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What We Need to Know About Responsiveness To Intervention (and Shouldn't Be Afraid to Ask)

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Abstract. During the past several years, one of the most frequently addressed topics at conferences and in professional journals is responsiveness to intervention (RTI). This is because it is viewed by many as a new way to think about both early intervention and disability identification. Despite its relative newness, a subset of RTI proponents contend researchers and practitioners know everything they need to know to implement it effectively. We disagree and argue that the smartest and most responsible way to move forward with RTI implementation is to recognize what all of us collectively do know and do not know. In this article, we identify unresolved issues—general and specific—important to RTI implementation, teacher effectiveness, and student achievement.

In May 2006, David Tilly and seven of his colleagues sent a letter to the Office of Special Education and Rehabilitation Services (OSERS), which was subsequently given to us by one of the authors. The letter writers chided OSERS on several counts, including that, in their view, the agency wrongly promotes a notion that researchers and practitioners need to understand more about responsiveness to intervention (RTI) to ensure its successful implementation. Tilly and associates expressed an opposite belief, claiming that practitioners have all necessary and sufficient information to conduct RTI competently. They wrote, "University- and field-based research strongly supports the use of Problem-Solving/RTI as the service delivery model that results in the most equitable outcomes for the diverse learners in the United States today . . . . RTI implementations have improved outcomes in all students and [have] shown reductions in referrals for special education . . . . The [only remaining] problem is one of scaling, which is a different research question than . . . whether practices like RTI are effective or implementable" [sic].

This "we-know-all-we-need-to-know" message about RTI implementation has also been delivered at conferences and in-service programs across the nation. The obvious intent of the message is to instill confidence among teachers and administrators about RTI implementation and to encourage them to get on with the difficult work of reforming service delivery. A less obvious intent seems to be to characterize those raising questions about RTI as uninformed or (worse) temporizing or (much worse) attempting to obstruct wider use of RTI through passive–aggressive intellectualizing.

We join Tilly and company—and virtually everyone else—in wishing to see stronger and earlier intervening practices in general education. We support a multitiered approach to provide increasingly intensive help to our most academically vulnerable children. We also believe practitioners and researchers know a good deal about how to conduct RTI. Nevertheless, the "we-know-it-all" message strikes us as an exaggeration and counter-productive. It is an exaggeration because the message is factually incorrect. We do not have all necessary technical information to ensure that RTI, to quote Tilly and colleagues, improves outcomes "in all students"—a fact of which at least some teachers, administrators, and researchers are well aware. The message is counter-productive because practitioners must understand what we collectively *do not* know so they can avoid costly mistakes. Moreover, by recognizing what we do not know, practitioners and researchers can work diligently to find solutions, thereby strengthening our shared capacity to implement RTI successfully on a wide scale.

A case in point is work at the National Research Center on Learning Disabilities (hereafter "LD Center"), which, for the past 5 years, has focused in part on

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how best to identify nonresponders to Tier 1 instruction who are in need of more intensive and costly instruction at Tier 2. Many advocates of RTI propose use of a one-time universal screen to identify these children. In such an approach, all children in a given school are assessed on a brief measure at the beginning of the school year. Those scoring below a norm-referenced cut point (e.g., 25th percentile on the Woodcock Reading Mastery Tests—Word Identification) or below a performance benchmark associated with poor long-term outcome (e.g., 15 on curriculum-based measurement word identification fluency at the beginning of first grade) enter Tier 2 intervention. The assumption is that low performance relative to the normative cut point or the performance benchmark at the start of the school year constitutes necessary and sufficient evidence that the child has failed to respond to Tier 1 instruction in the previous year and requires more intensive help.

However, in our research at the LD Center (e.g., Compton, Fuchs, Fuchs, & Bryant, 2006), 50 percent of first-grade students identified as nonresponsive to Tier 1 instruction by a one-time universal screen given in early fall "recovered" spontaneously. That is, they made unanticipated satisfactory progress in reading throughout their first-grade year without Tier 2 instruction. The number of these "false positives" (i.e., children who appear at risk but are not) was reduced considerably when, as part of our research, we used data from five weeks of weekly progress monitoring following the universal screen to further specify the nonresponders (e.g., Compton et al., 2006). On the basis of this research finding, we have been encouraging practitioners to combine the use of a one-time universal screen (to identify at-risk children) with short-term progress monitoring (to identify nonresponders for Tier 2 instruction). We predict that this two-step procedure will save school districts many thousands of dollars by helping them provide Tier 2 instruction to only those students who truly need it. This LD Center research, we believe, illustrates how asking and exploring technical questions can increase our knowledge about RTI implementation and provide practitioners with practical payoffs.

The importance of asking questions—of knowing what we don't know—about RTI implementation is underscored by recently released federal regulations that are bereft of procedural detail. Practitioners across the nation are looking for guidance, and the best they will get will help clarify for them what is known and unknown. It is in this spirit that we wrote this article. Our intent is not to disparage RTI or diminish its value by identifying questions that need answers. Nor is our intent to discourage its implementation. Rather, we wish to say to practitioners, "When implementing RTI, bring as much good knowledge to bear as you can, including the recognition that we don't know everything important about it." Following are a handful of important questions that still need answers. (For discussion of additional questions and issues, see Gerber, 2003; Mastropieri & Scruggs, 2005; Vaughn & Fuchs, 2003.) We begin at a general level and move to the more specific.

WHAT'S THE PURPOSE OF RTI?

Practitioners need to agree on the purpose of RTI—at least practitioners in the same school district or state need to agree. Some who have written about RTI say it should be only about early intervention, while others say "disability identification." Still others say, "both." Those believing RTI should be synonymous with early intervention argue for three or more instructional tiers exclusive of special education.

Implicit in this belief about RTI is a view of education reform that reminds us of the Regular Education Initiative, which emerged in the mid-to-late 1980s. Its leaders had three goals. The first was to merge special and general education into one inclusive system. The second goal was to dramatically increase the number of children with disabilities in mainstream classrooms by use of large-scale, full-time mainstreaming (e.g., Slavin & Stevens, 1991; Wang & Birch, 1984). The third goal, implicit in the first two, was to strengthen the academic achievement of students with high-incidence disabilities, as well as of low-achievers without disabilities. To wit: "Local schools should be encouraged to experiment and evaluate the effectiveness of a variety of educational approaches in solving the widespread persistent problem of how to achieve more productive learning for all students" (Wang, 1987). In short, as general education became better resourced, it would become more resourceful; as it became more "expandable," special education would become more "expendable."

Indeed, this Regular-Education-Initiative-like assumption drives the part of the most recent IDEA reauthorization that gives general education 15 percent of special education monies. The special education law seems to say to practitioners and other stakeholders: "Front load special education dollars into general education to strengthen prevention efforts, and fewer children will require special education on the back end." Notwithstanding the logic and confidence reflected in this message, it is unclear just how preventive and expandable general education can become. Which brings us to the work of Mary Wagner and her colleagues.

Wagner and her associates compared nationally representative high-school students with LD from the mid 1980s (National Longitudinal Transition Study) to same-age students with LD in 2001–2002 (National Longitudinal Transition Study-2). Thus, students in the earlier of the two national studies participated in pre-Regular-Education-Initiative schools; those in the later investigation were more likely to have participated in more inclusive schools. Consonant with our assumption, Wagner, Newman, and Cameto (2004) found a greater percentage of the nationally representative 2001–2002 cohort taking more challenging academic courses—courses more frequently conducted in general education settings. Further, whereas only 2 percent of the high schoolers in the mid 1980s earned "mostly As" and only 56 percent graduated, 19 percent in 2001–2002 had "mostly As" and 74 percent graduated (Wagner et al., 2004; Wagner, Newman, Cameto, & Levine, 2005).

However, according to Wagner, Newman, Cameto, Levine, and Marder (2003), in 2001–2002, class participation of students with LD was much lower than that of their non-disabled peers, and they earned average standard scores of only 86 (20th percentile) and 88 (28th percentile) on the passage comprehension and math calculation subtests, respectively, of the Woodcock–Johnson III Research edition (Wagner, Newman, Cameto, & Levine, 2006; NLTS2, 2006a,b). For passage comprehension, 74 percent of the nationally representative high-school students with LD performed in the bottom quartile; for math calculations, 53 percent were in the bottom quartile. Thus, despite the more inclusive classroom practices apparently engendered by the Regular Education Initiative, the reading and math performance of many high-school students with LD in the 2001–2002 cohort was still poor, raising questions about general education's capacity to accommodate these students' special learning needs.

Wagner and associates' findings are not necessarily cause for pessimism or skepticism about RTI because there are important differences in principle between RTI and the Regular Education Initiative. Rather, results from Wagner and associates' national, longitudinal studies suggest the magnitude of the challenge involved in attempting to make K-12 classrooms substantially more accommodating of greater academic diversity.

Returning to the start of this section, we see RTI as potentially providing both strong early intervention and more valid means of disability identification—not just one or the other. We encourage practitioners and researchers to recognize that assessment and identification are (or should be) inextricably connected to early intervention; to a school district's or school building's capacity to provide more intensive and costly help to its most vulnerable, academically unresponsive children. An assessment and identification process with strong predictive validity is likely to enhance the effectiveness and efficiency of early intervention, as well as strengthen the public's support of it.

WHAT CONDITIONS SUPPORT RTI'S SUCCESSFUL IMPLEMENTATION?

When practitioners read about effective RTI models in the literature or hear about their successful implementation at professional conferences, they need to understand the conditions, or contextual factors, in the school or district in which RTI was successfully implemented. In other words, educational innovations like RTI gain most traction in settings that provide the necessary conditions to support their use. Less successful implementations elsewhere may be caused by an absence of supporting conditions, rather than because of the particular RTI procedures, per se (Deshler & Tollefson, 2006).

Because RTI consists of numerous components (e.g., multiple instructional tiers, progress monitoring), it must function as a well-orchestrated system to be effective. Effective implementation is dependent upon:

1. Significant and sustained investments in professional development programs to provide teachers with the array of skills required to effectively implement RTI as well as to deal with ongoing staff turnover.
2. Engaged administrators who set expectations for adoption and implementation of RTI, provide the necessary resources, and support the use of procedures that ensure fidelity of implementation.
3. District level support to hire teachers who embrace RTI principles and possess the pre-requisite skills to implement it effectively in their classes.
4. A willingness of teaching and ancillary staff (e.g., school psychologists) to have their roles redefined in ways to support effective implementation (Reid, 1987).
5. The degree to which staff is given sufficient time to "make sense of" and accommodate RTI into their instructional framework, and have their questions and concerns addressed (Spillane, Reiser, & Reimer, 2002).
6. Whether decisions regarding the adoption of RTI have been influenced by the thoughts and beliefs of practitioners at the grassroots level versus decisions made exclusively by those on high (Knight, 2004).

In short, failure to ask questions about the factors that surround and support RTI implementation may prevent practitioners from understanding the complete picture. This may lead to adoption of another site's RTI model based on the incorrect assumption that the success of the other site's model (as reported in the literature) is due to what happens in the classroom during the RTI implementation process. In reality, there are many situational factors—inside and outside the classroom—that support and account for its successful implementation. These factors are as important to identify and understand as are the components of the RTI model itself.

WHAT IS THE NATURE OF TIER 1 INSTRUCTION

Practitioners and researchers almost always refer to classroom instruction as Tier 1. Many also describe the importance of classroom teachers using "scientifically validated" instruction. Yet there is widespread uncertainty about what this means. "Scientifically validated" refers to a process of experimentation by which the importance of an instructional procedure or curriculum has been tested. Most rigorous testing involves the use of randomized control trials, whereby students or classrooms, typically, are assigned at random to two or more study groups, including a no-treatment control group or comparison group. Randomized assignment is meant to help prevent or reduce the likelihood of non-treatment forces from influencing findings and complicating their interpretation. Use of randomized

control trials, in short, is critically important to program or curriculum development and evaluation.

Randomized control trials or not, there is no instructional program or curriculum that has been validated for use with all children. Hence, when we say that an instructional approach or curriculum is "scientifically validated," we mean it's a "good bet" for many children. It should be considered seriously by practitioners for adoption, but it comes with no guarantees. No instructional program or curriculum is valid for all students or for all time (see Cronbach, 1975). They must be implemented and evaluated by local practitioners.

The good news here is that there is a large handful of instructional procedures and curricula that have been rigorously tested and that should be considered "good bets" by practitioners for use in Tier 1 settings (see Foorman, in press). Many other instructional procedures and curricula available to practitioners have not been tested rigorously. This doesn't mean that they will be ineffective if used. Rather, there is no scientific basis to know whether they will fail or succeed. They are *not* good bets. All districts or states should establish a vetting process to help teachers and administrators distinguish good bets from bad ones. As we write, few have thought seriously about how to establish such a vetting process.

WHAT IS "PROBLEM SOLVING" AND DOES IT PROMOTE ACADEMIC ACHIEVEMENT AMONG CHILDREN WITH SEVERE LEARNING PROBLEMS?

An example of the importance and complexity of understanding the term "scientifically validated" involves "problem solving." Problem solving is an oft-used and sometimes confusing term in the context of RTI. By our count, it is currently used in three ways: first, to describe a process by which differentiated instruction is developed, child-by-child, at Tiers 1 and 2 in general education; second, to signify the data-based, recursive, individualized instruction that special educators should be using with their schools' most difficult-to-teach students; third, to refer to how building-based teams operate to provide support to general educators with academically at-risk students.

Problem solving as a process to develop, implement, and evaluate interventions in general education was conceptualized and first researched by John Bergan (e.g., Bergan, 1970) and colleagues more than 30 years ago. It is a behavioral approach to school consultation. Its most frequently studied application has been to help teachers of students with conduct problems, such as talking or moving about the classroom without permission, or with "work productivity" problems, including inattentive or undermotivated behavior. Research indicates problem solving can be effective when applied to such student behaviors. Currently, however, some RTI proponents are advancing problem solving as a means of helping classroom teachers deal with students with severe learning problems that go beyond inattention and low motivation despite that it has not been scientifically validated for this purpose (for reviews, see Fuchs, Fuchs, Dulan, Roberts, & Fernstrom, 1992; Sheridan et al., 1996).

We need to know whether problem solving in general education identifies or leads to the development of instruction that accelerates the learning of children with severe learning problems not caused by poor attention and motivation. This will require researchers who recognize a need for documenting fidelity of treatment implementation, which will be more challenging than usual because the treatments in a problem-solving process are constructed on a case-by-case basis and often involve the use of combined interventions that have never been tested scientifically. Appropriate measures of fidelity-of-treatment-implementation must be constructed as part of the research process.

WHO ARE RESPONDERS AND NONRESPONDERS?

Research on instruction at Tiers 1 and 2 has documented these facts: (a) many students benefit from this instruction, especially when standard treatment protocols (i.e., explicitly scripted activities) drive the activity; (b) there are nonresponders—or students who do not respond to scientifically valid instruction, even when its intensity comes close to that of instruction in a good special education program and is implemented with strong fidelity. Estimates of nonresponders at Tier 2, when the instruction is conducted by researchers, range from 2 to 6 percent of the general school population (Torgesen, 2000).

RTI Methods of Identification

Once Tier 2 instruction is delivered, practitioners evaluate student responsiveness. More specifically, performance must be categorized as responsive or nonresponsive. The research literature suggests at least five RTI methods of defining these terms. The first method, which we term "median split," was introduced by Vellutino et al. (1996). They measured students on the Woodcock Reading Mastery Tests several times during a multiyear tutoring program and used hierarchical linear modeling to obtain slope of improvement for each child. To derive a cut point for designating responsiveness, the slopes were rank ordered, and the median was determined. Any student whose slope was at or above this median was designated responsive to the tutoring; those whose slopes were below the median were labeled nonresponsive.

Torgesen et al. (2001) used an alternative, "normalization" method. He and his colleagues tested students on the Woodcock Reading Mastery Tests at the end of their tutoring intervention and computed standard

scores. Those scoring at or above a standard score of 90—the 25th percentile—were designated responsive; those below the 25th percentile, nonresponsive. A third method is also based on performance at the end of tutoring but it employs a criterion-referenced benchmark associated with appropriate future performance. We refer to this as the "final benchmark" method. Good, Simmons, and Kaméenui (2001) followed this approach when they measured students at the end of first-grade intervention with the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) oral reading fluency measure. To define responsiveness, they compared raw scores on this measure against a criterion-referenced benchmark associated with future success on the Oregon high-stakes third-grade assessment. First-grade students with final DIBELS scores exceeding 39 were designated responsive. Those with scores below 40 were recognized as unresponsive.

Fuchs and Fuchs (1998) developed a fourth method, "dual discrepancy." It is illustrated in the research of Speece and Case (2001), who used curriculum-based measurement passage reading fluency to test students weekly and at treatment's end. "Treatment" was defined as the core reading program in the general classroom. Speece and Case summarized student response in two ways: slope of improvement during treatment and performance level at the end of treatment. Nonresponders were required to demonstrate both slope and performance levels at the end of treatment more than 1 standard deviation (*SD*) below that of classroom peers.

A fifth method of operationalizing responsiveness and nonresponsiveness is based entirely on students' slope, and we refer to it as the "slope discrepancy" method. Students are measured periodically; a slope of academic improvement is computed; students above a normative cut point, referenced to the classroom, school, district, or nation, are deemed responsive, and others are designated nonresponsive. This approach is illustrated in the work of Fuchs, Fuchs, and Compton (2004).

Before proceeding, we wish to point out that alternative RTI methods, measures, testing frequencies, and cut points may be applied in various combinations. For example, recall that Speece and Case (2001) used a dual discrepancy method with passage reading fluency determined weekly and at the end of treatment. Their cut point required nonresponders to score 1 *SD* or more below classroom peers on both slope and final level of performance. Alternatively, a school might collect curriculum-based measurement word identification fluency (rather than passage reading fluency) data on a monthly (not weekly) basis, with same-grade school (not classroom) peers providing the normative framework and with a cut point of 0.75 *SD* (rather than 1 *SD*) on slope and final level of performance. The very important question here is, Do different RTI identification methods (i.e., median split, final normalization, final benchmark, dual discrepancy, slope discrepancy), with alternative measures and testing frequencies, yield the same or different subgroups of responsive and nonresponsive children with similar or dissimilar profiles of disability?

LD Center Research

As part of our LD Center research, we designed a prospective, longitudinal study (e.g., Fuchs, Compton, Fuchs, & Bryant, in press) for which we recruited 42 first-grade teachers who were using the same core reading program. Based on September performance on Woodcock Reading Mastery Tests—Word Identification, Rapid Letter Naming, and teacher judgment, we identified the six lowest-performing first-grade children per class as potentially at-risk for learning disabilities. These 252 children were assigned randomly, within class, to receive tutoring or not. We delivered tutoring in small groups, three times per week for 10 weeks, while monitoring weekly progress on curriculum-based measurement word identification fluency. The children were post-tested at the end of tutoring, at the end of first grade, and at the end of second grade. In first grade, we applied seven traditional and RTI methods for designating reading disabilities: "initial" (beginning of first grade) low achievement, "final" (end of first grade) IQ-achievement discrepancy, median split, final normalization, final benchmark, slope discrepancy, and dual discrepancy. For each of these methods of identification, we considered the impact of using alternate measures.

Our findings indicated that, for our traditional *non-RTI methods*, an initial low achievement definition of reading disabilities, especially in conjunction with the Woodcock Reading Mastery Tests—Word Identification, provided reasonable prevalence estimates, acceptable "specificity" (the degree to which a measure identifies children at low risk for disability status), and good "hit rates" (the proportion of children correctly identified as at risk). But it also produced poor "sensitivity" (how well a measure correctly identifies children at risk for disability status), suggesting that many children appearing at risk but who are not would receive unnecessary first-grade tutoring. By contrast, IQ-achievement discrepancy at the end of first grade, a "traditional" approach to LD identification, provided unrealistically low prevalence estimates and poor sensitivity. It did, however, produce good hit rates and strong specificity. But too many children were not identified at end of first grade although they showed a need for reading intervention, as revealed by their end-of-second-grade reading disabilities status.

In terms of *RTI methods*, final normalization resulted in an acceptable reading disabilities prevalence rate but produced mixed hit rates, mixed sensitivity, and mixed specificity. Benchmark and median split methods over-identified reading disabilities. Curriculum-based measurement word identification fluency slope and dual discrepancy over-identified reading disabilities but resulted in acceptable hit rates, sensitivity, and specificity.

An important conclusion from our LD Center study was that both traditional methods and RTI methods for

defining and distinguishing responsiveness and nonresponsiveness result in different groups of children designated "reading disabled," with each method resulting in varying prevalence rates, severity, and stability. All of this suggests an urgent need for a data-based consensus about what RTI methods of disability identification (in combination with which measures, testing frequencies, and cutpoints) will be most useful. With such consensus, greater consistency in "reading disability" and "learning disability" designations across schools, districts, and states might be achieved.

IS THERE NEED OF FORMAL TESTING BY MULTIDISCIPLINARY TEAMS?

This question creates two camps. The group that answers "no" makes at least two important points. First, it says that a multi-tiered instructional process will generate all information necessary to understand the learner and her academic needs. Second, the formal testing of working memory, receptive language, processing speed, and the like, will not yield information with strong instructional relevance. Hence it asks why should we measure such cognitive processes? This second point resonates; the first point less so because it reflects a failure to recognize that students chronically unresponsive to multiple tiers of increasingly intensive instruction need something different. That is, implementing "x" instruction or "y" curriculum with greater fidelity, or in groups of three and not five, or providing a token economy instead of verbal praise, is not likely to make learners from chronically nonresponsive students. There is strong need for instructional research that explores whether and how knowing more about cognitive processing leads to more effective teaching and learning (see Caffrey & Fuchs, 2007; Fuchs, 2006).

MORE OF WHAT WE NEED TO KNOW

1. How relevant is RTI to middle and high schools? If we define RTI's purpose in part as delivering early intervention, then how should we think about RTI for a 10th-grade student reading at a 2nd-grade level? Do we perhaps need a very different model for at-risk students in middle school and high school?
2. Most RTI intervention research has involved early reading. What do we know about effective multi-tiered instruction that addresses reading comprehension? Writing? Social studies? Science?
3. If classroom teachers implement scientifically validated instruction at Tier 1, who will conduct Tier 2 instruction? If school psychologists, then who will conduct formal evaluations and re-evaluations? If special education teachers, who will work most intensively with chronically nonresponsive children? If para-professionals, who will prepare them?
4. What criteria should practitioners use in school buildings and districts to evaluate the success of their RTI implementation? Student achievement on high-stakes tests? Progress monitoring data? Information on the fidelity with which interventions are implemented? Special education enrollments and costs? In a related way, who should aggregate a school building's data or school district's data, and how should this be accomplished, so practitioners can effectively and responsibly answer the question, "is RTI working?"
5. Where in the RTI process does due process occur?

CONCLUSION

Like Ed Kaméenui (in press), Commissioner of Special Education in the Institute of Education Sciences, we believe it is constructive and important to think hard about what we know and don't know about RTI, and it is in this spirit that we've written this article. We are not suggesting that there is a paucity of knowledge because, in fact, researchers and practitioners collectively know a good deal about aspects of RTI, like how to monitor student progress accurately and meaningfully. But it is untrue and misleading to claim that we currently have a necessary and sufficient knowledge base to guide the implementation of RTI as a process of early intervention and disability identification across all grades, for all academic skills, in all content areas, and for all children and youth. It behooves teachers, administrators, and researchers to understand what we don't know.

If we were to prioritize areas in which more knowledge is needed, our priorities would be these: First, practitioners need scientifically-validated instructional protocols that are likely to accelerate student progress in pivotal skills aside from early reading (e.g., math and writing) and in content areas (e.g., social studies and science). Generally effective instructional protocols are critical because in an RTI framework instruction is the "test" against which student response is measured. Without validated instruction (implemented with fidelity by practitioners), RTI cannot be a valid method of disability identification or early intervention. Second, practitioners require a validated means of determining "responsiveness" and "nonresponsiveness." As indicated, there is a handful of possibilities but no consensus about which are preferable. If practitioners across the nation choose different RTI methods of identification, there may be as much or greater variation in number and type of children identified as having LD than the variation produced by use of IQ-achievement discrepancy.

In part because of the under-specification of the most recent federal regulations on RTI, and an absence of

necessary and sufficient technical information, we're in a kind of *de facto* de-regulated environment when it comes to RTI. This can mean greater flexibility and discretionary decision making; more room for innovation. At the same time, it contributes to confusion and uncertainty. It also provides opportunity to those who would use this situation for their own purposes. In such circumstances, especially, practitioners must educate themselves by asking tough questions—of themselves and others—as they organize to deliver stronger prevention services and more valid methods of disability identification through RTI implementation.

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