Comprehension* and *MCI Online)*, writing *(MCI Writing)*, and word study *(MCI Word Study)*. The *MCI* Student Libraries provide high-interest paperbacks, including graphic novels, for additional time-on-task in reading fiction and nonfiction.

MCI is a direct, systematic, highly interactive program for students who struggle with literacy in middle school and beyond.

BASIC INSTRUCTIONAL AND ASSESSMENT SEQUENCE

Instruction for struggling middle school readers takes place at one of three *MCI* levels: Aqua (with texts for middle school students reading at the third grade difficulty level), Gold (with texts at the fourth grade level), and Crimson (with texts at the fifth grade level).

Students begin the program online. First, the Curriculum-Based Measure (CBM) *MCI* Pre-Test from the *MCI Pre- and Post-Tests: Placement and Progress-Monitoring Using The Lexile Framework® for Reading* is administered, usually at the beginning of the school year. In addition, to establish a CBM baseline, three maze probes from the *MCI Progress-Monitoring Assessments: Maze Tests for Comprehension* are administered. These will be followed with maze probes at regular intervals, which will allow teachers to progress-monitor throughout the level. Next, students take Unit Skill Test 1 to assess their understanding of the unit's target comprehension skill, such as "Recognizing Viewpoint: Author's Perspective." Finally, they view a motivating Video Introduction, which provides background for the unit theme's concepts and vocabulary.

Students now move to the print-based selections. The teacher leads or supports the class through the three texts in the Student Edition, each of which relates to the unit theme and includes Practice the Skill opportunities. Selection reading can also be supported by use of the *MCI Comprehension* Audio Recordings. As needed, students may also work on coordinating lessons in decoding and vocabulary from *MCI Word Study*.

As the print-based selections conclude, students move once again into the *MCI Online* component. They begin it with Skill Test 2 that reassesses student achievement in the targeted skill pretested in Skill Test 1. The software reports results to the teacher, and it also determines which path of the online instruction, A or B, will most benefit each student.

Students who meet the criterion score on Skill Test 2 are automatically moved into the Path A selections, which are at a level equivalent to or a bit above the Student Edition texts. Path A selections are drawn from one of two content areas: science or social studies. If students do not meet the criterion score on Skill Test 2, they are moved into the Path B readings, one fiction and the other nonfiction, both of which are at a lower level than the Student Edition texts. This easier level allows students to focus on reinforcement of the unit skill rather than the difficulty of the text.

Both paths in *MCI Online* begin with a short animated Interactive Skill Lesson (ISL) starring teen-friendly characters. This video reinforces and actively engages students as they review the prior teacher-based skill instruction. Then two Path A or B texts and their accompanying Practice the Skill activities follow.

At the end of these selections, students are given Skill Test 3 for a final skill assessment. Results of Skill Tests 1, 2, and 3 are aggregated and available through *MCI* Reports. Teachers are able to see student progress in the unit skill and may use these reports to further modify and differentiate instruction.

As the online selections conclude, students move into *MCI Writing* and then to the *MCI* Student Library. The Library provides two paperback books for independent reading for each unit. If students have extra time during the unit's print or online work, they may read from the two library selections or work in *MCI Writing* rather than waiting until the end of the unit.

Once the first unit is complete, students and teachers move on to the second, beginning with an online assessment of the new unit skill. All units at each of the three *MCI* levels are similarly organized to blend classroom and online instruction.

A final, summative test, the Post-Test from *MCI* Pre- and Post-Tests, is administered at the end of each level of *MCI* instruction, often at the end of the school year. Results are compared to the Pre-Test to provide a general indication of literacy progress over the entire course of the year's intervention.

THE NEEDS OF STRUGGLING ADOLESCENT READERS: ACHIEVEMENT, INTEREST, AND MOTIVATION

More than twenty-five years have passed since the widely publicized *A Nation at Risk* report (National Commission on Excellence in Education, 1983) called for educational improvements to meet the demands of our changing world. Yet today, U.S. high school scores on literacy assessments are among the lowest in the world (Carnegie Corporation, 2010). The most recent reports based on the federally administered test, the National Assessment of Educational Progress, have shown that, "Simply put, there has been no improvement in the reading scores of adolescent students over some 30 years" (Bean & Harper, 2011, p. 61).

There is widespread recognition of the reading and literacy-related needs of middle school students, 70 percent of whom need some form of intervention. Eight million students in the United States between fourth grade and twelfth grade cannot read at grade level (Biancarosa & Snow, 2006). The 2007 federal *Condition of Education* report (National Center for Educational Statistics, 2007) indicated that only 32 percent of eighth graders were at or above the Proficient level in reading (indicating solid academic achievement), and some 20 percent were below the Basic level (indicating serious difficulties). Academic skills are of critical importance to long-term vocational success, as current trends indicate that the percentage of jobs requiring some postsecondary education will rise from 66% in 2010 to 86% in 2025 (Carnevale & Rose, 2011).

Middle schools represent the "last best chance" many students will have to succeed in learning to read and thereby go on to be prepared to enter high school prepared for a college and career path (Williams, Rosin, & Kirst, 2011). Struggling readers often find that their content-area teachers do not help them with frustrating reading and literacy tasks (Hall, 2005). As a result, they may avoid reading by trying to use alternative paths to learning (Hall, 2006), or, worse, they may take on a "learned helplessness" role when given reading assignments or give up on learning altogether

(Brozo, 1991). Research such as that carried out by Vaughn and her colleagues (2011) has validated the effectiveness of intensive intervention for middle school students, even those with severe reading difficulties.

So what should intensive intervention for adolescents struggling with literacy look like? A major recommendation of *Reading Next* (Biancarosa & Snow, 2006) calls for greater emphasis on student motivation and interest, thereby establishing students as lifelong readers. In their survey of middle grade language arts instructional research, Many, Ariail, and Fox (2011) conclude that instruction should be motivational and engaging to maximize effectiveness. Worthy et al. (2002) report dramatic success in inspiring reading when struggling readers had reading materials that were written at appropriate readability levels and interesting to them. Morgan, Sideridis, and Hua's (2011) meta-analysis found that targeting students' motivation and will was the most important factor in effectiveness of interventions designed to improve scores on reading progress monitoring probes.

In 2008, the Institute for Education Studies of the National Center for Educational Evaluation and Regional Assistance published *Improving Adolescent Literacy: Effective Classroom Intervention Practices*, funded by the U.S. Department of Education (Kamil et al., 2008). This report surveys practices for literacy teaching that are supported by research carried out with adolescents. The panel of authors provides five major sets of recommendations, one of which was to "increase student motivation and engagement in literacy learning" (p. 26). The report notes that, while the terms *motivation* and *engagement* are often used synonymously, there are important differences in professional definition. Motivation refers to "the desire, reason, or predisposition to become involved in a task or activity," and engagement refers to "the degree to which a student processes text deeply through the use of active strategies and thought processes and prior knowledge" (p. 26). Students can be motivated to read a text, for example, but not be engaged because the text is inappropriately easy or difficult.

The *Improving Adolescent Literacy* report also calls for schools to emphasize the development of intrinsic motivation for reading. Lapp and Flood (2009) have detailed how intrinsic motivation can drive increased reading when students choose books and have peer support to read, think, and share ideas about what they have read.

Graphic novel material is of high interest and allows readers to reflect on their own lives and gain insight into other people's lives (Botzakis, 2008). Visual literacy skills maximized in graphic stories and comic strips assist literacy development and maintenance, as well as comprehension of text (McVicker, 2007).

In addition, student engagement is enhanced by use of digital technologies (Larson, 2009; O'Brien, Beach, & Scharber, 2007). Computer-based learning addresses affective factors such as motivation and self-esteem in a positive way (Cosden, 1988). Balajthy and Lipa-Wade (2003) describe one way the positive affective aspect of computer-based learning can work: "Computers confer status to the users, suggesting that they are engaged in cutting-edge learning. That status can work to overcome the negative image often associated with receiving instruction as a struggling reader" (p. 99). Kulik's 1994 meta-analysis of 500 research studies found that students using computers liked their classes more and developed more positive attitudes.

Struggling Adolescent Readers and *MCI*

MCI has thematic units that are high interest for middle school students. The titles of two units exemplify the interest level of the texts found within them: Intriguing Investigations and Going to Extremes.

Video Introductions provide for initial motivation of students around those themes. Using adolescent actors, engaging characters, and animations in dramatizations, the videos promote identification and involvement with the curriculum. In addition, text illustrations are age-appropriately eye-catching. Even more alluring are the graphic stories and novels found in the *MCI Comprehension* Student Edition (2 stories per level) and Student Library (9 graphic novels out of a total of 36 paperbacks). Similarly, the texts in *MCI Online* are chosen for their high interest value.

Reading Next **(Biancarosa & Snow, 2006), the national report on research-based ideas for the improvement of middle and secondary school literacy, makes fifteen recommendations to secondary schools, challenging them to re-examine their policies.**

Giving students choices in their learning activities empowers them and improves their attitudes toward and interest in school-based activities. This is a particularly important issue in dealing with older struggling readers, such as those in middle schools (Kittle, 2007).

Duke and Pearson (2002), in an extensive examination of the characteristics of good readers, put "Good readers are active readers" at the top of their list.

Giving students choices in their learning activities empowers them and improves their attitudes toward and interest in school-based activities. *MCI* emphasizes student choice in a variety of ways. At the end of each unit in the Student Edition is Text Connections, where students choose from a variety of motivating activities for continuing their explorations of the theme. The activities invite students to choose additional readings, create a Choose-Your-Own-Ending story, carry out Internet- or library-based research, write a poem, or do some other project. Students also have their choice of reading one or both Student Library books when they finish each unit. In *MCI Online,* students choose the order in which they read the two selections in their assigned Path.

In fact, *MCI's* extensive use of technology, audio involvement, and testing/reporting plays an important function in maintaining student engagement and interest.

Finally, the all-important social/collaborative needs of adolescent students are addressed in *MCI* through the many cooperative-learning requirements and suggestions found in the Teacher's Editions for *MCI Comprehension, MCI Word Study*, and *MCI Writing*.

THE LITERACY CURRICULUM: COMPREHENSION

Reading Next calls comprehension "the core of reading" (Biancarosa & Snow, 2006). Balajthy and Lipa (2003) note that comprehension is almost always a difficulty for struggling readers. Since the early days of cognitive studies in the fields of psychology and education, researchers have studied comprehension from a wide variety of perspectives. In the 1970s and 1980s, researchers' understanding of comprehension began to coalesce to form a conceptualization that emphasized active involvement and constructing meaning:

- Comprehension is not a passive, inactive, simply receptive process in which something "happens to" readers. Instead, readers actively seek out meaning in an engaged, purposeful manner.
- Comprehension is not primarily about the text or the author, a simple process of selecting, understanding, and retaining information. Instead, readers construct meaning; that is, they use their reading abilities and their knowledge of the world to create their own interpretive frameworks in order to comprehend text.

Harry Singer emphasized the importance of the dynamic interaction between the reader and the text in his concept of "active comprehension" (1978). Singer's work anticipated the crucial realization about comprehension that has dominated theory and research for over 30 years: Comprehension is an engaged, strategic process in which the reader actively seeks out meaning. Duke and Pearson (2002), in an extensive examination of the characteristics of good readers, put "Good readers are active readers" at the top of their list.

By the 1990s, this realization had become established in researchers' understanding of reading and literacy. For example, textbooks in college teacher education courses had such titles as *Literacy: Helping Children Construct Meaning* (Cooper & Kiger, 2008). Comprehension had become understood as a process of constructing meaning by the complex coordination of a variety of processes, including word reading, vocabulary knowledge, fluency, and knowledge of the world (Klingner, Vaughn, & Boardman, 2007).

With comprehension redefined as a purposeful, strategic process, researchers began to identify and assess a variety of comprehension strategies, procedures that guide and support readers. By 2000, the National Reading Panel's comprehensive federally funded survey of the research on comprehension identified some 453 studies on comprehension strategies. The panel used a meta-analytic procedure to analyze the best designed of those studies and concluded that "when readers are given cognitive strategy instruction, they make significant gains on measures of reading comprehension over students trained with conventional instruction procedures" (p. 4-40). Recent studies continue to confirm that finding (Berkeley, Scruggs, & Mastropieri, 2010).

The need for explicit teaching, modeling, and practice of strategies is particularly important for improving comprehension and reading confidence of struggling readers (Many, Ariail, & Fox, 2011). Eight key, research-based strategies

were identified by the National Reading Panel and supported by the newer Common Core State Standards (CCSS) Initiative's emphasis on close reading, which directs students to use elements of the text itself to reach deeper levels of comprehension.

Comprehension Monitoring This strategy is related to the general concept of metacognition, or metacognitive awareness. It involves the reader's recognition of success and failure in gaining meaning from text. Researchers have long known that younger and less able readers have poor comprehension monitoring ability (Markman, 1979; Owings et al. 1980). They do not overtly recognize their failures to understand and thus do not carry out fix-up strategies (such as rereading or asking a teacher for an explanation) when comprehension fails. The National Reading Panel's survey of the research literature found 14 studies of comprehension monitoring, each of which indicated positive effects for instruction. The panel concluded that children could be taught to "monitor their comprehension, become aware of when and where they are having difficulty, and learn procedures to assist them in overcoming the problem" (National Reading Panel Section 4, p. 71). Joseph and Eveleigh's (2011) research synthesis looked specifically at struggling readers to find that self-monitoring methods were effective in improving their reading performance.

Cooperative Learning Sometimes called collaborative learning, this strategy involves students working together in pairs or small groups on learning tasks. The National Reading Panel's survey of the research literature found ten studies that showed positive effects for the use of cooperative learning in improving reading ability. "Having peers instruct or interact over the use of reading strategies leads to an increase in the learning of the strategies, promotes intellectual discussion, and increases reading comprehension" (National Reading Panel, Section 4, p. 45). The use of text-based collaborative learning was also one of the major recommendations arising from *Reading Next* (Biancarosa & Snow, 2006). In their review of research on secondary reading curricula, Slavin, Cheung, Groff, and Lake (2008) found that "most of the programs with good evidence of effectiveness have cooperative learning at their core" (p. 309).

Graphic organizers are diagrammatic presentations of text concepts. They are designed in part to activate readers' prior knowledge and organize that information and also to help readers better comprehend and retain text concepts. They have been used in a wide variety of ways to improve comprehension.

Weisberg and Balajthy (1990) demonstrated that intermediate grade struggling readers often find it impossible to construct good summaries even after class discussion of a text reading. But when an intermediary graphic organizer of the ideas in the text was created, struggling readers are able to use the organizer to write effective summaries.

The National Reading Panel's survey of the research literature found 11 studies that showed positive effects for use of graphic organizers. These diagrams appear to primarily improve readers' memory and retention for material being read. The strategy was strongly validated for middle school students.

Ermis (2008), Trabasso and Bouchard (2002), and Nesbit and Adesope (2006) carried out more recent reviews of the literature on use of graphic organizers, the latter involving some 55 studies of students fourth grade and up. Their reviews confirmed the National Reading Panel's findings that this strategy helps students both understand and remember text content.

Text structure This strategy requires that readers understand the basic and common organization patterns used in prose, including story structure in narrative prose. The use of story/text structure allows the reader to develop well-organized understanding and memory for the content of stories and articles.

The National Reading Panel's survey of the research literature found 17 studies that showed positive effects for study of story structure. The panel found strongest effects for this strategy when it was used with struggling readers whose abilities were below grade level. All studies that were carried out with struggling readers demonstrated positive results.

Researchers have continued to recommend the positive results found in the teaching of story structure. Struggling readers should be actively

"When readers are given cognitive strategy instruction, they make significant gains on measures of reading comprehension over students trained with conventional instruction procedures" (National Reading Panel, p. 4-40).

engaged in identifying structural elements of stories to improve recall (Scharer, Lehman, & Peters, 2001).

Question Answering Answering questions is an important way for the teacher to help students recall what they have read, to connect information gleaned from various parts of the text, to make judgments, and to think beyond the text to develop critical and creative thinking. Questioning helps students focus on the important information in the text (Balajthy & Lipa, 2003). The National Reading Panel's survey of the research literature found 17 studies that showed positive effects for question answering, in which teachers used questions for guiding and monitoring readers' comprehension, and Berkeley, Scruggs, and Mastropieri (2010) found that this type of intervention provides strong reading improvement for struggling readers.

Question Generation Generating questions involves readers in raising their own questions about what they are reading. It has long played a central role in a variety of specific teaching strategies designed to enhance comprehension. For instance, the *Q* step in the popular study strategy SQ3R (Robinson, 1970) is the *Question* step, in which readers develop questions of their own to set a purpose for reading. Question generation is also a component of other research-based strategies, such as QARs (Raphael, 1986) and ITT (Balajthy, 1986).

The National Reading Panel's survey of the research literature found 27 studies that showed very positive effects for question generation, the greatest support for any single strategy. In addition, the panel noted that the strategy was heavily supported as effective at the middle school level.

Since the National Reading Panel report, research on student-generated questioning has continued to support its use and expand the field's understanding of its contribution to reading. For example, Taboada and Guthrie (2006) found positive effects in having students create their own questions about text.

Summarization Creating a summary is a useful way to understand and remember text. The research work of Ann Brown helped increase educators' awareness that summarizing is a complex task that is surprisingly challenging even to older readers (Brown & Day, 1983; Weisberg & Balajthy, 1990). A good summary involves the identification of the major ideas in a text and their differentiation from less important or irrelevant ideas.

The National Reading Panel's survey of the research literature found 18 studies that showed positive effects for writing summaries in response to reading and that the strategy also improved retention of information. Current diagnostic tests in reading often contain a summarization component as one measure of comprehension (Johns, 2008).

Multiple Strategies Use of multiple strategies has a long history in the teaching of reading. The popular SQ3R method (Robinson, 1970), for example, represents a 5-step sequence designed to promote retention: Survey, Question, Read, Recite, and Review. Palincsar and Brown's (1985) reciprocal teaching involves a 4-step sequence of strategies, summarizing, question generation, clarifying, and predicting.

The National Reading Panel's survey of the research literature found 27 studies that showed positive effects for the use of multiple strategies in reading comprehension instruction. The results were most powerful when used with struggling readers and most consistently positive when used with middle school readers.

The authors of the National Reading Panel report noted that current research had largely moved away from attention to single-strategy instruction in favor of attention to teaching of multiple strategies. They concluded: "Multiple strategy instruction…provides a natural basis on which teachers and readers can interact over texts. The research literature developed from early studies of isolated strategies then moved to the use of strategies in combination" (p. 4-52).

Comprehension and *MCI*

Each *MCI Comprehension* lesson provides direct, explicit instruction and practice in the use of a wide variety of comprehension strategies. *MCI Comprehension* includes regular attention to the development of the comprehension

monitoring strategy. For example, the Teacher's Edition (or in *MCI Online,* the Helper Guide) suggests appropriate points in a lesson in which to carry out a Think Aloud, a meta-cognitive development activity in which proficient readers talk aloud about their reading/thinking processes in order to model fluent comprehension to less proficient readers. Students are also regularly instructed to pay attention to their understanding of the text, marking the text by circling words, phrases, and sentences where confusion occurs and by underlining skill-relevant passages. *MCI Comprehension* helps to develop reflective readers who read texts closely and are engaged in decision-making about strategy use.

MCI Online includes additional emphasis on comprehension monitoring. Students monitor their understanding of vocabulary as they read, accessing information about unfamiliar words by clicking them. They are encouraged to collect My Word cards to add to their online collection of self-selected vocabulary words. They can also access the Skill Cards first presented in the Interactive Skill Lessons to remind themselves of the skills and how to apply them.

Students regularly engage in cooperative learning as part of *MCI Comprehension* print-based lessons. They work in pairs and small groups to discuss their comprehension and vocabulary confusions in the readings and to clarify their learning. Other cooperative work may include creating a graphic organizer chart, summarizing the text, and participating in the collaborative activity.

Using and creating graphic organizers is an integral part of all *MCI Comprehension* and *MCI Online* lessons. In the Practice the Skill section that follows all selections, graphic organizers are part of the response to the text. In addition, Skill Tests include graphic organizer–based questions that give students more practice and allow teachers to evaluate their understanding of this strategy.

Attention to story/text structure is found in every *MCI Comprehension* lesson in the Teacher's Edition sections "Genre and Structure" and "Preview Text Features." Students learn how to identify the unique features that distinguish, for example, realistic from science fiction, fiction from nonfiction, and caption and sidebar from running text. (Identifying text structure is one of nine comprehension strategies taught at each of *MCI*'s three levels.) In addition, specific text structures serve as the central skill objectives of some units. These include the skills Main Idea and Details, Compare and Contrast, and Cause and Effect.

In *MCI Online*, this attention to text structure continues and is often included as a focus for interactive online graphic organizer activities and for summarizing in the Practice the Skill activities.

Question answering is an important way for *MCI Comprehension* students to recall what they have read, to connect information gleaned from various parts of the text, to make judgments, and to think beyond the text to develop critical and creative thinking. Questioning helps them focus on the important information in the text and maintain engagement. For example, texts are introduced by focus questions highlighted and boxed at the top of the reading's first page. In a story in which students read sample e-mails from girls who have just moved to new communities, for instance, this focus question is posed: "What do these girls from different backgrounds have in common?" Teachers also engage students by providing questions before, during, and after reading. These questions might, for example, direct student attention to the context of an unfamiliar vocabulary word, ask students to predict content and direction of the stories, or have students do more thinking about specific applications of comprehension strategies.

Question answering is also important in *MCI Online*. In both Paths A and B, Notebook questions are presented on every screen of the texts to promote interactivity and engagement. Notebook questions for Path A include opportunities for students to answer Reading Check Questions similar to those found in secondary content-area textbooks. Attention to varying levels of questioning, as in the QAR strategy, has received a great deal of research support, as it encourages students to think through the readings comprehensively (Raphael, 1986).

Question generating is a key strategy in the instructional plan for *MCI Comprehension*. In the Teacher's Edition section "Comprehension

The Practice the Skill section of the Student Books includes opportunities for students to answer post-reading questions similar to those found in secondary content-area textbooks.

The importance of integrating reading and writing as interrelated tools for learning is now well established. One of the major recommendations of *Reading Next* is for increased intensity in writing instruction (Biancarosa & Snow, 2006).

Monitoring/Question Generating," students are directed to mark the text for meaning and skills, circling the words, phrases, and sentences they don't understand, and then to ask questions about these points of confusion in small, collaborative groups monitored by the teacher.

MCI Comprehension weaves summarization into every lesson by leading students to underline key ideas in the text and then later work as a team to organize the underlined information, which is then used to write a group paragraph summary of the reading or to retell it. In *MCI Online*, students are given an opportunity in every Practice the Skill to put a set of summarizing sentences in the order of their occurrence in the text and then to record themselves using these key points as they create a unique summary of the selection that they and others can listen to and evaluate.

MCI provides focus on nine key strategies in its instructional sequence. The Student Library emphasizes a multiple strategies approach to reading comprehension. The *MCI Comprehension* Teacher's Editions include instruction for helping students employ multiple strategies as they read these books independently.

THE LITERACY CURRICULUM: WRITING

Only 17 percent of teenagers enjoy school writing (Lenhart et al., 2008). The *Improving Adolescent Literacy* report noted that motivation to read and write declines as students move from elementary to middle school, most dramatically among students who are struggling with reading (Kamil et al., 2008). The National Commission on Writing for America's Families (2004) surveyed American corporations and government agencies and found that, as is commonly thought, good writing skills are crucial to both obtaining jobs and advancing in them, now more than ever to meet the demands of today's information technology–based job market (Levy & Murnane, 2004). One of the National Writing Project's core principles (Carnegie Corporation, 2010) is that writing can and should be taught, not just assigned, at all grade levels.

Writing has never been more important. The personal computer and Internet have made available means of expression that were unimaginable just a few years ago. Writing has become an essential tool for everyone to share and participate, a view that is shared by the 86 percent of American teenagers who believe that writing well is important to success in life (Lenhart et al., 2008).

And yet, writing has never been more complex, in two important ways. First, the ever-changing technology landscapes in which our students communicate through writing (and, increasingly, through writing with a combination of other media, such as pictures and videos) present them with challenges (Bromley, 2008). Second, our research-based understanding of writing continues to demonstrate the cognitive (Torrance & Galbraith, 2006) and sociocultural (Prior, 2006) complexities of the process.

The Carnegie Foundation's *Writing Next* report on improving the writing of middle and high school students (Graham & Perin, 2007) identified "a writing proficiency crisis" among today's young people. The federally sponsored Nation's Report Card on writing (Salahu-Din, Persky, & Miller, 2007) identified about 65 percent of U.S. eighth and twelfth grade students as low-achieving writers.

The Reading-Writing Connection The importance of integrating reading and writing as interrelated tools for learning is now well established. In their survey of middle grade language arts research, Many, Ariail, and Fox (2011) found support for combining the reading and writing curriculum to increase standardized achievement test results in vocabulary, comprehension, and language expression. One of the major recommendations of *Reading Next* is for increased intensity in writing instruction (Biancarosa & Snow, 2006). Explicit teaching of different kinds of text structures improves both comprehension and composition of those structures (Gersten, Fuchs, Williams, & Baker, 2001). The value of literary genre study to writing is strongly supported by Donovan and Smolkin's (2006) review of the research on this topic.

The use of good models in varied genres is a research-based method advocated by *Writing Next* (Graham & Perin, 2007): "Students are encouraged to analyze these examples and

to emulate the critical elements, patterns and forms embodied in the models in their own writing" (p. 20).

Students find that motivation and inspiration to write arise from teachers using a variety of genres. "When we asked the teens in our focus groups to identify a piece of writing that made them very proud, they generated a diverse list of examples" from many different genres (Lenhart et al., 2008, p. 53).

Writing Skills and Strategies The first of the 11 research-based recommendations for improving adolescent writing provided by the Carnegie Foundation's *Writing Next* report (Graham & Perin, 2007) is the use of writing strategies: "Teaching adolescents strategies for planning, revising, and editing has shown a dramatic effect on the quality of students' writing" (p. 15). This meta-analysis found that results for low-performing students are particularly powerful. The average effect size for such students is 1.02, high in the range of a "strong" effect size.

Writing in the Content Areas Hidi and Boscolo's (2006) survey of research on motivation to write finds that the depth of content area knowledge contributes to motivation to write in that content area, and greater motivation results in greater quality of writing. If a student knows about the Arctic and Antarctica from readings in a unit in the comprehension texts, he or she will be more motivated to write about that topic.

One of the 11 key recommendations of *Writing Next* (Graham & Perin, 2007) is that writing is best learned in the context of content learning. This report found that 75 percent of the writing-to-learn research studies showed positive effects on writing achievement. As CCSS (2010) are adopted across the nation, it is clear that "these new standards situate literacy and language development squarely within the content areas" (Brozo, 2010, p. 147).

The Writing Process In the 1960s, researchers in the field of writing began to study how writers compose. Over the next 20 years, scholars (Lucy Calkins, Donald Graves, and others) developed a new curriculum for writing that came to be known as the writing process. They described the process of composing as moving, sometimes forward and sometimes back, through planning, drafting, revising, editing, and publishing. Flower and Hayes' (1981) early work provided a substantial theory and research base for use of this writing process model. The use of its five major components continues to be substantiated in more recent research reviews of the cognitive implications of writing process (McCutcheon, 2006). Peer support and teacher guidance during composing also are integral parts of this writing process approach (Yancey, 2009).

In a comprehensive review of research on writing process approaches, Pritchard and Honeycutt (2006) conclude that "studies of the impact of using the process approach on student achievement indicated mainly positive effects" (p. 282). *Writing Next* (Graham & Perin, 2007) also finds the writing process to be an effective approach to improving students' writing.

Writing and *MCI*

MCI includes a variety of opportunities for writing instruction and/or activities. *MCI Comprehension* includes attention to strategies that simultaneously improve reading comprehension and writing ability. For example, summarization is one of the eight *MCI Comprehension* focus strategies. Summarization also is a powerful strategy for writing improvement (Graham and Perin, 2007). In every *MCI Comprehension* lesson, students demonstrate understanding of the summarization strategy as they work with their teacher and peers to write a summary of the text they have read. In addition, Practice the Skill pages invite students to respond to their reading with short writings that encourage personalization of the text. For example, after a reading about two girls who had recently moved to new schools in Alaska, a Writing Question asks students, "Which of the girls do you think will be happier in her new school? Explain why you think so." Finally, students are often asked to write a response to the Comparing and Contrasting Across Texts activity, which occurs after they have read all three selections in the Student Edition.

One of the 11 key recommendations of *Writing Next* (Graham & Perin, 2007) is that writing is best learned in the context of content learning. This report found that 75 percent of the writing-to-learn research studies showed positive effects on writing achievement.

When students have difficulty with decoding, it has a direct impact on their comprehension, not only because they miss many key words in a passage, but because labored decoding affects fluency.

In each *MCI Online* unit, students write the answer to an end-of-Path question, which requires comparison of both selections in their Path. Teachers can access and evaluate these answers online. Writing also plays a role in Assessment; in Skill Tests 1, 2, and 3, question 11 requires a written response.

MCI Writing is a companion to *MCI Comprehension* but can also be used as a stand-alone writing development program. Teachers using *MCI Comprehension* will find the skill, genre or text structure from a unit is represented in each coordinated lesson of *MCI Writing*. Writing process and text structuring strategies are taught in the context of the lesson. Graham and Perin's 2007 meta-analysis of writing instruction found that such strategy-based instruction is very effective in improving the writing skills of students with learning disabilities.

The organization of each *MCI Writing* lesson is based on the five-step writing process model. First, though, students learn the features of the target genre. Then they find those features in a sample piece of student writing that serves as the genre model. Then comes the first step of the writing process: planning. Students use a graphic organizer to plan, and attention in each of the six lessons per level is drawn to a different writing trait: Ideas, Organization, Voice, Word Choice, Sentence Fluency, and Conventions. This planning stage often ties in with the corresponding *MCI Comprehension* lesson by using the same kind of graphic organizer to help students organize their plans.

Then the lessons move on to drafting, during which students get their ideas down on paper. The third and fourth steps involve revising their drafts and then editing them. This editing step includes a Grammar, Usage, and Mechanics lesson. Finally, students publish; that is, they create a final draft of their writings, adding it to a portfolio collection.

Collaborative activities are included in a variety of ways, especially at the planning, revising, and editing steps. Checklists and/or rubrics to structure student thinking are included for revising, peer review, and editing. Ideas for extra support give teachers help in thinking through how to differentiate instruction. As a follow-up activity to student engagement in the writing process, students are taught how to apply their learning in a test situation.

THE LITERACY CURRICULUM: WORD STUDY

Words can be analyzed both for their pronunciation (decoding) and their meanings (vocabulary). Struggling readers may have difficulty with one or both kinds of analyses.

Phonics and Structural Analysis When students have difficulty with decoding, it has a direct impact on their comprehension, because a) they miss many key words in a passage and b) labored decoding affects fluency. Many struggling readers at the middle school level have poor reading fluency, the "ability to read accurately, quickly, effortlessly, with appropriate expression and meaning" (Griffith & Rasinski, 2003, p. 86) because of poor word recognition abilities (Jenkins et al., 2003). They lack the ability to quickly recognize unfamiliar words in text, to make use of grapheme-phoneme relationships (phonics), word parts (structural analysis), and context clues. As a result, their attention and effort during reading is directed to word-level analysis, decreasing focus on comprehension and leaving them with a poor understanding of what they have read. Fluency is a key factor in comprehension of middle grade students (Many, Ariail, & Fox, 2011).

Systematic and direct instruction in phonics "is an essential component of a reading program" (Nichols, Rupley, & Rasinski, 2009, p. 2). Research supports sequenced, systematic, direct, and explicit instruction in phonics (National Reading Panel, 2000). Centering on the multidimensional aspects of word recognition—sound identification, sound blending, decoding strategies, syllable patterns, and structural analysis—is recommended to help students master the "complex processes and skills needed to produce the seemingly effortless performance of a fluent reader" (Hudson et al., 2009, p. 4). Moreover, the general importance of syllable skills is well established (Hiebert, 2005), as well as its importance to older students (Archer, Gleason, & Vachon, 2003; Bhattachary & Ehri, 2004). These syllable skills are important for struggling middle school readers (Diliberto et al., 2009)

and in content area readings (McFeely, 1974). These Foundational Skills, as they are called by the CCSS, (p.15) "should be differentiated: good readers will need much less practice… than struggling readers will." *MCI* is designed for an audience of children who may indeed need a good amount of practice in these Foundational Skills.

Structural analysis, also called morphology, plays an additional important role, especially in the upper grades and in content areas where many words contain constituent meaningful word parts, such as roots, prefixes, and suffixes. Recent neurological research has suggested that morphological processes arise in a different part of the brain than other word identification processes (Hruby & Goswami, 2011). The apparent independence of morphology from phonics suggests that ability to use structural analysis may greatly benefit decoding by providing an additional tool when readers encounter an unfamiliar word.

Vocabulary Researchers have long understood that vocabulary knowledge is essential to the successful comprehension of text. It accounts for as much as 70 percent of comprehension ability (Davis, 1971; Nagy & Scott, 2000; Pressley, 2002). Blachowicz, Fisher, Ogle, and Watts-Taffe (2006) conclude that vocabulary knowledge plays a critical role in the school performance of English-language learners.

In the 1970s and 1980s, research on cognitive psychology and schema theory underscored the important role that vocabulary plays in successful reading, and it gave important insights into how it could be taught. Carver's (2000) cognitive Rauding Model of reading, for example, posited that Verbal Knowledge Level is one of the major aspects of reading development that can most effectively be improved through instruction. Carver described Verbal Knowledge as involving the reader's general knowledge of the world, and he observed that vocabulary knowledge is a key component of this general knowledge. The more students learn of their world, the larger will be their vocabulary and the greater will be their improvement in reading ability.
Research on the importance of vocabulary to comprehension development has continued to enrich the reading field's understanding of the problems facing struggling readers. Snowling (2002) suggests that readers who struggle with comprehension difficulties often exhibit satisfactory early progress and develop good decoding abilities. But as they reach higher grades in which the vocabulary demands in content area reading present challenges, their poor vocabulary-related comprehension skills increasingly compromise further development, and they spiral down into increasing failure.

In addition to establishing the theory-based importance of vocabulary development, research has also helped teachers in a practical way. Findings indicate that simply teaching lists of words does not succeed in improving achievement. Vocabulary growth comes from helping students make connections between words used to describe their world. Nagy's research (Nagy & Scott, 2000) plays a key role in helping the reading field draw these conclusions. He opposes the traditional teaching of vocabulary, with its emphasis on looking isolated words up in a dictionary and on weekly tests of randomly chosen vocabulary words. Instead, he suggests that traditional approaches to vocabulary instruction be modified in three ways:

1. Integration of instructed words with other knowledge;

2. Repetition so that readers know what the word means and have had practice so its meaning can be accessed readily;

3. Meaningful learning of the word by having students actively involved in the process.

Teachers can also help students be alert to the possibilities of using word parts as clues to meaning (Nagy & Scott, 2000). Explicit and systematic instruction in structural analysis leads to improvement in general vocabulary (Baumann, 2005; Baumann et al., 2003) and in ability to infer meanings of new words composed of those elements (Blachowicz, Fisher, Ogle, & Watts-Taffe, 2006). The meanings of 60 percent of English words can be inferred from structural analysis (Bromley, 2007). Structural analysis ability contributes to middle school students' reading ability (Nagy, Berninger, & Abbott, 2006). At the middle school level, reading to learn plays an increasingly important

Research on the importance of vocabulary to comprehension development has continued to enrich the reading field's understanding of the problems facing struggling readers.

MCI Word Study provides intensive phonics intervention in key concepts critical to middle school struggling readers: vowel sounds and syllable patterns.

role, and words that contain structural analysis clues to meaning occur twice as often in expository text as in narrative (Ebbers, 2008).

In their survey of research on vocabulary instruction, Blachowicz, Fisher, Ogle, and Watts-Taffe (2006) find that teaching students to use context clues helps to develop their independent strategies for identifying new words. Both Blachowicz and Zabroske (1990) and Buikema and Graves (1993) conclude that explicit teaching of context analysis improved students' metacognitive awareness during reading. Nagy and Scott (2000) find this metacognitive ability, the ability to reflect on and manipulate vocabulary, to be an important part of vocabulary knowledge.

Word Study and *MCI*

In *MCI Comprehension*, words unfamiliar in pronunciation or meaning are strategically approached through the use of context clues, dictionaries, and word parts. One or more of these strategies are modeled for students in every lesson. Then, as students engage in Comprehension Monitoring, they are encouraged to Mark for Meaning by circling unknown words and difficult phrases and sentences, and later, during Collaborative Learning, to discuss the words and phrases in the manner modeled by their teacher.

In *MCI Online,* students can click unknown words for their pronunciation and meaning. They can save word cards that include definitions in the My Words feature. For students who need additional word work*, MCI Word Study* offers a program that is carefully coordinated with *MCI Comprehension*'s lessons.

Part A of each *Word Study* lesson has students examine spelling patterns at the one-syllable word level. In Part B, they move on to applying those patterns to multisyllabic words. From there, lessons move on to helping students apply what they learned in Parts A and B to meaning vocabulary (Part C), which includes the study of meaningful word parts and the use of context in aiding word identification. For example, in one lesson's Part A, the closed syllable pattern VC is taught in conjunction with syllables/ words such as *ex* and *tend*. In Part B of that same lesson, the syllabication pattern VC/CV is taught so that students can divide a word like *ex/tend*. In Part C, student attention is drawn to the word *extends*, examining it for meaningful parts and the context in which it is found in one of their *MCI Comprehension* texts. Vocabulary knowledge is furthered as the prefix *ex* (which means "out") is studied, first in *extends* and then in other words, such as *exhale, exterior*, and *extract*.

TECHNOLOGY

The most dramatic changes in early adolescent literacy education within the last decade are indisputably linked to digital technologies and online communication, or *new literacies* (Many, Ariail, & Fox, 2011).

The International Reading Association, in its 2009 position statement on *New Literacies and 21st Century Technologies*, states that, "The Internet and other forms of information and communications technologies (ICTs) are redefining the nature of reading, writing, and communication" (p. 2). The Carnegie Corporation national report on adolescent literacy, *Reading Next* (Biancarosa & Snow, 2006)*,* calls for technology components used as instruction tools (p. 19). In recent years, with the increasing facility with and interest in digital media among adolescents and the availability of technology in the classroom, researchers have accumulated a substantial body of support for its use.

Blended Learning, E-learning, and New Literacies Computer-based applications in education have a long history, involving curriculum organization, methodology, and both teaching and learning strategies (Clark & Mayer, 2008). The term *e-learning* has come to be used widely to represent a more recent and increasingly important portion of computer-based applications: e-learning is any form of teaching, training, or tutoring designed to meet the needs of identified learners of any age and ability by scheduled or continual provision via the internet or mobile telephones, using electronic multimedia resources, computers, and computer-based devices (Woolard, 2011, p. 2).

Online learning refers to any learning experiences that occur partly or wholly online

(US Department of Education Office of Planning, 2009). *Blended learning* is an instructional model in which students learn both through traditional classroom forms of instruction, including teacher-led instruction and use of print materials, and through online delivery of instruction (Staker, 2011). K-12 adoption of blended learning is now proceeding rapidly (U.S. Department of Education, 2009).

In her national research report surveying varied applications of blended learning released by the Innosight Institute, Staker concludes that the online learning components of the blended instructional model have the potential to transform American schools to be "student-centric, highly personalized for each learner, and more productive" (p. 3). She provides this definition: "Blended learning is any time a student learns at least in part at a supervised brick-and-mortar location away from home *and* at least in part through online delivery with some element of student control over time, place, path, and/or pace" (p. 5).

Current thinking about the importance of e-learning moves in two directions. Theorists called connectionists emphasize the similarities between traditional and technology-based learning. They think of e-learning as foundationally similar to traditional learning in that the content and basic teaching/learning strategies are the same. Simply the medium of instruction is different. These researchers may be ardent advocates of technology-based learning, but their interest lies primarily in identifying effective means of teaching classroom skills and concepts through technology. For example, Richard E. Mayer and his colleagues carry out extensive research projects to develop a cognitive theory of multimedia learning that is applicable to technology-based environments (Mayer, 2009; Mayer & Alexander, 2011).

Other theorists focus on the dissimilarities between traditional and technology based learning. New-literacies theorists, on the other hand, emphasize revolutionary aspects of e-learning, the controversial premise that e-learning is qualitatively different from prior forms of learning. These theorists suggest that today's students are *digital natives* (Prensky, 2010), pervasively influenced by information technologies: "the mouse and the keypad are as natural tools for interaction, communication and expression as the pen and voice" (Woollard, 2011, p. 4). Some of this thinking is based on neuroscience concepts of the plasticity and adaptability of the brain, in which new modes of visual stimulation and entertainment result in brain changes underlying behavior and personality (Greenfield, 2011).

Effectiveness of Computer-Based, Online Learning Online instruction has a long history of research on computer-based learning that validates its effectiveness with students of all types. Kulik's (1994) meta-analysis of 500 computer-based learning studies shows that, on average, students using computers grow to perform at the 64th percentile, compared to students using traditional instruction at the 50th percentile.

Probably the major impetus behind the increased use of technology in the teaching of reading and literacy is the federally sponsored National Reading Panel Report (2000), which serves as the research basis for No Child Left Behind. One component of this report deals with computer-based learning. The researchers conclude that "all the studies in the analysis report positive results" (Section 6, p. 2). The NRP Report is foundational in much of the educational change in the past decade.

While online learning is fairly new, it has been in existence long enough to allow research surveys to verify its effectiveness in improving student learning (Russell, 1999). A U.S. Department of Education survey (USDOE, 2009) of more than a thousand research studies on the effectiveness of online learning concludes that "Students who took all or part of their class online performed better, on average, than those taking the same course through traditional face-to-face instruction" (p. xiv). Much of the improvement came about as a result of the greater time-on-task that the online learning makes possible. The report also finds that blended learning is superior to wholly online learning. Studies such as Kim, Capotosto, Hartry, and Fitzgerald (2011) also find that blended learning is effective in improving reading comprehension and vocabulary achievement.

...the online learning components of the blended instructional model have the potential to transform American schools to be "student-centric, highly personalized for each learner, and more productive" (Staker, 2011, p. 3).

Audio Technology Reinking's (2005) survey of multimedia research in reading demonstrates that use of computers to provide individualized, on-demand pronunciations of words and texts has been extensively investigated and validated. Computer-generated speech is equally effective to actual spoken language in supporting children's recognition of difficult words (Olson, Foltz, & Wise, 1986).

Support for audio devices during reading (Balajthy, 2005; Balajthy, 2007) is effective with a wide variety of learners, including students with attentional difficulties (Hecker, Burns, Elkind, Elkind, & Katz, 2002), readers diagnosed with the neurological impairment of dyslexia (Barron, Lovett, & McCabe, 1998), special education students (Lundberg, 1995), English language learners, and the general population of struggling readers (Leong, 1995; Montali & Lewandowski, 1996; Wise & Olson, 1994). While the usefulness of audio support for beginning readers is apparent, research also validates its use with older struggling readers (Elkind, 1998; Wattenberg, 2004). Students are willing and able to read higher-level selections when given audio support (Albright, 2002).

It appears that audio support helps less proficient readers even more than better readers (Disseldorp & Chambers, 2002). In summer educational programs, Wolf (2007) used audio with struggling readers to show that students listening to audio while reading text improve in listening comprehension, phonemic awareness, and reading comprehension. Leong (1995) found that below-average readers' comprehension is improved by use of audio support. Wise and Olson (1994) worked specifically with students identified as disabled in reading and found that audio support improves their comprehension. Montali & Lewandowski (1996) found that struggling readers perform as well as average readers when text is presented in this bimodal condition of audio support with reading.
One important approach to computer-based use of audio technology involves providing readers with the ability to mouse-click on specific words in on-screen text that present difficulty. Reinking and Rickelman (1990) found not only that such an approach helps readers understand the text, an obvious benefit, but also that readers are more likely to investigate unfamiliar words and, most importantly, to learn to identify the difficult words. Organizations such as the Center for Applied Special Technology (www.cast.org) have long provided research and lobbied for increased use of electronic text for this very purpose.

Visual/Video Technology Video is a powerful, motivating, multisensory way to present information. One of Mayer's (2009) key rules in his cognitive theory of multimedia learning is his *Multimedia Principle*, that learning is more effective with words and pictures than with words alone. Miller and Gildea (1987) carried out an early study of the effects of video on learning vocabulary. They found that children learn vocabulary better when it is illustrated in video format.

Similarly, the Learning Technology Center at Vanderbilt University has carried out a variety of projects investigating the effectiveness of video technology on learning (Rieth et al., 2003). In one study (Risko et al., 1989), fifth grade at-risk and average readers demonstrate gains in several comprehension- and writing-related abilities through use of video. The research team at Vanderbilt calls such use of video-based teaching *anchored* (or *situated*) instruction. They argue that instruction that is anchored in the use of video recreates some of the advantages of apprenticeship training that occurs when a master teacher mentors a learner. Video technology is not a substitute for hands-on learning, but the ability to replay and review a video "as often as necessary" gives that technology unique power (Barron, 1989, p. 1).

Bransford et al. (1990) find three major advantages for the use of video in learning contexts. First, videos provide rich opportunities to notice sensory images and relevant issues. Second, videos give students the opportunity to view dynamic, moving events and thus to create richer mental models. This advantage is particularly important for lower achieving students and for students who have less knowledge of the subject being studied. Finally, video allows students to develop independent ability to draw conclusions based on visual and auditory content, rather than needing a teacher to guide the process.

Manzo (2009), in an "Eye on Research" survey carried out for *Education Week*, notes that

a rigorous research effort is now identifying the potential benefits of viewing videos for literacy development. She offers two major conclusions about well-designed video. First, research indicates that such programming can teach distinct literacy skills, and second, that it can cultivate a love of reading. Manzo quotes one leading expert on media and education, describing the impact of video on literacy instruction: "Characters are engaging, and the kids are drawn into [lessons] by the characters and the stories, so you motivate them to learn...The research is so compelling" (p. 4).

Technology and *MCI*

MCI Comprehension and *MCI Online* are based on both traditional and new-literacies approaches in a blended learning model identified by Staker (2011) as the Rotation Model. Students move in a schedule between a traditional classroom with a face-to-face teacher and online learning usually supervised by the teacher. Teacher-led instruction is key in *MCI Comprehension*. *MCI Online* reinforces and reviews the teacher-led instruction as it adds an alternative instructional voice, one that is more pragmatic, concrete, and student-friendly than traditional teacher-led instruction. The *MCI Online* tutorials and reading selections constantly require active engagement, requiring responses from students and giving feedback on every screen.

The design of *MCI* is informed by research-based principles of multimedia teaching and learning offered by such theorists as Mayer (2009), whose principles in the table below are shown next to the ways *MCI* follows them:

The multimedia principle: Learning is more effective with words and pictures than with words alone.	*MCI* makes extensive use of picture and video materials to enrich text. Students have control over much of the presentation of the Video Introductions and Interactive Skill Lessons, as they are allowed to replay presentations when necessary.
Segmenting principle: Learning is more effective when presented in paced segments, rather than as a continuous whole.	*MCI* lessons, both in print and online, proceed in an orderly, segmented fashion to assure that students are clear on each point as it is made. The sequence of skill and strategy development is organized to optimize student learning.
Personalization principle: Learning is more effective when presented in a conversational, rather than formal, style.	An animated smartphone Helper Guide that appeals to teens conducts the instruction in *MCI Online*. Content is presented in an informal fashion that nonetheless addresses reading and literacy needs in a direct, sequential fashion.
Guided discovery principle: Learning is best when guidance is provided during the discovery-learning process.	As students engage in thinking through the strategies and skills presented in *MCI*, they are carefully supported to make learning efficient and effective. Extensive feedback is provided to guide student learning, especially in *MCI Online*.

Audio technology plays a major role in *MCI*. Audio for all texts in *MCI Comprehension* is available on CD, if needed. Once students engage in *MCI Online,* they may choose to read the text selections silently or to have their efforts supported by audio readings. Students can choose particular pages or the entire passage to be read aloud. In addition, potentially challenging words within the text are highlighted. When students click these words, a word card pops up, providing a brief definition. Students can click a button to hear the pronunciation of the word and its definition.

Visual/Video technology plays an extensive role in *MCI.* The *MCI Comprehension* Video Introductions provide initial motivation, as well as concept and vocabulary development for each theme. Interactive Skill Lessons in *MCI Online* review and reinforce teacher-led lessons. These tutorials are presented in an informal, friendly way by animated characters. While appealing to teens, these visual/video supports are closely tied to the target themes, texts, skills, and strategies, and incidental distractions are avoided. The Video Introductions and Interactive Skill Lessons are available to students for re-viewing as needed.

In addition, visuals play a critical role in conveying concepts related to the texts. In both the print and online components, brilliantly vivid and informative illustrations, both rendered and photographed, support and heighten the content. *MCI Online* also has one illustration in every text that can be animated by clicking it.

Teacher-led instruction is key in *MCI* Comprehension. *MCI* Online reinforces and reviews the teacher-led instruction as it adds an alternative instructional voice...

LEVELS OF TEXT DIFFICULTY AND DIVERSE TEXTS

Researchers find that much of the difficulty faced in the classroom by struggling readers has to do with the challenges created by text that is too difficult for them to read (Balajthy & Lipa, 2003). Gerdes (2001), for example, identifies one cause of poor fluency as spending too much time reading text at frustrating levels of readability, requiring struggling readers to face insurmountable word recognition, vocabulary, and comprehension difficulties. Text readings that are appropriate for the average students in a given class are defined by *Reading Next* as too challenging for struggling readers: "Learning cannot occur under these conditions" (Biancarosa & Snow, 2006, p. 18).

The Student Books for *MCI Comprehension, MCI Writing,* and *MCI Word Study* help teachers avoid putting their struggling readers in situations where they fail with text that is above their instructional level.

Middle school students learn best when functioning at tasks in which they have a high likelihood of success and a low likelihood of frustration. The Russian psychologist Lev Vygotsky (1978) called this the *zone of proximal development*; most reading educators call it the *instructional level*, where teachers ensure that learning tasks are appropriate and well scaffolded.

Like previous educational initiatives, the CCSS (2010) demand that students continually increase their ability to read higher levels of increasingly sophisticated text, ascending the much-quoted "staircase of text complexity." Yet for students who struggle, there is no "one-size-fits-all" intervention. The CCSS says, "The Standards set grade-specific standards but do not define the intervention methods or materials necessary to support students who are well below or well above grade-level expectations." (2010, p. 6). Standard 10, the text complexity standard, specifies that students must be able to read suitably complex text independently, but also notes that anything at the student's high end of the range can be achieved "with scaffolding as necessary."

Reading Next also calls for increased use of diverse kinds of texts, noting that reading tasks become significantly more complex in middle school, where students encounter literature requiring a greater sophistication in terms of analysis. In addition, students find that their reading includes a much larger expository component. Reading expository text demands background knowledge of the topics, and its organizational patterns are varied and challenging. Success in reading at this stage—including success on standardized tests and in subject area textbooks (Brozo, 2010)—depends not merely on simple word identification and vocabulary, but on actually incorporating content of informational text into long-term memory.

The content area emphasis adheres to a major recommendation of *Reading Next*—that students learn effective principles of comprehension strategies in the context of learning content. The attention to social studies and science also responds to national awareness of needs in these content areas. *The Nation's Report Card: U.S. History 2010* (National Center for Educational Statistics, 2011), for example, reports proficiency levels to be only 17% at the eighth grade and 12% at the twelfth. *The Nation's Report Card: Science 2009* (National Center for Educational Statistics, 2011) reports that student performance in science learning also remains disappointing.

Levels of Text Difficulty, Diverse Texts, and *MCI*

MCI helps teachers avoid putting their struggling readers in situations where they fail with text that is above their instructional level. All texts in *MCI* are written two to three grade levels below the average reading level of middle school students. However, since middle school struggling readers have the same concerns and interests as their age mates, text topics reflect that maturity.

MCI provides rich scaffolding in the various literacy strands. Examples include: Reading Comprehension (making inferences, citing specific textual evidence, genre, bias and persuasion, comparing across texts); Writing (argument, persuasive, expository and narrative writing, using the 6 Traits of Writing and the Writing Process); Language (vocabulary acquisition and use, word study, figurative language); Speaking and Listening (collaborative group work, presentations, use of diverse media); and Foundational Skills (word study and fluency).

In addition, the instructional plan in the *MCI Comprehension* Teacher's Editions encourages teachers to scaffold students by reading aloud or along with those who find even lower readability material too challenging. Audio recordings of the *MCI Comprehension* texts can also be used for that purpose. Audio support is even more extensive in *MCI Online* as it includes, along with the reading selection audio: 1) challenging words within the text that students can click for pronunciation and a definition, 2) special text features such as Passage Selection Screens, the Notebook, and Path A's reading preview box, and 3) the directions for the Practice the Skill activities.

When it comes to diverse texts, all components of *MCI* include reading selections, test selections, and models for writing instruction that vary across genres and content areas, emphasizing both narrative fiction and expository text genres. The content areas of English/language arts (with attention to poetic forms and other literature), science, and social studies are included and enhanced with maps, graphs, photographs, and diagrams. Whenever appropriate, real world formats such as graphic stories, news articles, Web pages, and e-mails are used. *MCI Online* Path A selections provide textbook-like content-area readings in science and social studies. The *MCI* Student Library gives the same attention to text diversity; half of the books (18) are fiction and half (18) are nonfiction. Nine of the fiction titles are graphic novels.

DIFFERENTIATION, RESPONSE TO INTERVENTION (RTI) AND MULTI-TIER SYSTEM OF SUPPORTS (MTSS)

It is common to hear the terms RTI and MTSS used interchangeably. However, the newer MTSS framework, adopted by more than 40 states, is a more comprehensive model, aiming to meet both the academic and behavioral needs of all students by providing a continuum of multiple supports. RTI, with its tiered approach to instruction and intervention, where Tier 1 is instruction for *all* students, is a part of the larger MTSS. This puts *MCI* squarely in place as part of both initiatives. (NCLD, 2012)

For many years, the identification of students with language-based learning disabilities was dominated by the so-called "discrepancy model." Students with severe achievement difficulties who scored well on intelligence tests were often identified as special education students, who qualified for additional state and federal funding that allowed smaller class size and additional hours for instruction.

In the late 1990s, an alternative approach to addressing the needs of struggling readers began to gain momentum. It emphasizes the ongoing relationship between instruction and learning outcomes in student assessment, rather than the relationship between achievement and intelligence. Balajthy and Lipa-Wade (2003), for example, classified their most severely impaired readers, called Stalled Readers, on the basis of their failure to respond positively to corrective reading interventions.

In 2004, the U.S. Congress authorized the Individuals with Disabilities Education Improvement Act (IDEA, 2004), the latest version of the bill that provides federal funding for special education. For the first time, schools were allowed to use instructional outcomes for identification of learning disabilities instead of the discrepancy model. This approach to helping struggling students has become known as Response to Intervention (RTI). It is, in part, a new understanding as to how schools should differentiate instruction to meet the needs of all students (Fuchs, Fuchs, & Vaughn, 2008).

A commitment to differentiated instruction and to understanding the individual needs of students lies at the heart of excellent teaching. Research indicates that it results in improved achievement (Connor, Morrison, Fishman, Giuliani et al., 2011). Walker's (2004) model of reflective teaching of reading and literacy, for example, places *sensitivity to individual differences* and *interaction with students as individual people* as the two highest roles of the reflective teacher. It is the reflective teacher who will employ Response to Intervention (RTI) in her instruction.

In determining whether a student has a specific learning disability, a local education agency may use a process that determines if the child responds to scientific, research-based

A commitment to differentiated instruction and to understanding the individual needs of students lies at the heart of excellent teaching.

intervention (IDEA, 2004, 6.b.). Beyond this, and in actual school practice, the RTI model has developed additional characteristics (Bender & Shores, 2007; Fuchs & Fuchs, 1992; Fuchs et al., 1992; Hutton, Dubes, & Muir, 1992). What follows are the basic tenets of RTI:

1. RTI is a school-wide system designed to support all students, not just those who struggle (Bender & Shores, 2007; Brozo, 2010). Instead of waiting for students to fail on high-stakes tests before providing services, IDEA encourages the use of RTI and mandates that schools provide a more intensive level of instruction when a student's response to general classroom instruction is unsatisfactory. As such, RTI is a more sensible plan than past policies for providing prompt help for struggling learners and special education students (Gersten and Dimino, 2006).

2. Differentiated instruction is provided according to levels—called tiers—of student need and response. In this model, teaching begins with the regular classroom curriculum for all students, called Tier 1 instruction. It is generally assumed that about 80% of students will demonstrate satisfactory achievement in Tier 1 instruction. This regular classroom instruction is the "frontline of prevention" (Brozo, 2010, p. 147). Students who fail to respond to Tier 1 are moved into Tier 2, which provides an intensive smaller-group instruction. For these students, the federal government's report *Improving Adolescent Literacy* (Kamil et al., 2008) recommends "intensive supplemental interventions in addition to the reading support they might receive in their regular classrooms" (p. 32). A different, supplemental curriculum may be used. Classroom teachers may remain the key figure in providing instruction, but they are usually supported by specialists and/or paraprofessionals.

It is generally assumed that about 15% of the overall student population (that is, 75% of the students initially assigned to Tier 2) will respond successfully in Tier 2.

Students who fail to respond to Tier 2 are moved into Tier 3. Usually, a special curriculum designed for students with intensive needs is employed. These students generally receive individualized instruction from a specialist. Bender and Shores (2007) estimate that 5 to 6 percent of students will need this more intensive Tier 3 instruction.

The structure of the three tiers is usually diagrammed as a triangle broken into three levels. 80% of the triangle is devoted to Tier 1, 15% to Tier 2, and 5% to Tier 3 (Fuchs, Fuchs, & Vaughn, 2008; Shores & Bender, 2007).

3. Instruction in RTI is based on scientifically researched methodologies. Many Americans perceived that educational methodology was overly influenced by fads and unsubstantiated claims and theories. The federally sponsored reform efforts, beginning with No Child Left Behind (U.S. Department of Education, 2002) and continuing with Race to the Top (U.S. Department of Education, 2009), have called for methods and curricula to be research-based. In practice, this has led to an emphasis on systematic, direct, and sequential instruction in recent years.

4. Assessment is continuous and systematic, an approach known as progress monitoring. The federal IDEA statute did not call for any specific type of assessment, but progress monitoring of student performance in RTI has come to be associated with a form of assessment called *curriculum-based measurement (CBM)*. Research on CBMs indicates that teachers who use them provide greater growth to their students than teachers who use their own methods for formative evaluation and progress monitoring (Stecker, Fuchs, & Fuchs, 2005).

Use of CBMs is supported by over 25 years of research (Deno, 1985). CBMs are a form of educational assessment that involves progress monitoring in the form of frequent administration of short but technically adequate measures of student performance in order to monitor progress in learning. CBM research has found appropriate validity and reliability (Thurber, Shinn, & Smolkowski, 2002; Tindal, Marston, & Deno, 1983). Keller-Margulis, Shapiro, and Hintze (2008) found that CBMs

correlate with statewide achievement tests and norm-referenced tests.

CBMs have been research-validated in both general and special education and across grades from pre-kindergarten through the high school years (Lembke, 2010). Vanderwood, Linklater, and Healy (2008) showed that CBMs correlate highly with later reading performance of English language learners (ELLs). Sandberg and Reschly (2010) surveyed studies of CBM with English language learners and concluded that this form of progress monitoring shows great promise.

In their survey of research on classroom use of CBMs, Stecker, Lembke, and Foegen (2008) found that this type of test is important in providing teachers with up-to-date information on how well students are progressing and allows them to make instructional adaptations to meet individual needs, which in turn results in significant growth. Stecker, Fuchs, and Fuchs (2005), for example, found that teachers' use of CBMs to make decisions relates to implementation of interventions, which result in significant gains in student achievement.

CBMs were originally paper-and-pencil tests, but they have also been adapted to computer-based administration. Bugbee and Bernt (1990) surveyed studies comparing computer-based tests to paper-pencil tests and found that computers offer a variety of advantages. Not only do students consistently give computer-based tests positive ratings, but also they are easier to administer than paper-based, provide for immediate grading of work, and can collect data and generate reports.

Differentiation, RTI, and *MCI*

Wonder-McDowell (2010) has found evidence of a "hidden peril" (p. 45) in differentiated instruction—that of fragmentation of instruction. *MCI* has been carefully designed so that its components work together to support student learning. *MCI* functions smoothly to engage learners in differentiated instruction to meet individual needs.

MCI guides teachers toward a reflective role as instructors of individuals. Lessons are designed to provide teachers with many opportunities to observe individual students in action and use what they observe to adapt instruction to students' individual needs. In *MCI Comprehension*, teachers begin lessons with introductory activities designed to help them assess individual student needs. In a unit introduction on the topic of polar ecosystems, for example, teachers begin the lesson by engaging students with a discussion of background concepts, text vocabulary, and predictions about the text. These pre-reading preparations allow teachers to identify students' challenges and strengths.

In addition, the Teacher's Editions include Extra Support sections that offer suggestions to meet individual needs as they become apparent. For example, when students find a text's length daunting, an Extra Support suggestion recommends having students pause halfway through the text to discuss, summarize, or answer a quick question before moving on to the second half. Similarly, each lesson has guidelines for support of English Language Learners. In one lesson, for example, ideas are provided for helping ELL students understand idiomatic expressions commonly used in

informal writing such as e-mails. Many activities give alternatives, beginning with the phrase "Depending on the needs of your students..." These activities provide for different levels of support, somewhere between "regular instruction" and "extra support." Moreover, during collaborative learning activities, teachers monitor student discussions and intervene as appropriate to support learning.

MCI serves schools as a comprehensive, integrated program, but its components can also be used separately to provide differentiation of instruction. Basic components of the program can be used in Tier 1 middle school classrooms as tools for differentiating instruction. Schools may choose to use the central program elements or the entire program to provide the supplemental reading and literacy instruction necessary for Tier 2 and Tier 3 students.

Underlying *MCI* instruction is a comprehensive assessment system that, among other tests,

provides *MCI Progress-Monitoring Assessments: Maze Tests for Comprehension*. With its choice of paper or online administration, scoring, and reporting, it gives teachers and schools a cutting-edge progress-monitoring tool for measuring general outcomes in reading. (General outcomes contrast with the knowledge of specific concepts such as comprehension skills, which are tested by other measures in the *MCI* assessment system. They show how the work in the *MCI* program is effecting improvement in general reading ability.)

The tests, or probes, are word mazes; students are presented with a text that has missing words—periodic blanks where words have been deleted. Students use their word recognition, vocabulary, and comprehension knowledge (general reading ability) to make a choice from three options to select a word that best fits the blank. These probes are short; they take three minutes to complete and should be administered often, every two to three weeks, depending on *MCI* scheduling.

For more information about *MCI* Maze Tests, see the next section of this report.

ASSESSMENT AND REPORTING

In its review of results arising from the federal Reading First initiatives on literacy achievement, the Carnegie Corporation's *Time to Act* national report (2010) concluded that rigorous assessment was a critical component for success. Gathering relevant information and making this data readily available, both to educators and to the general public, will be crucial to re-engineering schools to support adolescent literacy (p. 30). One of *Time to Act's* foundational principles is that information gathering and analysis of real-time data drives decisions. Decision-making becomes a dynamic, ongoing process based on evidence of needs. Data are archived so that the effectiveness of programs and innovations can be studied over time.

Concerns about assessment are widespread. In their survey of policies of importance to improving the achievement of middle school students, Williams, Rosin, & Hirst (2011) identified student data systems as a high priority. Their report expressed concern about the wide variation in quality of data access and use in middle schools.

Reading and literacy assessment allows teachers to evaluate and understand the strengths and needs of each student. Two of the fifteen instructional improvements recommended by the *Reading Next* report focus on assessment, one on formative and one on summative (Biancarosa and Snow, 2006). "Formative assessment provides information that helps us develop instruction that in turn provides experiences that further influence students' development…In contrast, summative assessment measures student achievement in relation to reading curriculum goals and district or state learning standards" (Afflerbach, 2007, p. 49).

Formative assessment plays a major role in the classroom, following the *Improving Adolescent Literacy* report's call for "formative assessments that allow students to make their thinking visible and that provide evidence of the problem-solving and critical-thinking strategies students use to comprehend and construct meaning" (Kamil et al., 2008, p. 29). *Reading Next* recommends ongoing formative assessment of students, carried out on a daily basis, for improving middle and high school literacy (Biancarosa & Snow, 2006).

Summative measures are especially important in fulfilling the Individuals with Disabilities Improvement Act (IDEA) of 2004. It calls for use of a process that determines if students are responding to scientific research-based intervention as part of the evaluation procedures for assessing children who may need special instruction for a specific learning disability.

Recent advances in understanding of educational process highlight the importance of assessment to the achievement of students (Gersten et al., 2008). Part of this new understanding involves the recognition that assessment is only useful if it is used to plan instruction and to revise those plans when the need arises. "It is the action around assessment—the discussion, meetings, revisions, arguments, and opportunities to

continually create new directions for teaching, learning, curriculum, and assessment—that ultimately have consequences. The 'things' of assessment are essentially useful as dynamic supports for reflection and action, rather than as static products with value in and of themselves" (Darling-Hammond, Ancess, & Falk, 1995, p. 18).

Since assessment plays such an important role in teaching and learning, educators have come to recognize several important ways to implement effective assessment systems. An important aspect of an effective assessment system is the provision of multiple measures, a diverse set of assessments designed to provide comprehensive feedback as called for, for example, by the IDEA (2004) guidelines to "use a variety of assessment tools and strategies to gather relevant functional, developmental, and academic information" (614, b, 2). Gersten et al. (2008) gives research support for suggesting that RTI Tier 2 students be monitored regularly. "Formative assessments are specifically designed to inform instruction on a very frequent basis so that adjustments in instruction can be made to ensure that students are on pace to reach mastery targets" (Biancarosa & Snow, 2006, p. 19).

Curriculum-based measurement is a form of a General Outcome Measure (GOM) (Fuchs & Deno, 1991). GOMs are not indexed to a series of short-term objectives, like many formative assessments. Instead, they measure overall student proficiency in a major aspect of the curriculum, such as reading, writing, mathematics, spelling, and the content areas (Lembke, 2010). Most popular early CBM probes in reading were based on oral reading fluency. As CBMs and progress monitoring became more popular, researchers began to search for an alternative measure that would be amenable to computer-based administration and scoring, thus relieving teachers of the tedious, time-consuming task of administering and scoring oral reading fluency probes. Maze tests provide both ease in administration and scoring and reliability and validity in terms of correlation with reading achievement tests. Graney, Martínez, Missall, and Aricak (2010) have demonstrated that both oral reading fluency and reading maze are equivalent measures, with maze being more time-efficient for students and teachers. Its efficiency is even more enhanced by computer-based administration and scoring.

Maze tasks are modifications of the traditional cloze measure. In a maze task, the first sentence of a reading passage is left intact. All following sentences have every 5th, 7th or 10th word deleted; in *MCI* Maze Tests, a 7th-word deletion pattern is followed. In a traditional cloze test, students fill in the blanks with their best guess. In maze, students choose from a set of options. In *MCI* Maze Tests, students are provided three options, with only one option being semantically and syntactically acceptable, that is, making sense and being grammatically appropriate in the context.

Maze probes have demonstrated high correlations with other measures of reading (Fuchs & Fuchs, 1992; Shin, Deno, & Espin, 2000), including oral reading fluency (Yeo, 2008; 2011). The Fuchs and Fuchs study also reported high student and teacher satisfaction with the maze format. Maze has been used successfully to monitor student gains during interventions (Begeny & Martens, 2006) and to measure reading growth of English language learners (Wiley & Deno, 2005).

One advantage of maze assessment, the progress-monitoring format used in *MCI,* is that results provide teachers with better insights into student comprehension and language processing. In fact, maze CBMs are sometimes called *CBM comprehension probes*. Many curriculum-based measurement tests are based on simple speed of reading, measured in WCPM: words correct per minute. The appropriateness of WCPM fluency tests as measures of comprehension has been questioned (Fuchs & Fuchs, 1992). Maze testing provides better feedback on how students are thinking about text. Replacing WCPM oral reading probes with maze "has a logical basis" (Graney, Martínez, Missall, & Aricak, 2010, p. 369).

The advantage of maze probes over oral reading probes is particularly important as students grow older, with the intermediate grades and

MCI* provides assessment tools in several components: *MCI Comprehension* Student Books and Teacher's Editions, *MCI Comprehension Assessment* CD-ROMs, and *MCI Pre-* and *Post-Tests: Placement and Progress-Monitoring Using The Lexile Framework® for Reading.

with middle school students. Simple speed of word identification tends to plateau as students reach the upper elementary grades and the relationship between WCPM results and normed tests of reading weakens. Maze, on the other hand, as a measure of comprehension, continues to provide important results that correlate with normed tests throughout the school grades (Graney, Martínez, Missall, & Aricak, 2010).

Assessment, Reporting and *MCI*

MCI provides a comprehensive array of tools for formative, summative, and curriculum-based assessments. Much of the assessment is carried out online, with automatic administration, scoring, and reporting that frees teachers from these time-consuming tasks.

Formative Program Assessments
Opportunities for informal lesson-based assessments are provided throughout *MCI Comprehension*. Teachers are able to observe performance in class as students participate in discussions, circle and underline text, and respond to the Practice the Skill questions, graphic organizers, vocabulary, and writing activities in the Student Editions. They also have access to similar student responses in *MCI Online* through the *MCI* Reports.

Unit Skill Tests, available both online and in print, are more formal assessments that give feedback on student progress at the beginning of each unit's instruction, at the mid-point, and after completion of each unit. The tests are additional reading passages related to the unit's theme. The passages are followed by multiple-choice and open-ended response questions. Successful performance is identified with a criterion-referenced measure: 70% correct indicates that students have achieved the criterion for success. The mid-point test score also determines which path a student will take in *MCI Online*.

The Unit Skill Diagnostic Test, available only in print, is designed for one-on-one administration by the teacher to provide detailed, diagnostic feedback on causes of the poor performance, as recommended by *What Works* (Gersten et al., 2008), as well as by the *Improving Adolescent Literacy* report of the Institute of Education Sciences (Kamil et al., 2008). That report notes the importance of diagnostic measures. For the most seriously disabled readers, however, it is crucial that the major source of the students' reading difficulties be identified so that interventions can be targeted to the most critical areas (p. 35).

In addition, print assessments for the *MCI* Student Library and fluency-based measures for use in assessing oral reading are available. Another print-only assessment is the Key Idea Cards, which encourage teachers to make daily formative assessment an integral part of their teaching. These cards can be used as part of the lesson conclusion to wrap up the lesson, to give students a summary of the day's learning objectives, and to allow teachers to briefly assess how well students have achieved those objectives.

Formative Curriculum-Based Measures
MCI also supports Response to Intervention efforts by including short, frequent progress monitoring probes, the *MCI Progress-Monitoring Assessments: Maze Tests for Comprehension.* These Maze Tests are offered online or in print and provide frequent data points for tracking rates of student growth. The data points form around an *aim line,* which is established by drawing a line connecting the baseline with the end-of-year goal. Then the *trend line* is a line of central tendency to indicate the progress, or lack of progress, demonstrated by the weekly scores. In the online version, both the aim line and the trend line are generated automatically. Teachers can use the management system to modify the aim line, if the end-of-year goal changes. In the event the trend line indicates a poor response to intervention, a teacher might consider a wide range of possibilities, including waiting for additional confirmation, changing instructional setting and curriculum, and moving the student to a different level of instructional difficulty.

Summative Program Assessments *MCI Comprehension Assessment* CD-ROMs also have a summative component, the Cumulative Skills Tests (Tests 5 and 6). Summative assessments track students through the school year and beyond. They can be used to inform instruction,

as with formative assessment, and they can also be used to monitor progress over longer periods. The summative assessments are offered midway through each level of the curriculum (Test 5) and at the conclusion of the level (Test 6). They provide feedback on how well students are performing with the six skills introduced in the unit. The Cumulative Skills Tests provide formal, summative measurement of how well students have responded to the research-based intervention instruction provided by *MCI.*

Summative Curriculum-Based Measures The *MCI Pre- and Post-Tests: Placement and Progress-Monitoring Using The Lexile Framework® for Reading* works as both a summative assessment of student learning of comprehension strategies as well as a more general literacy-related indicator. The tests give data designed to correlate with statewide assessments and other norm-referenced tests. The *MCI* Pre- and Post-Tests are available in print and online. The tests help teachers compare students' pre-*MCI* reading achievement with their reading ability after a level's worth of instruction. These assessments also produce a Lexile® measure that represents a student's reading ability and provide evidence of derived grade-level gains in reading, an important indicator in determining Adequate Yearly Progress (AYP). The Pre-Test portion of the assessment can be used to select a text level that presents the right degree of challenge and instructional scaffolding for each student's needs and also provides a beginning measure to contrast with later assessments, including the Post-Test, in order to monitor student progress.

***MCI* Reports** *MCI* provides a management system for organizing, analyzing, and reporting data from the *MCI* assessments. As mentioned in sections above, the Pre- and Post-Tests and Maze Tests are automatically administered, scored, and reported when used online.

MCI Reports provide comprehensive tools for monitoring student progress. Research on online education suggests that both learners and teachers believe that teachers should play an important role in monitoring student online lessons. Teacher monitoring "keeps the learner from feeling isolated, which assists in the successful completion" of online instruction (Gagné, Wager, Golas, & Keller, 2005, p. 334). *MCI* Reports enable teacher monitoring and provide individual, classroom, and school reports on achievement progress.

Computer-based reporting systems such as *MCI*'s provide many benefits. Research indicates that the extensive feedback provided to teachers in computer-generated reports, in which large amounts of student performance data can be aggregated and summarized in tables and charts, is a key benefit. Data on strategy- and skills-based performance allow teachers to plan differentiated instructional modifications for students. Another advantage of online reporting systems is that data can be used to assure fidelity of instruction, the extent to which an intervention is carried out as designated by the curriculum.

MCI Reports allow teachers comprehensive access to student responses from their online Unit Skill Tests. Overall scores are reported, but by a simple process of *drilling down* to the question response level, they can examine individual responses for formative assessment purposes.

MCI Reports allow teachers and administrators to keep track of student performance and progress during online lessons. Inattentiveness or off-task behaviors, for example, can result in inordinately slow progress through the units. By tracking completion dates for each unit, time-on-task can be identified. Time used in test taking is also recorded and reported.

CONCLUSION

MCI is a technology-rich program designed to engage struggling readers in middle school and above in research-based efforts to improve overall reading in the context of highly-engaging texts in the areas of the language arts, science, and social studies. In addition to reading comprehension, coordinated lessons in word study and writing complete the program, which is also correlated with statewide and CCSS for reading and literacy.

***MCI* Reports provide comprehensive tools for monitoring student progress.**

Blended instruction provides today's generation of students with a mix of classroom learning directed by a teacher using traditional paper-based books, as well as computer-based, online learning directed by a Helper Guide. *MCI* provides a carefully balanced, research-based blend of both approaches, capitalizing on the strengths of both teachers and technology. Teachers direct initial instruction in skills and strategies and take responsibility for general supervision of all instruction, while online tools provide additional learning experiences and maximize differentiated instruction for students. *MCI*'s assessment components support teaching by giving teachers and schools the tools necessary for the critical tasks of data-based decision-making. Assessments in *MCI* play a supporting role for teachers in enhancing their ability to differentiate instruction for all learners and to track student progress week-by-week across the school year. *MCI*'s online administration of assessments and automatic scoring and reporting of results frees teachers from these tasks that otherwise reduce teaching time. Schools require flexible curricula to meet the wide range of student needs in our diverse society. *MCI*'s components allow for a wide range of circumstances related to schools' planning for RTI. *MCI* can be employed for Tier 2 interventions, especially designed for the comprehension instruction crucial to struggling readers. In middle schools that primarily serve at-risk populations, *MCI* can be used as a core curriculum for all students in English/Language Arts classes. *MCI* can also be used in intensive, tutorial settings for severely affected Tier 3 students.

In recent years, attention to school improvement and reform has focused strongly on researched–based pedagogy of demonstrative efficacy. *MCI* is that, but at the same time is a creative, engaging program that appeals to middle school students. Developed as the provisions of the CCSS were emerging, the creators of *MCI* were able to incorporate much of the newest thinking in literacy issues.

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3. Technology in reading and literacy. Balajthy is the author of almost 100 articles on technology. He edited the "Technology in Literacy Education" column in the International Reading Association's professional journal *The Reading Teacher*. He is the author of two books on the use of personal computers in school.

For more information about this and other research-based materials from EPS Literacy and Intervention, visit epsbooks.com or call 800.225.5750.

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