CEEP Center for Evaluation & Education Policy

SPECIAL REPORT

The Core Components of RTI: A Closer Look at Evidence-based Core Curriculum, Assessment and Progress Monitoring, and Data-based Decision Making

Yuri Kashima, Bridget Schleich, and Terry Spradlin

JUNE 2009

CONTENTS

CEEP SPECIAL REPORT SERIES ON INDIANA'S VISION OF RTI . . .

- ✓ *Indiana's Vision of Response to Intervention*
- ✓ *The Core Components of RTI: A Closer Look at Evidence-based Core Curriculum, Progress Monitoring, and Data-based Decision Making*
- ✓ *The Core Components of RTI: A Closer Look at Leadership, Parent Involvement, and Cultural Responsivity*

INTRODUCTION

The recent special report, "Indiana's Vision of Response to Intervention" issued by the Center for Evaluation & Education Policy (CEEP) was the first of a three-part series aimed to build a fundamental understanding of a Response-to-Intervention (RTI) framework in Indiana's schools to aid in the prevention and intervention of both academic and behavioral problems for all students. The report also discussed the impetus for implementation of RTI, as well as what the state of Indiana is currently doing to respond to and guide schools through this new initiative. Specifically, Indiana's Department of Education (IDOE) has developed a framework of RTI that addresses six core components on which to focus: (1) evidence-based curriculum, instruction, intervention and extension; (2) assessment and progress monitoring; (3) data-based decision making; (4) leadership; (5) family, school, and community partnerships; and (6) cultural responsivity.

According to a statewide RTI survey of Indiana educators administered by CEEP in January of 2009, 85.2% of respondents indicated that their school is either conceptualizing their RTI framework or in the initial stage of implementation. Thus, the current report examines in greater depth the first three core components of the RTI framework to support schools in their implementation and understanding of: evidence-based core curriculum, instruction, intervention and extension; assessment and progress monitoring; and data-based decision making.

EVIDENCE-BASED CORE CURRICULUM, INSTRUCTION, INTERVENTION, AND EXTENSION

What is Evidence-based Curriculum, Instruction, Intervention, and Extension?

Evidence-based curriculum refers to the materials and practices that have been supported by research as the most effective and beneficial in helping students learn. RTI has been termed a "multi-tiered service-delivery model," with the first tier usually consisting of the core curriculum that is aligned with state standards. Universal screening is administered to all students to determine whether the current core curriculum is appropriate. Those students that are found to be "nonresponsive" (i.e., when their data do not meet the norm benchmark) are provided with support in Tier 2. Students whose scores far surpass the benchmark may also be supported by Tier 2 interventions (i.e., extensions). Using curricula, interventions, and extensions that are empirically supported is necessary to ensure that students are provided with the best available practices. Otherwise, it is difficult to judge whether a student is nonresponsive because he or she is having difficulties, or because there is a problem with the core curriculum. This distinction is important as each problem requires a different solution. The use of scientifically-based programs and practices helps to ensure that student difficulties are not due to inappropriate or ineffective classroom instruction. Furthermore, the No Child Left Behind Act of 2001 (P.L. 107-110) (NCLB) requires that practitioners use "scientifically-based research." Therefore, the use of evidence-based research is not only legally mandated, but there is a clear need for these practices to be implemented within school systems to appropriately judge student

performance. To determine if a school is utilizing scientific research-based core curriculum programs, the What Works Clearinghouse (see Web Resources for link) has compiled a list of core programs to assist schools in choosing what is most effective. Programs are rated based on the number of studies conducted on a particular program, the sample size used, and the extent of evidence supporting the program.

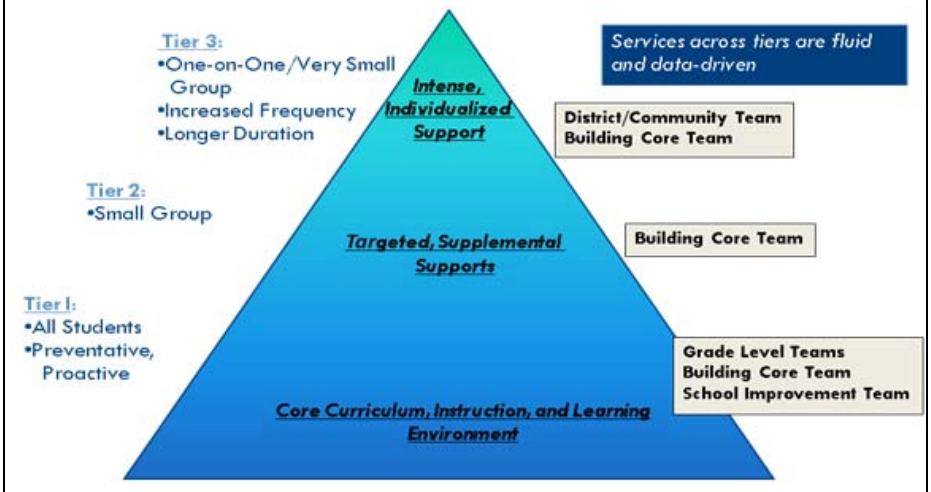
Within all RTI approaches, tiered instruction and intervention are seen as essential pieces. First and foremost, evidence-based instruction of the core curriculum is important because all students receive this, regardless of the type of services they receive within the RTI framework. Shapiro (2008) explains, "although the assessment components of RTI (universal screening and progress monitoring) are essential elements of implementation, it is the instruction that occurs as a function of the outcomes of the assessments that truly drives the changes we hope to see in students who are identified as being at some level of risk for not meeting academic expectations." This also goes for the behavioral application of RTI. Similar to RTI approaches for academics, the first tier of support in using RTI for behavior concerns addresses all students via the development of school-wide expectation and instruction. In other words, school rules, routines, and physical arrangements are created and identified (via a matrix graph), and taught (using observations and reinforcements such as praise and tangible rewards) by school personnel to prevent initial occurrences of maladaptive behavior the school would like to target for change (Sugai et al., 2005).

Indiana's Vision of RTI, a guidance document created by the Indiana Department of Education, states that although there is no one universal model of RTI, a meta-analysis of the seven prevalent models supports a three- to five-tier version, which allows the intensity of instruction (both academic and behavioral) to be adjusted to meet diverse student needs (Indiana Department of Education, 2009). Through Tier 1 service delivery, approximately 80% of students are expected to reach levels of competency in the content area assessed. Those who do not meet the benchmark may require supplemental support through Tier 2 service delivery, where students engage in instructional programs that are catered to their individual needs in small groups (about 5 to 8 students). Some models have one-on-one individual support for students in Tier 3, while other models use smaller group instruction (about 3-5 students). Within this model differentiated instruction is important in order to meet the needs of all students, no matter their instructional level (Johnson et al., 2006). While tiers may be composed differently, in general, a higher degree of specificity and intensity is associated with a higher tier of intervention. For example, Tier 2 instruction may utilize small-group instruction while Tier 3 instruction may be more catered towards the individual student. Students who are not responsive to Tier 3 interventions may be considered for identification as having a specific learning disability.

In the common three-tier approach to RTI, primary supports and interventions comprise the "least-intensive" level of service delivery (also known as Tier 1 interventions, see Figure 1). This first tier aligns with what the NCLB considered as high-quality instruction. Tier 1 is designed to help all students in the school with well-supported, research-based instructional programs. Interventions at this level are intended to be proactive and preventive. Having a strong core curriculum, instruction, and school organization as part of one's Tier 1 increases the likelihood of achievement and success for all students. This can reduce the number of students who are struggling or may be referred for special education services by providing a learning experience that should be beneficial to most students. The Individuals with Disabilities Education Improvement Act of 2004 (P.L. 108-446) (IDEA, 2004) states that students must receive appropriate learning experiences before a disability can be considered as the basis for achievement or behavioral difficulties. In Tier 1 general education teachers adopt scientific, research-based instructional programs in core areas such as reading, writing, and math. Additionally, to address behavior concerns, schools may adopt a school-wide system of behavioral supports (Tier 1). It is important that the programs are implemented in the manner that they were designed, with ongoing measures of implementation fidelity used. In this first tier general educators are expected to participate in regular and rigorous professional development to continuously build their professional competencies.

Certain key features of RTI translate across disciplines to foster student growth. For example, Al Otaiba, Kosanovich-Grek, Torgesen, Hassler, and Wahl (2005) reference three key features for effective core programs that are applicable across disciplines including: (1) a clearly articulated statement of scientifically based research; (2) explicit instructional strategies; and (3) consistent organizational and instructional routines. Although the RTI framework can be used for writing, mathematics, science, social studies, and reading, the vast majority of research thus far has focused primarily on reading (in the academic application of RTI). Pertaining specifically to the research on reading, including these three components in a core reading curriculum may help prevent students' reading difficulties. Further, the Oregon Center's Consumer's Guide recommends that educators select a core reading program by taking into consideration the demographic characteristics of the students who will use the program and whether the program is efficacious (as supported by robust experimental studies). In addition, the guide provides a critical elements analysis in order to assist educators in determining whether the five major components of reading instruction

Figure 1. Example of a Three-Tier Framework of RTI



Source: Indiana Department of Education (2009). *Indiana's Vision of Response to Intervention: Using Response to Intervention (RTI) for Indiana's Students.*

emphasized by the national reading panel (phonemic awareness, phonics, fluency, vocabulary, and reading comprehension) are addressed.

As mentioned in the first report of this series, Hughes and Dexter (2006) found in their review of published articles regarding the effectiveness of various RTI models (field studies) that, despite differing models and frameworks of RTI, all of the 11 field studies on academic performance found some level of student performance or achievement improvement. This finding suggests that tiered intervention programs may aid students' academic performance (although there is a need for more sound research procedures and designs to be used in these field studies to control for outside variables that may be associated with improvement in student academic performance).

There is a wealth of information on the behavioral application of RTI as well. Horner (2008) describes the link between literacy supports and behavior, stating that students who struggle academically are likely to not only find academic work aversive, but also find escape-maintained problem behaviors reinforcing. Thus there is a clear need to address behavior concerns in order to improve students' academic performance, and vice versa. In fact, an elementary school teacher, during one of the 12 site visits that the authors conducted to examine local implementation of RTI in Indiana schools, shared, "It's not just academics that RTI focuses on. That's another mindset that we're run into. I think that's going to be one of the big things in the middle school and the high school—is that they don't realize that it's not just reading and writing and arithmetic. There is more to that. Other components in their life might be affecting how they're learning to read and write."

As also mentioned in the first special report, school-wide Positive Behavior Support (PBS), a three-tiered continuum of service delivery implemented in classroom and non-classroom settings, provides students with a variety of strategies to help them achieve social and learning goals while preventing problem behaviors (Office of Special Education Programs [OSEP] Technical Assistance Center on Positive Behavioral Interventions & Supports [PBIS], n.d.). In Tier 1 (primary prevention), school-wide expectations are established, and universal screening is used to identify students at risk of developing social, emotional, or behavioral problems (Burns, Deno, & Jimerson, 2007; Sugai et al., 2005). In Tier 2 (secondary prevention), students who are not responding to primary prevention engage in more intensive interventions in small groups. Functional Behavioral Assessments (FBA) may be conducted to better understand students' needs and ways in which teachers can address these needs. In Tier 3 (tertiary prevention), individualized supports are provided to students after Tier 2 supports are found to be insufficient (Burns et al., 2007).

Johnson, Mellard, Fuchs, and McKnight (2006) describe the first tier of service as being particularly important because it "represents the first 'gate' in a system designed to better accommodate the diverse learning needs of all students… [it] provides the foundation for instruction upon which all supplementary interventions (e.g., Tier 2 and beyond, special education) are formulated in a system of responsiveness to intervention" (Johnson, Mellard, Fuchs, & McKnight, p. 3.5). It is within this tier that high-quality instruction and monitoring helps to shed light on the students who may need additional support and services (e.g., small-group or individualized instruction that is more intense/frequent).

From the statewide RTI survey administered by CEEP, it was determined that there are a vast number of interventions being used by schools and corporations. Ninety respondents to the survey (12.8%) stated that they were fully implementing RTI (level 3), and among those respondents, 103 disparate intervention programs are reportedly being used in their schools. The top ten programs that are used in schools where RTI is being fully implemented include: My Sidewalks (Scott Foresman), Read Naturally, SRA Corrective Reading, Voyager, Lindamood Bell: LiPS, Read 180, Reading Recovery, materials from the Florida Reading Center, Headsprout, and Accelerated Math.

Among the 14 survey respondents (2%) who stated they were at the level of sustained practice of RTI implementation (level 4), 16 different intervention programs are reportedly being used in their schools. The top two programs used are: My Sidewalks (Scott Foresman) and Voyager. It should be noted that the interventions being used among the survey respondents varied greatly, and the overlap among the reported interventions is minimal. For example, the most widely used intervention among schools that are reported as fully implementing RTI is My Sidewalks (Scott Foresman), however only a total of eight respondents (4%) stated that this program is used at their school, and only two respondents (11.1%) reported using each of the level 4 programs stated.

Training and Professional Development Issues

Shapiro (2008) states that as part of professional development, it is necessary for teachers to be trained well and to adhere to the specifics of instructional programs. If this does not occur, it is virtually impossible to determine whether a program is failing due to the way in which the instructional strategy or intervention is being implemented, or because the students are not responding to instruction that should be effective. In addition, professional development should accommodate the needs of both teachers just initiating tiered instruction, as well as teachers who have some experience with it. Having a more veteran teacher mentor a newcomer on the tiered instructional process can allow professional development to cater to the needs of both new and veteran teachers, as well as, facilitate understanding and implementation. Further, continuous professional development can help teachers and schools keep abreast of advances in the current research and literature. Shapiro continues to drive his point home by stating that if the Tier 1 core instructional program is implemented with high fidelity by well-trained teachers the expectation is that most students receiving this instruction will show proficiency in their assessment outcomes. Here, Shapiro brings to light an important point—fidelity of implementation is important to ensure that student outcome data are accurate measures of student proficiency.

Fixen (2008) agrees that building competence through selection, training, coaching, and performance assessment is vital in accomplishing change as part of professional development. He adds that professional development should involve sharing information about recent development in the field, learning about innovations, and working on two-way communication (which is part of preparing for change). In his model it is important that training is done with trainers who know the innovation well. Good professional development includes a precise description of the intervention, methods, underlying philosophy and values, and the data that supports its use. It should include demonstrations and examples of the intervention, have pre- and post-tests of knowledge and skills, and be revised often to meet the needs of coaches and staff.

From the CEEP RTI Implementation Survey, out of the 710 respondents who answered that

their district or school is in the process of adopting or implementing the RTI framework, most respondents (74.5%) agreed that their school district or school has provided them with general professional development activities on RTI that have supported capacity building. Approximately 62% of respondents agreed with the comment that ongoing professional development is needed to sustain the implementation of the RTI framework in their school district and/or school. In all, 43% of respondents answered that substantial professional development is needed to develop a deeper understanding and capacity to implement the RTI framework. However, 42.7% of respondents stated they have received professional development activities that have supported change in the curriculum and instruction to focus on evidence-based practices. Only one third of the respondents agreed with the notion that their professional development activities have provided sufficient support to administer universal screening and progress monitoring assessments. Lastly, 23.8% of respondents stated that professional development activities have provided sufficient training for data analysis and data-driven decision making (see Table 1 below).

In addition, 702 survey respondents answered how many professional development activities and training sessions on RTI they have participated in during this past school year. A plurality of 45.2% reported that they attended or plan to attend one to two activities or sessions during the 2008-09 school year. A total of 80 participants (11.4%) stated that they will have participated in zero professional development activities during the school year (see Table 2 below).

Implementation with Fidelity

Although the importance of the fidelity with which RTI is implemented was discussed in the first special report, it is worth restating in this second report. With high fidelity, we assume that the integrity of screening and progress-monitoring procedures is adhered to. In addition, it is critical that one be able to report the fidelity with which an academic or behavioral intervention was implemented so that any significant gains in student achievement can be accurately attributed to the intervention, and so that the intervention can be replicated in other schools and districts. Many studies which have examined the integral role that fidelity of implementation has on the effectiveness of intervention programs for students with learning disabilities include three key factors: fidelity of implementation of the process (at the school level), how empirically-supported the specific intervention was, and the teacher's fidelity of intervention implementation (Johnson et al., 2006). Further, Fixen (2008) states that because implementation efforts can take years to show up in the school-wide benefits for students, immediate measures must be in place to determine whether implementation will "pay off" in the future. Some of these immediate measures include: pre-post tests of teacher training (i.e., good post-test scores should highly correlate with later teacher performance assessments), coaching feedback (i.e., good scores for a coach should highly correlate with later teacher performance assessments), and performance assessment information (i.e., good performance assessment measures should highly correlate with later student outcomes). The state guidance document (IDOE, 2009) also addresses this issue of implementation fidelity; the document highlights some key components that lead to RTI fidelity in general education and within interventions and extensions. These components include:

- Systematic curriculum
- Effective instruction
- Direct instruction
- Specified instructional materials
- Checklist of key instructional components
- CBM assessments
- Videos and/or observations of classroom instruction
- Data (results) graphed against goals
- Student progress monitored monthly
- Decisions regarding curriculum and instruction based on data

TABLE 1. CEEP Survey Respondents' Description of Professional Development Activities

	Number of Responses	Percentage of Responses	Rank
General RTI information	529	74.5%	1
Support change in curriculum/instruction	303	42.7%	4
Sufficient support to administer universal screening/progress monitoring	234	33.0%	5
Sufficient training for data-driven decision making	169	23.8%	6
Need for more PD for understanding RTI implementation	306	43.1%	3
Need for ongoing PD to sustain RTI implementation	443	62.4%	2
TOTAL	**1984**		

Note: In addition, 702 survey respondents answered how many professional development activities and training sessions on RTI they have participated in during this past school year. Of those 702 respondents, most (45.2%) reported that they attended or plan to attend one to two activities or sessions during the 2008-09 school year. A total of 80 participants (11.4%) stated that they will have participated in zero professional development activities during the school year.

TABLE 2. CEEP Survey Respondents' Frequency of Participation in Professional Development Opportunities During the 2008-09 School Year

	Number of Responses	Percentage of Responses	Rank
None	80	11.4%	4
1-2	317	45.2%	1
3-5	224	31.9%	2
6 or more	81	11.5%	3
TOTAL	**702**	**100**	

The guidance document also includes sample fidelity checklists for use at the district, building, and classroom levels that may be reprinted or adjusted as necessary (IDOE, 2009).

Johnson et al. (2006) have conceptualized the following approach to ensuring fidelity of implementation, which consists of three components. The first component, method, refers to the tools that provide different types of information. Frequency relates to how often checks are conducted, depending on the situation. The third indicator of fidelity of implementation is support systems, which relate to the feedback and opportunities for professional development for staff needed to implement a process with fidelity.

In Tiers 2 and above there are two major categories of implementation fidelity that fall under the dimension of method-direct and indirect assessment. Direct assessment involves a qualified staff member examining the intervention and recording the occurrence (count) of each intervention component that is listed on a checklist. This is done to determine the correctly implemented percentage and to ensure that teachers are properly trained. Indirect assessment involves such measures as permanent products (such as student work samples), self-reports, interviews and rating scales. Of the two types of assessments, direct (and frequent) assessment is viewed as best practice. With frequency checks, teachers are observed (depending on their level of teaching experience) to ensure the fidelity of implementation. In addition, teachers are monitored on support requests, overall student performance in the classroom, and the degree to which special education referrals decrease or do not decrease. The third component, support systems, may be required to remedy areas where there are deficits by providing professional development or allocating resources to help teachers. Reschly and Gresham (2006) state that in order to help ensure fidelity operations, techniques, and components of the intervention should be definitively described, responsibilities of those involved defined, and accountability measures/sanctions for noncompliance created.

There is a reinforcing cycle relating high fidelity to student outcomes; if there is a high level of fidelity in implementing the curriculum and appropriate instruction, then student outcomes are better, which lead to better credibility and reliability of the curriculum and instruction. Johnson et al. (2006) state this in turn "naturally" leads to more highly motivated staff, who will continue to implement the curriculum and instructional practices with high fidelity to maintain the credibility of the curriculum and instruction.

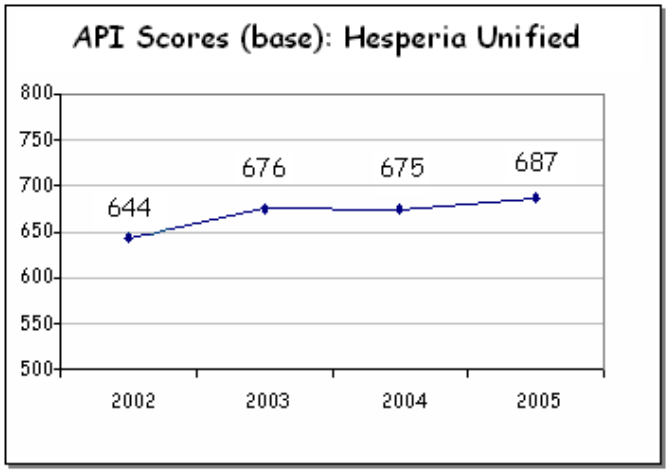
An example of a school district that has been successful in their implementation of RTI is Hesperia Unified School District in California (California Department of Education, 2005). Approximately 10 years ago, the district started to realize that special education (SPED) was an expensive service delivery model that was inefficient, ineffective, and did not provide improved academic achievement in their students. The district started using more effective and efficient means for meeting the needs of its students in the form of an RTI framework. They turned to RTI because they believed students should be given the opportunity to be served before being formally identified or labeled. The gains have been significant; since the start of the RTI approach, the school district has had a 64% decrease in the number of students who qualify for SPED. In addition, the academic performance index base scores, which reflect a school's or LEA's performance level in the state and is used to measure academic growth, have increased 43 points from 2002 to 2005 (see Figure 2).

ASSESSMENT AND PROGRESS MONITORING

What is Assessment and Progress Monitoring, and Why Do We Monitor Progress?

Ongoing student assessment is important in the RTI framework and includes both the initial universal screening of students to determine what type of services students should receive (Tier 1, 2, 3), as well as progress monitoring, or measuring individual progress "toward important educational outcomes" (Deno, n.d.). Students are assessed on specific skills that are highlighted in state and local academic standards. The number of performance samples that are collected range from once per week (i.e., progress monitoring, depending on the intensity of the intervention) to three times per year (i.e., universal screening). These assessments were designed to be administered efficiently and repeatedly over short periods of time with each probe typically taking between 1 to 3 minutes, depending on the general outcome being measured (Deno, n.d.). Appropriate progress monitoring assessments are characterized by key traits such as having multiple forms that can be used over time, providing information that can be used in the development of instructional strategies, and addressing the area of need for each student. Progress monitoring tools are scientifically valid and efficient for determining whether instructional modifications are needed and provid-

FIGURE 2. Academic Performance Index Scores for Hesperia Unified School District (CA)



Source: California Department of Education (2005). *Hesperia Unified School District.* Retrieved December 2, 2008, from: http://www.cde.ca.gov/ta/lp/vl/documents/prof06hesperiausd.doc.

ing important information for future student placement decisions (Hosp, 2007).

In addition to the general screening measures, curriculum-based measurements (CBM) are used as well to assess the various skills covered in the curriculum. CBM is one of the most commonly used tools to monitor progress, and refers to brief, repeated sampling of student performance on a single core task from the curriculum. At Tier 2 and beyond, the purpose of progress monitoring is mainly to determine (using a set of rules) whether the intervention used with a particular student was successful in helping him/her learn at an appropriate rate. CBM uses standardized procedures to assess students' performance on their long-term goals. Most forms of classroom assessment are mastery measurement, which assess (via teacher-made tests or tests in the curriculum) specific skills to be taught in class; thus their validity and reliability are unknown. Further, the retention and generalization of skills are not usually measured. Students progress at different levels and with a variety of skills making monitoring the individual development of those skills difficult. CBM, however, is typically not a mastery measurement—it is usually a general outcome measure, which tests general domains, thus allowing teachers to track long-term goals (Hosp, 2007). Over the last 20 years, CBM has shown to be both a reliable and valid indicator of core reading, writing, and arithmetic skills. These psychometric properties are desirable characteristics when progress monitoring (Deno, 2003).

What is the Function Of Universal Screening?

Student progress is important to monitor because the data is needed to make important educational decisions. School-wide screening or universal screening is "an important first step in any prevention approach ... to accurately identify those who are at risk for learning (and behavioral) difficulties. Screening is a type of assessment that is characterized by providing quick, low-cost, repeatable testing of age-appropriate critical skills (e.g., reading a list of high frequency words) or behaviors (e.g., aggression). The primary objective in a screening measure is to determine whether or not the student should be judged as 'at risk' " (Johnson et al., 2006, p. 1.2). Useful screening measures should be accurate in their ability to identify students whose performance on the measure calls for a more in-depth analysis. The accuracy is determined in part by the cut score, which is the score that represents the dividing line between students who may be, or are not, at risk. In addition to accuracy, screening measures should also be efficient, that is, be easily and quickly administered by teachers. The authors stress that screening is "not a one-time process but an iterative system during the school year and across grade levels" (Johnson, 2006). The RTI modules developed at IRIS Center at Vanderbilt University suggest that with universal screening, no matter the type of measure used, it is important that teams rank-order students in a classroom or grade according to scores (highest to lowest) to identify the students who are performing the lowest in the classroom or grade level. Depending on the availability of resources, teachers and other involved school personnel/team members select either a predetermined number of students from the lowest-ranked group (e.g., the bottom eight students) or a predetermined set percentage of the lowest performing students (e.g., the bottom 20% of students) (IRIS Center, n.d.).

One example of a tool that is used for universal screening for behavioral problems in schools is the Systematic Screening for Behavioral Disorders (Walker & Severson, 1992). The SSBD has three stages in which all students are systematically ranked according to internalizing or externalizing behavioral profiles by the classroom teacher (stage 1), the top three students from both behavioral profiles are then further evaluated by the teacher using rating scales (stage 2), then finally another school professional uses structured observation and recording procedures to evaluate the students in both the classroom and playground settings. Students who exceed stage 3 cutoff scores are referred to child study teams (Walker et al., 1990).

When Do We Monitor Student Progress?

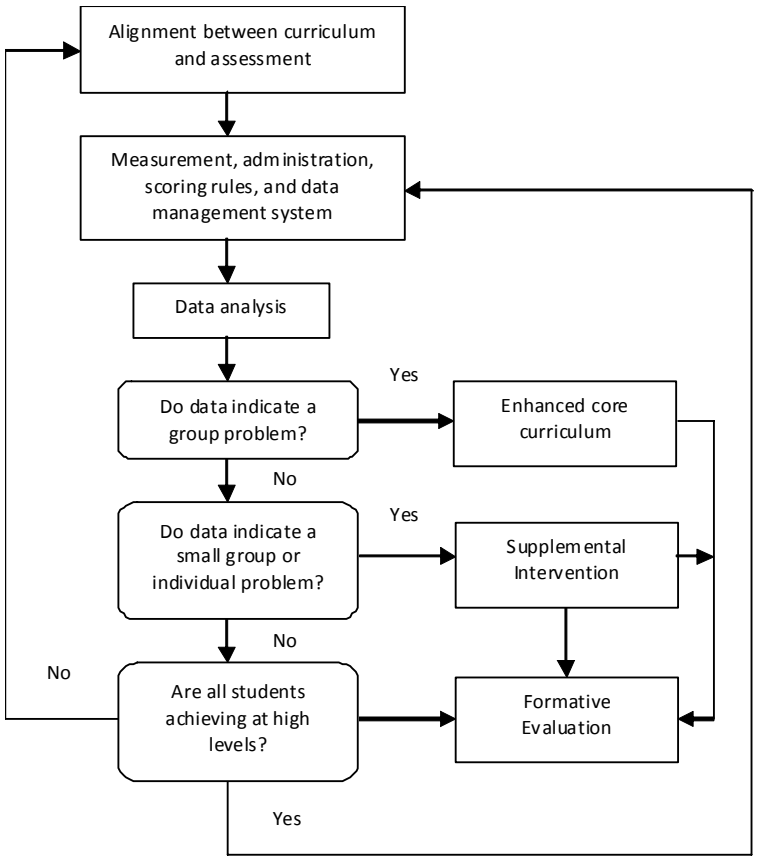
Progress monitoring, Johnson et al. (2006) state, can serve different functions at the various tiers. With Tier 1, universal screening and progress monitoring are very similar. Screening of all students in the school is used to determine which students are not performing at grade level (by comparing their performance relative to a norm-referenced benchmark). Once students have been screened, students who are considered "at risk" are progress monitored more frequently (i.e., multiple times between benchmark periods). "At risk" is not a terminology that is used solely with students who are considered to be low performers; rather it is a term that may be applicable to any student, including high achievers who are not reaching their full potential (IDOE, 2009).

Progress monitoring can be used to show individual student growth over time to determine whether the student is progressing as expected in the general curriculum. The following figure identifies some important features of universal screening that should be taken into consideration (see Figure 3). These characteristics include: making sure the academic and behavioral objectives of the curriculum and assessment are aligned, evaluation of the universal screening tests for efficiency and adequacy, ensuring a means for data analysis, and asking whether the screening data indicate a problem amongst a large group, small group, or individual students (Ikeda, Neessen, & Witt, 2008).

Jenkins and Johnson (2008) discuss some key ideas regarding how to choose a procedure for universal screening. The research supports the use of a screening battery, or multiple measures, for better classification of students. The screening for reading should include measures of both fluency as well as comprehension. In addition, research also supports the use of multiple screenings throughout the year, as this process helps to reduce the number of classification errors. Jenkins, Hudson, and Johnson (2007) defined some attributes of an ideal screening mechanism including strong criterion validity and screening/classification accuracy (looking at sensitivity/ "true positives" and specificity/ "true negatives" of the measure). Since having false negatives (i.e., not classifying a student as needing more intensive services when he/she needs it) is more detrimental than having false positives (i.e., classifying a student as needing more services when he/she doesn't need it), screening tools should strive to correctly identify at least 90% of students who will show reading difficulties/failure in the future, and at least 80% of students who are not "at risk" (Jenkins & Johnson, 2008).

For kindergarteners, Jenkins and Johnson (2008) suggest measures that test various combinations of letter naming fluency, letter sound identification, blending onset-rimes, phoneme segmentation, and sound repetition. For first graders, the measures that were highly sensitive and had good specificity were those that used various combinations of word identification fluency, letter naming fluency, letter sound identification, phoneme segmentation, vocabulary, and sound repetition. For students in second grade and above, the researchers suggested using measures that tested both oral reading fluency as well as

FIGURE 3. A Flowchart of Features Integral to Universal Screening



Source: Ikeda, M.J., Neessen, E., & Witt, J.C. (2008). Best practices in universal screening. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology V* (pp.103-114). Bethesda, MD: National Association of School Psychologists.

comprehension. They found that at these grade levels, most states administered standardized tests (either district or statewide) annually and were able to identify at-risk students based on the results. The suggested measures listed have been shown to be successful with predicting outcomes based on high specificity and sensitivity rates. Local preferences determine which of these measures in each grade are utilized and at what times.

How Do We Know Whether a Student is Progressing?

Fuchs and Fuchs (2007) state in their manual that generally progress monitoring occurs frequently (weekly or biweekly), and that each student is given one probe of a curriculum based measurement, and then the alternate form of the same measurement (therefore, each student has two scores for one measure of CBM). However, for the CBM of oral reading fluency, three passages are typically administered to the child to maximize benefits and validity. The median score is plotted on the child's graph. Suitable probes can be found from such websites as AIMSweb, DIBELS, EdCheckup, or the Peabody CBM. The next step is determining the grade level of passages to use with each student. Often teachers and administrators start with passages at the student's assigned grade level because they want to know how well students perform in their grade-level reading material. If a student cannot read the assigned passage with 90% accuracy or better, then his or her performance is monitored at each previous grade level of text until he/she can read with 90% accuracy (e.g., a third grader may need to be monitored using second and then first grade passages if he/she cannot read third grade passages with 90% accuracy). An appropriate improvement goal is determined next. Jenkins, Hudson, and Lee (2007) suggest that generally, first graders show the most improvement with an increase of 1-3 words read correct (WRC) per week. Second graders generally have an increase of 1-2 WRC per week, and smaller improvements for those in later grades. Once the improvement goal is determined, an aimline is calculated by multiplying the number of weeks of instruction by the rate of improvement, then adding the baseline median (the median score of a probe from the first administration) to show the desired progress rate over the course of instruction (Jenkins et al., 2007). Each time probes are given, the data points are plotted. Fuchs and Fuchs (2007) recommend using a cut-off point system to determine which students are progressing (in a 6-10 week period) in the general education curriculum versus those who are not. Some useful websites for progress monitoring include: http://www.studentprogress.org/chart/chart.asp and http://www.studentprogress.org/library/readingcbm_module/player.html, which provide a chart of frequently used progress monitoring tools and a training module on reading CBM, respectively.

After plotting data points, as Fuchs, Fuchs, Hintze, and Lembke (2007) note, a trend-line is determined to calculate the slope. Fuchs et al. (2007) present step-by-step instructions for creating a trend-line for monitoring student progress using the Tukey method (see Figure 4).

After drawing the trend-line, Fuchs et al. (2007) suggest calculating the slope by using a numerical formula: (3rd median point-1st median point)/ (# of data points - 1). This slope provides a quantifiable rate of progress. More specific ways to draw the trend line to which students' progress at each progress monitoring day should be compared, as well as how to calculate the slope of the trend line are discussed in the manual (Fuchs and Fuchs, 2007).

There are some characteristics that define a good progress monitoring assessment (Batsche et al., 2005). First, it must assess the specific skills embodied in state and local academic standards and measure skills that have been demonstrated to indicate growth toward the instructional goal. While they should measure the general curriculum, the assessment must also be relevant to the development of instructional strategies and use of

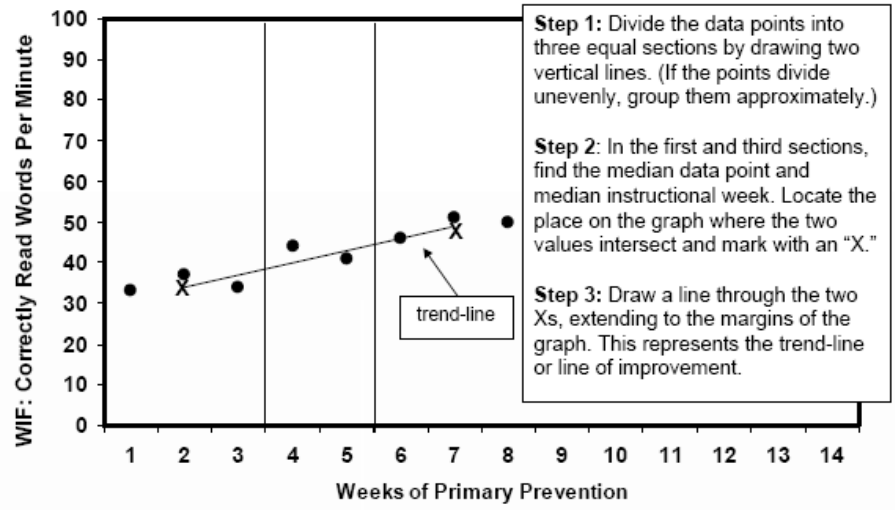
appropriate curriculum that addresses the individual need of the student. They must also be sensitive to small increments of growth over time so that changes can be responded to quickly. Because these measures will often be given by teachers they must be capable of being administered repeatedly (using multiple forms) and efficiently over short periods, and result in data that can be summarized in teacher-friendly data displays. Lastly, a good progress monitoring assessment must also be comparable across students so that the student's progress can be judged in comparison to their peers.

State and Local Example of Progress Monitoring

The schools in Jefferson County, TN have implemented an RTI framework consistent with IDEA 2004 and NCLB requirements (Jefferson County Schools, n.d.). Jefferson County Schools' RTI approach has been approved by the state for their K-5 Literacy component, as outlined in their Student Intervention Team Manual. Within their RTI framework all students are first screened in Kindergarten and Grades 1-3 using the Think Link Benchmark Assessments (Discovery Education). Students whose Think Link scores fall in the lowest 10% in reading for each grade level are identified as at risk for academic failure. These students receive Tier 1 interventions as well as the general education instruction. All students receive the evidence-based general education classroom instruction, which is an uninterrupted 90-minute reading block. Students who receive interventions in Tier 1 also receive an additional 30 minutes, three times per week, of the general education instruction in small groups led by the classroom teacher (Scott Foresman Tier 1 interventions). The intervention is monitored weekly using the Think Link progress monitoring probes for fidelity and effectiveness by the Student Intervention Team. After about nine weeks of the intervention, the team reconvenes and meets with each student's parents/guardians to review the student's progress. If the student is progressing but the growth rate is right around the 25th percentile, the team and parents may decide to continue with Tier 1 intervention until adequate gains are made (i.e., the student is no longer in the lowest 10% of the grade in reading). However, if the student is not showing progress (i.e., the student remains in the lowest 10% and the growth rate is still below the 25th percentile), they may decide to start Tier 2 interventions.

Tier 2 interventions consist of students continuing to receive the additional 30 minutes of the general education instruction led by the classroom teacher three times a week (Tier 1 intervention), with a second unit of 30 minutes of small group, more specific instruction led by a literacy coach/trained personnel at least twice a week. Teachers continue to monitor student progress on a weekly basis, and after nine weeks, the team meets once again with parents/guardians to discuss progress. If the student makes adequate gains (by progressing and/or no longer being in the bottom 10%) he/she may receive solely Tier 1 interventions or discontinue any supplemental interventions. If the student does not progress (i.e., the student remains in the lowest 10% and the growth rate is below the 25th percentile, or the student's charted data indicate a flat line or a regression after at least 18 sessions of the intervention), he/she may be moved into Tier 3 interventions, where Tier 1 interventions are still in place with additional classroom interventions. Tiers 2 and 3 can be combined for an intensive intervention in Tier 3 interventions, or Tier 3 interventions can increase the duration, frequency, or type of intervention. The teacher monitors student progress on a weekly basis, and after four weeks, the team meets to discuss the student's progress. If the student is not making gains at this time (i.e., the student remains in the lowest 10% and the growth rate is below the 25th percentile), he/she will be referred for an evaluation to be considered eligible for special education services (Jefferson County Schools, n.d.).

FIGURE 4. Creating a Trend-line to Calculate Slope



Source: Fuchs, Fuchs, Hintze, and Lembke (2007, July). *Using curriculum-based measurement to determine response to intervention.* Paper presented at the 2007 Summer Institute on Student Progress Monitoring, Nashville, TN. Retrieved December 17, 2008, from: http://www.studentprogress.org/summer_institute/2007/RTI/ProgressMonitoring-RTI2007.pdf.

DATA-BASED DECISION MAKING

What is Data-based Decision Making and its Relationship to Progress Monitoring?

Data-based decision making is a process that occurs as a result of progress monitoring, where school-wide, multidisciplinary teams that include both general and special education teachers review assessment data in making decisions about placement in and the movement between tiers of service delivery (Martinez & Nellis, 2008). These teams use a problem-solving process to determine what type of service each student should receive. These teams are an important part of creating curricular improvements, designing interventions, and deciding which students will benefit from additional tiered instruction (Kovaleski et al., 2008).

Using Problem-Solving Process for Data-based Decision Making

There are many options for how to measure whether a student is "responding" to the

intervention. Fuchs and Fuchs (2006) address two areas of the assessment process that need to be specified: a method to measure students' responsiveness to the instruction, and once that has been conceptualized, a criterion for defining nonresponsiveness. For example, one can use a more standard treatment protocol. Methods of the standard approach can be delivered in small groups or individually to students, but using a fixed duration-type "trial." If students are unresponsive to the trial intervention, they are provided with further support at a higher tier (i.e., 2 or 3). A standard treatment protocol applies interventions in a consistent manner across all students struggling in the same area. It relies on preconceived assumptions about how children learn. The problem-solving method, however, allows for more individualized flexibility among students. In the problem-solving model, skill deficits are considered on an individual basis. At each level or tier teams define and determine the magnitude of the student's problem, analyze (and hypothesize) the causes of it, design a goal-directed intervention based on hypotheses (which they conduct with fidelity), monitor the progress, modify the intervention on an as-needed basis after examining student responsiveness, and evaluate the intervention's effectiveness and plan future actions (Fuchs & Fuchs, 2006). A visual representation of such a problem-solving model is displayed below (Figure 5).

An example of a framework of RTI that utilizes a problem-solving model comes from Minneapolis, MN. Marston, Muyskens, Lau, and Canter (2003) describe the Minneapolis Public Schools' problem-solving model, stating that their framework uses a sequence of problem-solving steps for identifying and supporting students who encounter academic difficulties. Their model consists of four steps: 1) describe the student's problem in detail (using valid and reliable measures to assess student's skills); 2) develop and implement strategies for instructional intervention (with fidelity to ensure accurate decision-making); 3) progress monitor and evaluate the effectiveness of instruction using CBM probes; and 4) continue the cycle on an as-needed basis. Since the problem-solving model is based on a "teach-test-teach-test" model of service delivery where students' response to interventions drives decision making the model repeats as long as warranted.

For practitioners using RTI, a problem-solving approach to intervention is preferable, specifically one utilizing CBM (Fuchs & Fuchs, 2006; Martinez & Nellis, 2008). As previously discussed, teachers can use students' data and plot them on graphs to compare the slopes of the graphs to expected rates of progress based on either local or national norms (Martinez & Nellis, 2008). For example, scores that increase with time indicate the student is responding to the instructional program (see Figure 6).

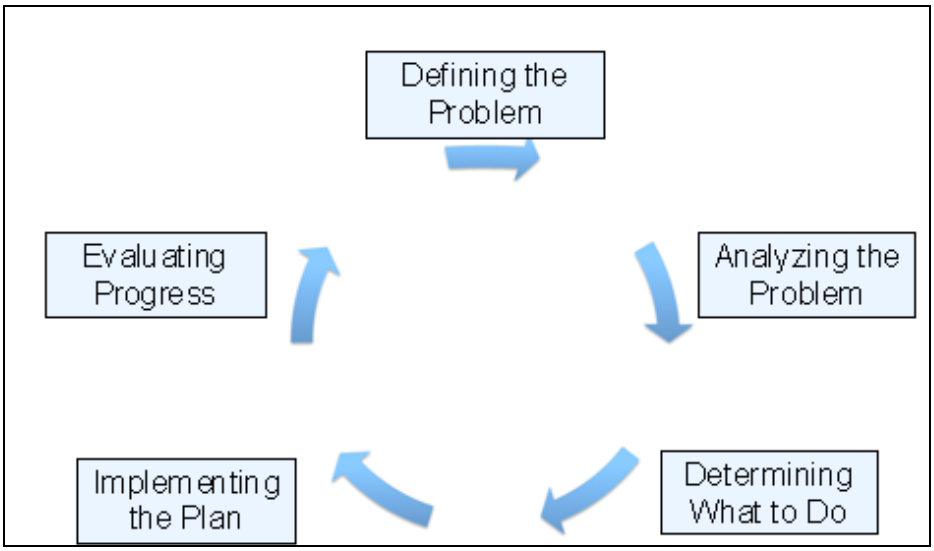
On the other hand, flat or decreasing scores over time indicate the student is not responding to the intervention (see Figure 7), and a change to the student's instruction is necessary (Fuchs & Fuchs, 2007).

Iowa's Heartland Area Education Agency (AEA) has adopted a problem-solving model over a standard treatment protocol. Rather than assuming one intervention will work for many students (and placing them in a more intensive tier when students do not show progress), a problem-solving model requires staff to continually and directly monitor students' progress and adjust the interventions based on their performance on CBMs (Tilly, 2003). Other ways in which schools have determined criterion for whether students have responded to interventions include a "dual discrepant" criterion, which is similar to the aforementioned method of determining the rate of students' growth over time, and a "3-point decision rule." The "dual discrepant" criterion not only uses students' rate of growth, but also their previously determined outcome level on each measure. Thus, students who progress at an acceptable rate AND who reach a predetermined criterion have responded to the intervention (Fuchs, Fuchs, & Compton, 2004). However, the most commonly used criterion is the "3-point decision rule," where an individual goal is set for each student. The student's data are plotted on a graph and an aimline (the line that depicts what the expected rate of progress/growth from the student's baseline to the goal) is drawn. An instruction decision is made based on whether the student's last three data points are above the aimline (responding) or below the line (not responding) (Barnes & Harlacher, 2008).

Example of Data-based Decision Making

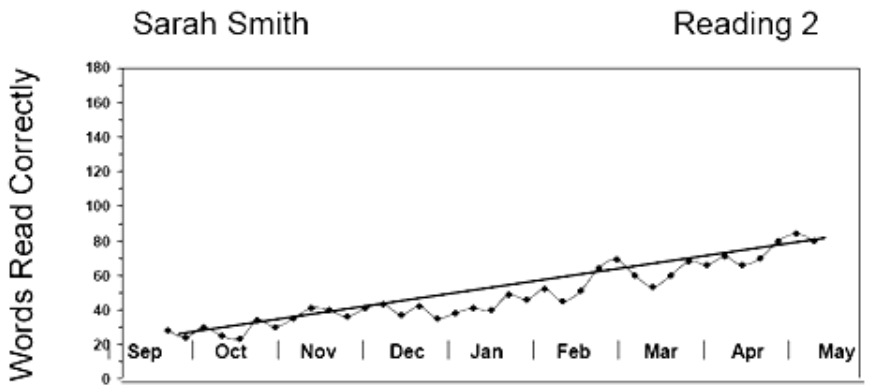
One example of using data to make decisions comes from Tualatin Elementary School in Tualatin, OR, where all students are screened for academic and behavioral instructional support needs in the fall, winter, and spring. Examples of data collected at these times include DIBELS, Oregon State Assessments, and attendance, behavior, and counseling records. Tualatin's Effective Behavior and Instructional Support (EDIS) team meets weekly to monitor all students receiving small group or individual interventions. Twice a month, EBIS meets to plan and implement school wide supports. In addition, content teams meet monthly to recommend improvements to curriculum and instruction. The school utilizes five different decision rules, to aid in making judgments regarding movement between tiers and to help evaluate

FIGURE 5. A Problem-solving Method



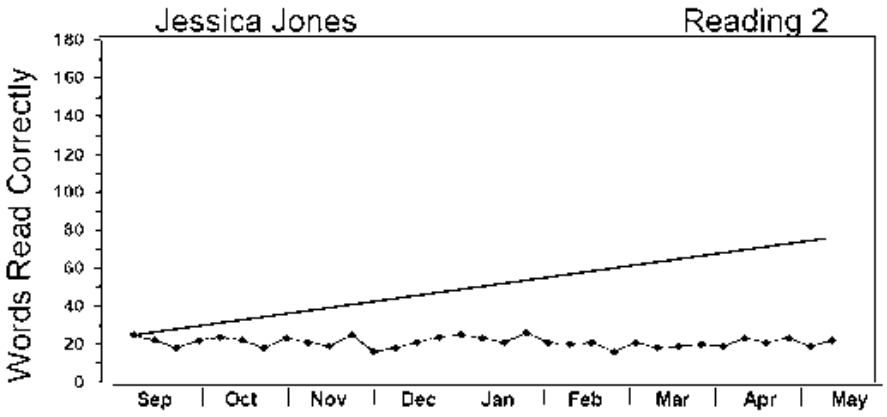
Source: Indiana Department of Education (2009). *Indiana's Vision of Response to Intervention: Using Response to Intervention (RTI) for Indiana's Students.*

FIGURE 6. Graph of Student Responding to Intervention



Retrieved from: Johnson, E., Mellard, D.F., Fuchs, D., & McKnight, M.A. (2006). *Responsiveness to intervention (RTI): How to do it.* Lawrence, KS: National Research Center on Learning Disabilities.

FIGURE 7. Graph of Student Not Responding to Intervention



Retrieved from: Johnson, E., Mellard, D.F., Fuchs, D., & McKnight, M.A. (2006). *Responsiveness to intervention (RTI): How to do it.* Lawrence, KS: National Research Center on Learning Disabilities.

the curriculum. These rules include: the 80% decision rule, the 20% decision rule, the Change Small Group or Individual Intervention rule, Individualize Instruction rule, and the Refer for Special Education Evaluation rule (National Research Center on Learning Disabilities, 2006). The 80% rule states that school staff must review the core program(s) if less than 80% of students are meeting benchmarks. The 20% rule refers to students who are below the 20th percentile in academic skills or those students who have "chronic behavior needs," that is five absences or more than three counseling or discipline referrals in a 30-day period and are placed in small-group instruction. The Change Small Group or Individual Intervention rule states that the staff changes the intervention for students whose progress data line is below that of the aim line on three consecutive days, or when six data points produce a trend line that decreases or is flat. The Individualize Instruction rule states that individual instruction begins when a student does not progress after two consecutive small-group interventions. Lastly, the Refer for Special Education rule states that students are referred for evaluation when they do not progress after two consecutive individual interventions.

FUTURE DIRECTIONS

As stated in the first report, the Center for Evaluation and Education Policy (CEEP) is working with the Department of Education to evaluate data collected from the 42 RTI Academy schools and other schools implementing RTI around the state. Currently, data has been collected from surveys that have been distributed to school personnel across Indiana, and is summarized in this report. Additionally, twelve site visits (six at RTI Academy schools and six at non-RTI Academy schools) have been conducted across the state. These schools are reflective of Indiana's student population based on prior ISTEP+ performance, free and reduced-price meal program eligibility data, geographic balance, and locale type (urban, suburban, and rural). Visits occurred between May 7 and June 9, 2009. The objective of the site visits was to examine local implementation and success with scientific, research-based interventions. In particular, we wished to explore how the core components of RTI are being implemented in classrooms and throughout the school buildings, identify what research-based interventions are being used in the schools and to what extent they appear to be working, and examine the implementation barriers and ongoing challenges that schools face. More information about the findings from the site visits will be forthcoming in future reports.

The current report is the second of three special reports regarding the effectiveness of RTI in the state of Indiana. In the final report, we will discuss in more detail the last three core components that the Indiana Department of Education has determined as being integral to RTI: Leadership; Family, School, and Community Partnerships; and Cultural Responsivity.

AUTHORS

Yuri Kashima
(kashimay@indiana.edu) is a graduate research assistant at the Center for Evaluation & Education Policy.

Bridget Schleich
(bschleic@indiana.edu) is a graduate research assistant at the Center for Evaluation & Education Policy.

Terry E. Spradlin
(tspradli@indiana.edu) is Associate Director for Education Policy at the Center for Evaluation & Education Policy.

ACKNOWLEDGEMENTS

The authors would like to thank the following individuals for their suggestions and assistance as peer editors of the report: **Drs. Sharon Knoth**, Assistant Director of Exceptional Learners; **Bob Marra**, Executive Director of the Response to Intervention Program; and **Jane Stephenson**, Assistant Professor in Special Education at Indiana University School of Education-Indianapolis. We thank the members of the State of Indiana RTI Leadership Team, who reviewed drafts of this report and provided feedback, including: **Glenda Hott** and **Dr. Leah Nellis**. We would also like to think the following individuals from the Center for Evaluation and Education Policy for their assistance as peer editors: **Amy Beld**, **Michael Holstead**, and **Mona Syed**, Graduate Research Assistants; **Leigh Kupersmith**, Publications Coordinator; and **Dr. Jonathan Plucker**, Director of the Center for Evaluation and Education Policy.

REFERENCES

Al Otaiba, S., Kosanovich-Grek, M., Torgesen, J., Hassler, L., & Wahl, M. (2005). Reviewing core kindergarten and first-grade reading programs in light of No Child Left Behind: An exploratory study. *Reading & Writing Quarterly, 21*, 377-400.

Batsche, G., Elliott, J., Graden, J.L., Grimes, J., Kovaleski, J. F., Prasse, D., Reschly, D.J., Schrag, J., & Tilly III, W. D. (2005). *Response to intervention: Policy considerations and implementation.* Alexandria, VA: National Association of State Directors of Special Education.

Barnes, A.C., & Harlacher, J.E. (2008). Clearing the confusion: Response-to-Intervention as a set of principles. *Education and Treatment of Children, 31*(3), 417-431.

Burns, K.M., Deno, S.L., & Jimerson, S.R. (2007). Toward a unified Response-to-Intervention model. In S.R. Jimerson, M.K. Burns, & A. VanDerHeyden (Eds.), *Handbook of Response to Intervention* (pp. 428-440). New York: Springer.

California Department of Education. (2005). *Hesperia unified school district.* Retrieved December 2, 2008, from http://www.cde.ca.gov/ta/lp/vl/documents/prof06hesperiausd.doc

Deno, S. (2003). *Developments in curriculum based measurement. The Journal of Special Education, 37*(3), 184-192.

Deno, S. (n.d.). *Ongoing student assessment*. RTI Action Network. Retrieved October 6, 2008, from http://www.rtinetwork.org/Essential/Assessment/ar/Deno

Deshler, D. (2008). *Fidelity! fidelity! fidelity!—What about dosage?* RtI Action Network. Retrieved September 17, 2008, from http://www.rtinetwork.org/Connect/Blog/Fidelity-Fidelity-Fidelity-What-About-Dosage

Fixen, D.L. (2008). *Building education programs that work for all students.* National Center for Learning Disabilities. Retrieved October 21, 2008, from http://www.ncldtalks.org/content/interview/detail/2240/

Fuchs, D., & Fuchs, L.S. (2006). Introduction to response to intervention: What, why, and how valid is it? *Reading Research Quarterly, 41*, 93-99.

Fuchs, L.S., & Fuchs, D. (2007). *Progress monitoring in the context of Responsiveness-to-Intervention.* National Center for Student Progress Monitoring. Retrieved September 25, 2008, from (http://www.studentprogress.org/summer_institute/rti/UsingCBMDetermineRTI/UsingCBMRTI_manual.pdf)

Fuchs, L., Fuchs, D., Hintze, J., & Lembke, E. (2007). *Using curriculum-based measurement to determine response to intervention.* Paper presented at the 2007 Summer Institute on Student Progress Monitoring, Nashville, TN. http://www.studentprogress.org/summer_institute/2007/RTI/ProgressMonitoring-RTI2007.pdf

Fuchs, L., Fuchs, D., & Compton, D. (2004). Identifying reading disabilities by responsiveness-to-instruction: Specifying measures and criteria. *Learning Disability Quarterly, 27*, 216-227.

Horner, R.H. (2008). *Extending RTI to school-wide behavior support.* Office of Special Education Programs Technical Assistance Center on Positive Behavioral Interventions & Supports. Retrieved June 22, 2009, from http://pbis.org/pbis_resource_detail_page.aspx?Type=1&PBIS_ResourceID=474

Hosp, M. (2007). *The ABC's of progress monitoring in reading* [PowerPoint]. University of Utah. Retrieved September 2, 2008, from http://www.studentprogress.org/doc/webinars/ABC-sProgressMonitoringinReading.pdf

Hughes, C., & Dexter, D.D. (2006). *Field studies of RtI programs.* RtI Action Network. Retrieved September 2, 2008, from http://www.rtinetwork.org/Learn/Research/ar/FieldStudies

Ikeda, M.J., Neessen, E., & Witt, J.C. (2008). Best practices in universal screening. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology V* (pp.103-114). Bethesda, MD: National Association of School Psychologists.

Indiana Department of Education. (2009). *Indiana's vision of Response to Intervention: Using Response to Intervention (RTI) for Indiana's students.* Indianapolis, IN: Author.

IRIS Center. (n.d.). *Identification of struggling readers.* Retrieved October 9, 2008, from http://iris.peabody.vanderbilt.edu/rti02_assessment/cresource.htm

Jefferson County Schools. (n.d.). *Student intervention team manual.* Retrieved November 25, 2008, from www.jc-schools.net/RTI/Forms/RTI-Manual.pdf

Jenkins, J.R., Hudson, R.F., & Lee, S.H. (2007). Using CBM-Reading assessments to monitor progress. *Perspectives on Language and Literacy, 33*(2), 11-16.

Jenkins, J.R., & Johnson, E. (2008). *Universal screening for reading problems: Why and how should we do this?* Retrieved October 6, 2008, from http://www.rtinetwork.org/Essential/Assessment/Universal/ar/ReadingProblems

Jenkins, J.R., Hudson, R.F., & Johnson, E.F. (2007). Screening for at-risk readers in a Response to Intervention framework. *School Psychology Review, 36*(4), 582-600.

Johnson, E., Mellard, D.F., Fuchs, D., & McKnight, M.A. (2006). *Responsiveness to intervention (RTI): How to do it.* Lawrence, KS: National Research Center on Learning Disabilities.

Kovaleski, J.F., Roble, M., & Agne, M. (2008). *The RTI data analysis teaming process.* Retrieved September 25, 2008, from http://www.rtinetwork.org/Essential/Assessment/Data-Based/ar/TeamProcess

Marston, D., Muyskens, P., Lau, M., & Canter, A. (2003). Problem-solving model for decision making with high-incidence disabilities: The Minneapolis experience. *Learning Disabilities Research and Practice, 18*(3), 187-200.

Martinez, R.S., & Nellis, L.M. (2008). Response to intervention: A school-wide approach for promoting academic wellness for all students. In Doll, B., & Cummings, J.A. (Eds.), *Transforming School Mental Health Services: Population-based approaches to promoting the competency and wellness of children* (pp. 143-164). Thousand Oaks, CA: Corwin Press and National Association of School Psychologists.

National Center on Student Progress Monitoring. (n.d.). *Review of progress monitoring tools.* U.S. Office of Special Education Programs. Retrieved October 1, 2008, from http://www.studentprogress.org/chart/chart.asp

National Research Center on Learning Disabilities. (2006). *Data-based decision making: Tualatin elementary school, Tualatin, Oregon.* Retrieved November 5, 2008, from http://www.nrcld.org/rti_practices/data/tualatin.html

National Research Center on Learning Disabilities. (2007). *Professional development and collaboration within the RtI process.* Retrieved November 12, 2008, from http://www.nrcld.org/rti_practices/collaboration.html

Reschly, D.J., & Gresham, F.M. (2006). *Implementation fidelity of SLD identification procedures.* Paper presented at the National Research Center on Learning Disabilities SEA Symposium, April 19-21, 2006.

Shapiro, E. (2008). *Tiered instruction and intervention in a Response-to-Intervention model.* RtI Action Network. Retrieved September 9, 2008, from http://www.rtinetwork.org/Essential/Tiered-Instruction/ar/ServiceDelivery/1

Sugai, G., Horner, R.H., Sailor, W., Dunlap, G., Eber, L., Lewis, T., Kinciad, D., Scott, T., Barrett, S., Algozzine, R., Putnam, R., Massanari, C., & Nelson, M. (2005). *School-wide positive behavior support: Implementers' blueprint and self-assessment.* Eugene, OR: University of Oregon.

Tilly, W. D. (2003, December). *How many tiers are needed for successful prevention and early intervention?: Heartland Area Education Agency's evolution from four to three tiers.* Paper presented at the National Research Center on Learning Disabilities Responsiveness-to-Intervention Symposium, Kansas City, MO.

Walker, H.M., & Severson, H.H. (1992). *Systematic screening for behavior disorders* (2nd ed.). Longmont, CO: Sopris West.

Walker, H.M., Severson, H.H., Todis, B.J., Block-Pedegp, A.E., Williams, G.J., Haring, N.G., & Barckley, M. (1990). *Systematic screening for behavior disorders (SSBD): Further validation, replication, and normative data.* Remedial and Special Education, 11(2), 32-46.

WEB RESOURCES

Academic Well-Check Program (AWCP)
http://www.awcpindiana.org/

AIMSweb: Progress Monitoring and RTI System
www.aimsweb.com

Curriculum-Based Measurement Warehouse
http://www.interventioncentral.org/htmdocs/interventions/cbmwarehouse.php

DIBELS Data System: Dynamic Indicators of Basic Early Literacy Skills
http://dibels.uoregon.edu

IDEA and RtI
http://idea.ed.gov/explore/view/p/%2Croot%2Cdynamic%2CQaCorner%2C8%2C

National Center on Student Progress Monitoring
http://www.studentprogress.org

RtI Action Network: Ongoing Student Assessment
http://www.rtinetwork.org/Essential/Assessment

Tools for Teachers in Implementing RTI
http://www.specialconnections.ku.edu/cgi-bin/cgiwrap/specconn/main.php?cat=assessment&section=teachertools

Using CBM for Progress Monitoring in Reading
http://www.studentprogress.org/library/readingcbm_module/player.html

Vanderbilt University IRIS Center
http://iris.peabody.vanderbilt.edu/rti01_overview/chalcycle.htm

What Works Clearinghouse
http://www.ies.ed.gov/ncee/wwc/

Education Policy Briefs are executive edited by Jonathan A. Plucker, Ph.D. and published by the

Center for Evaluation & Education Policy

Indiana University
1900 East Tenth Street
Bloomington, IN 47406-7512
812-855-4438

More about the Center for Evaluation & Education Policy
and our publications can be found at our Web site:
http://ceep.indiana.edu

CENTER FOR EVALUATION & EDUCATION POLICY

INDIANA UNIVERSITY
SCHOOL OF EDUCATION

063009_0251