Critical Characteristics of a Three Tiered Model Applied to Reading Interventions

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Response to intervention as a component in determining special education eligibility is mentioned only briefly in the Individuals with Disabilities Education Improvement Act, 2004. The provision in the bill reads simply that:

"…a local education agency may use a process that determines if the child responds to scientific, research-based interventions as a part of the evaluation procedures…" (Sec. 614[b][6][B])

These few lines in a text that reaches hundreds of pages have generated considerable discussion. This section of text is preceded by the following statements regarding the use of an ability/achievement discrepancy model for special education eligibility:

"… when determining whether a child has a specific learning disability … a local educational agency shall not be required to take into consideration whether a child has a severe discrepancy between achievement and intellectual ability.." (Sec. 614[b][6][A])

Taken in combination these passages indicate a move away from the ability/achievement discrepancy model and toward a model that includes consideration of how a child has responded to intervention in determining eligibility for special education. Regulations have not yet been developed so it is too soon to know how these elements of the legislation will be translated into practice. However, given the strong support for such a model as an alternative to the traditional ability/achievement discrepancy model (President's Commission on Excellence in Special Education, 2002; Gresham, 2001) it is likely that response to intervention (RTI) will be included in the regulations.

The move away from an ability/achievement discrepancy model and toward RTI is based, in part, on solid research demonstrating that use of the discrepancy model for determining eligibility and provision of services does not foster practices that effectively meet the educational needs of struggling students (e.g. Gresham 2001; Lyon et al, 2001; Presidents Commission on Excellence in Special Education, 2002). Briefly, problems identified within the ability/achievement discrepancy model include a lack of evidence that IQ discriminates amongst those children who will respond to interventions, structural problems that inhibit early intervention, and similarity between the cognitive deficits of poor readers regardless of IQ (Fuchs, Fuchs, Mathes, Lipsey & Eaton, 2001; Fletcher et al, 2002; Stanovich & Siegal, 1994). In addition, there is strong evidence in the area of reading that early intervention, which is constrained within an ability/achievement discrepancy model, can have a potent effect on student achievement (Denton & Mathes, 2003). The ability/achievement discrepancy model has been dubbed a wait to fail model because children don't often show a significant discrepancy until they have reached third grade. In the area of reading, in particular, it is much more difficult to implement successful interventions at this late stage (Donovan & Cross, 2002; Torgesen et al, 2001). For further information regarding the value of early intervention for struggling readers, the reader is referred to *Preventing and Remediating Reading Difficulties* edited by Barbara Foorman (2003).

While describing the problems inherent in the ability/achievement discrepancy model and other aspects of the current implementation of special education is beyond the scope of this article, several excellent reviews of this information are available. The reader is referred to the following sources: The National Research Council report on minority overrepresentation in special education (Donovan & Cross, 2002), a report entitled *Rethinking Special Education* by the Fordham Foundation and the Progressive Policy Institute (Finn, Rotherham, & Hokansen, 2001), proceedings of the Learning Disabilities Summit by the U.S. Office of Special Education Programs (Bradley, Danielson, & Hallahan, 2002), and the report of The President's Commission on Excellence in Special Education (2002).

In considering adoption of an RTI model for use in determining service provision and special education eligibility, several implementation related questions have been posed (Fuchs & Fuchs, 2002; Kovaleski, 2003; Mastropieri, 2003; Vaughn & Fuchs, 2003). For example: (a) How will scientific, research based interventions be identified across different LEAs? (b) How much training will be required for staff to implement these interventions? (c) Who will determine a standard for response to intervention? Regardless of how RTI will be applied to in determining eligibility for special education, the RTI model provides a promising model for delivering intervention to struggling students. Incorporated in RTI are the elements that have been identified as essential to successful interventions. Those include: (a) a focus on early intervention, (b) linking interventions to the regular curriculum, (c) continuous progress monitoring, (d) responding to student progress (or lack thereof), and (e) differentiated intervention based on student need. It is the intent of this article to provide an outline of how RTI could serve as a model for delivering reading interventions and the important role that school psychologists can and should play in the implementation of this model. It is in the area of early reading development that the most research has been done and the clearest picture of what an RTI model might look like has emerged.

Reading Curriculum

The RTI model is most commonly conceptualized as having three tiers. The intensity of interventions increases as one goes from Tier One to Tier Three. The two underlying themes at all three levels are the use of scientific, research-based strategies and progress monitoring.

RTI as a model for intervention requires firstly that a school is using a solid research based curriculum for reading instruction (Fuchs & Fuchs, 2002). Among the criteria that are important when considering a reading curriculum is that it addresses the five elements identified by the National Reading Panel (2000) as critical to reading instruction. Three of these elements, phonemic awareness, phonics, and fluency are considered critical to developing automatic word identification. The remaining two, vocabulary and comprehension strategies, are critical to reading comprehension. These five elements can serve as a guide in evaluating basic reading curricula and reading interventions and in designing intervention plans that match student needs (Rayner, Foorman, Perfetti, Pesetsky, & Seidenberg, 2001). A second criterion is the use of a sequential, systematic approach to teaching skills foundational to learning to read (see Adams,1990 or Shaywitz, 2003 for a discussion of systematic approaches to teaching reading). The two state adopted k-6 curricula in California, *Open Court* (Bereiter et al,

2002) and *Reading: A Legacy of Literacy* (Houghton/Mifflin, 2001) are both considered research based curricula that address the five NRP critical elements using a sequential, systematic approach. A critical evaluation of these two reading programs is not within the scope of this work; however, it is important to acknowledge that some authors have voiced concerns about scripted programs and their long term benefits. *Open Court,* particularly, has come under criticism for its intensely scripted approach to teaching (e.g. Marzo, 2004; or see related articles at www.ncte.org)

Having access to a strong curriculum is not always sufficient for assuring that children are receiving the instruction outlined in the curriculum. Teachers may choose to implement the curriculum using a different approach or may choose to eliminate portions of the curriculum. Therefore, when consulting with teachers regarding a student who is struggling in reading, it will be important for a psychologist to know if the teacher is implementing all aspects of the curriculum. For example, is the teacher providing phonics instruction in the manner outlined in the curriculum? Is the teacher providing the prescribed amount of time for group reading?

In summary, the first questions to ask in implementing an RTI model are whether or not the reading curriculum is research based and if it is being implemented with fidelity. The remainder of the model rests on the assumption that this is so.

Level and Characteristics of Service Delivery

Effective Reading Interventions

Regardless of the level of intervention there are certain characteristics that are critical for all successful reading interventions. First, interventions need to be explicit. Children need to be directly instructed in the targeted learning strategies (Gaskins, Ehri, Cress & Donnely, 1997; Swanson, 1999; Swanson, Hoskyn & Lee, 1999). For example, explicitly teaching a child the steps in decoding words is more successful for struggling readers than merely reading with the child (Iverson & Tunmer, 1993). In tandem with explicit teaching it is important to provide directed practice with corrective feedback (Ehri, 2004).

Second, interventions should be systematic (National Reading Panel, 2000). Decoding should be taught in a predetermined way so that easier letter-sound combinations are taught first and subsequent letter-sound combinations build on this knowledge. For example, decoding of single consonants should be mastered before decoding of consonant blends. Likewise, children should have systematic practice reading the decoding patterns they are studying (Tunmer, Chapman & Prochnow, 2003). As in learning any new skill, guided practice is important to skill development. Thus, it is more beneficial to have an intervention that teaches a sequential curriculum with corresponding text as opposed to a system that uses literature to teach decoding as it is encountered in the text.

Finally, interventions should also be designed to assure that the student is receiving instruction in all five areas of curriculum identified by the NRP (National Reading Panel, 2000). In addition, integrating the instruction so that children are learning about written text in a variety of ways (through reading and writing) provides more pathways for learning common letter patterns (Berninger, 1998).

Research based intervention resources.

A key component in the RTI model is the use of scientific, research based interventions. The emphasis on scientific, research based intervention that is stressed in IDEA 2004 follows from a similar focus on scientific, research based instruction that is emphasized in the No Child Left Behind Act (U.S. Department of Education, 2002). Online resources are available for accessing information regarding specific interventions. First, the California Department of Education lists interventions that have been approved for use in schools using Reading First monies. A description of these programs is available at http://www.cde.ca.gov/cfir/rla/2002SBEar.pdf. Programs include *Language! A Literacy Intervention Program, High Point, Read 180, SRA Reading Program* and *Fast Track Reading.* Second, the federal government has developed the What Works Clearinghouse, accessible at http://www.whatworks.ed.gov. This website provides useful information on a variety of available interventions. There are also various university and state funded sites (e.g. http://www.fcrr.org and http://oregonreadingfirst.uoregon.edu/SIreport.php) with information on the research base of specific reading interventions. However, just as with the basic curricula, not only must the interventions be sound, they must be implemented with fidelity.

When considering interventions, it is also necessary to consider the effectiveness of interventions within environments similar to the presenting context. In addition to implementing interventions that have research supporting their efficacy in general, it is necessary to determine whether the intervention is likely to be effective in a given context. Kratochwill and Shernoff (2004) address the need for guidelines regarding the conditions under which specified interventions are likely to be successful.

Tier One

Tier One interventions are provided to students within the classroom. They will likely be extensions of the curriculum and involve grouping or minimal individual support. In implementing Tier One interventions, it is important that they are tied closely to what is being taught and that student progress is monitored so that groups can be adjusted to reflect student needs.

In California, both of the state adopted reading curricula provide extra lessons directed toward students whose learning is not progressing at the same rate as their classmates. For example, *Open Court* (Bereiter et al, 2002) provides the teacher with additional lessons for students to work individually or in small groups, at their own pace, on learning activities that expand on the curriculum. For struggling readers these opportunities include re-teach activities and/or interventions that are tied to deficient foundational skills for the current lessons. It is important to note however, that data on the effectiveness of these particular interventions are not available. Research assessing the effectiveness of more comprehensive Tier One interventions indicate that such interventions can be powerful in reducing the number of children who struggle with learning to read (Blachman, Schatschneider, Fletcher & Clonan, 2003; Torgesen, 2004).

Tier Two

Tier Two interventions are implemented for those students not responding to Tier One interventions. Tier Two interventions are more intense than Tier One interventions and may be provided one-on-one or in small groups. There is support for small groups

(Torgesen, 2004; Vaughn & Linan-Thompson, 2003) being equally as or more effective than one on one tutoring. The groups are formed on the basis of skill levels of the members so that the intervention can efficiently target all group members' deficient skills (Torgesen; Vaughn & Linan-Thompson). Tier Two interventions are generally provided outside of the classroom; instructors for Tier Two interventions should be trained professionals such as Title I teachers, reading specialists, special education teachers or other classroom teachers. Tier Two interventions need to be provided at an adequate level of intensity, for a sufficient length of time. Torgesen (2004) summarized data on a variety of Tier Two interventions which exhibit positive effects for participants. The duration of these interventions ranged from 35 to 340 hours. The intensity and duration necessary to produce positive results will be affected by the age of the student and the severity of the reading deficit. Older children and children with more severe deficits will require a more intense and lengthy intervention.

It is also important that Tier Two interventions are tied to the regular curriculum and draw from it as much as possible. Students who are struggling to learn generally have difficulty applying strategies and generalizing what they have learned (Swanson, 1999). Teaching them different strategies may only serve to compound their confusion. Consequently, it is important that the intervention be integrated with classroom instruction. In addition, students who are struggling often need more repetition than other students; thus expanding on and repeating material in a more explicit and intense method can be a productive approach to intervention (Torgesen, 2004). Though there are certainly cases in which it may be so, one should not simply assume that the classroom instructional method is ineffective with a student. Rather it may be that the student requires more exposure, not a different method.

Tier Three

Tier Three interventions are characterized as similar to what is currently provided through special education. Students who have not responded to interventions at Tier One or Tier Two likely have more intensive deficits than those who have made progress with less intensive interventions (Al-Otaiba & Fuchs, 2002; Mathes & Torgesen, 1998; Vellutino & Scanlon, 1996). Consequently they will need more intensive interventions, for longer duration. In addition, these students may also need accommodations to allow them to access the general education curriculum. Interventions at Tier Three require a more individualized approach in their design and implementation. Such individual design includes consideration of the unique needs and skills of the individual students. When developing intervention plans the five requisite areas of reading instruction identified by NRP can be used as a guide in to assure that each is assessed and addressed.

Using Data Based Decision Making to Identify Students for Services

Determining Lack of Response

Since "not responding" is a criteria for the provision of more intensive services, selecting appropriate measures for addressing this criteria is a key question (Fuchs, 2003). In order to adequately address the question of whether or not a particular student or group of students is responding to an intervention a method for measuring progress is essential. Among the possible measures are: embedded skills tests (Mastery Measurement) provided by curriculum publishers, basic skill assessments such as the

Beginning (or Advanced) Phonological Skills Test (Shefelbine, 1999) and fluency based measures such as Curriculum Based Measurement (CBM) (Fuchs and Fuchs, 2002; Shinn, n.d.) and Dynamic Indicators of Basic Early Literacy Skills (available at http://dibels.uoregon.edu/).

 Embedded assessments. Assessments that are embedded in the curriculum generally are characterized by a mastery approach to assessment. In these measures a sequential set of skills is identified and mastery of each of these subskills is assessed as children progress through the curriculum. For example, in *Open Court Reading* (Bereiter et al, 2002) measures are available for determining whether or not students have mastered critical content. These include measures tied to California Standards and assessing all five areas of instruction identified by the National Reading Panel as critical components in learning to read. Teachers may use below benchmark performance on a test measuring mastery of specific reading skills as an indicator to implement classroom based Tier One interventions. As previously discussed, such interventions will likely target specific skills. A strength of mastery measurements, such as embedded assessments, is that they are directly tied to what is being taught (Fuchs & Fuchs, 1999). Thus, performance on mastery measurement assessments provides direct information on student competence in the skills taught and consequently serves to notify teachers as to any skills needing re-teaching (Fuchs & Fuchs). Limitations in mastery measurement identified by Fuchs and Fuchs include problems in meeting traditional technical standards, lack of a common unit of measurement (each assessment is dependent on the skill currently being taught), and lack of usefulness in monitoring student growth.

 Basic skills assessments. A similar approach is to identify more globally based key indicators of adequate progress in reading development. For example, in early reading, benchmark level performance on tests such as the Beginning Phonics Skills Test (Shefelbine, 1999) could be used to identify students who were or were not making adequate progress on key phonics related skills. Torgesen (2000) suggests that the 30th percentile on national norms is a reasonable standard for young children on tests of basic skills. Though these tests measure more general skills than do embedded assessments, they also lack some of the attributes that would make them useful in progress monitoring (e.g. consistent unit of measurement).

 Fluency based measurements. Curriculum Based Measurement (CBM) has been identified as an ideal measurement tool within a Response to Intervention model (Shinn, Shinn, Hamilton & Clarke, 2003; Simmons et al, 2003). The most common CBM rubric for reading is simply the number of correct words a student can read in one minute from selected passages. For young children, Dynamic Indicators of Basic Early Literacy Skills (DIBELS) are useful measures (Good, Simmons, & Kame'enui, 2001). DIBELS primarily target children in kindergarten to third grade. Included in these assessments are measures of initial sound fluency, phonemic segmentation fluency, letter naming fluency, nonsense word fluency, retell fluency, and oral reading fluency.

 If a school chooses to implement school wide fluency assessments, performance on these measures can be used to identify students for both Tier One and Tier Two interventions. For schools using reading fluency measures as the method for determining level of response, Deno, Fuchs, Marston, and Shinn (2001) provide suggested benchmarks for determining adequate response. Deno et al. report that "sufficient evidence exists to recommend a growth rate of two words per week in reading aloud from

grade-level text for beginning readers" (p. 521). For students in fifth and sixth grade, average growth is about .6 words per week. However, Deno et al. consider the expected response to high quality interventions in early grades to be about two words per week and one word per week in upper grades. These levels of growth can serve as guidelines in determining whether or not a student is adequately responding to an intervention. In their analysis of methods for classroom measurements of student progress in reading, Fuchs and Fuchs (1999) indicate that research on CBM has demonstrated good reliability and validity. They also note that features such as a constant unit of measurement and the availability of alternate forms enhance its usefulness for monitoring student progress. However, schools may not have the capacity to implement oral reading fluency, a type of CBM that must be individually administered, in all classrooms

Developing Criteria for Identification of Students Needing Services

Identifying Students for Tier One and Tier Two Interventions
    Mastery assessments. One approach to identifying children who require classroom based interventions is to assess mastery of specific reading skills using embedded assessments. Using either assessments that are embedded in the curriculum or are more general measures of critical key indicators, such as the development of specific phonics skills, teachers provide intervention to students who fall below a pre-established level of proficiency
    Cut Scores. A second approach is to identify students based on benchmarks or cut scores that are tied to more global measures of reading development. In this model, all students who fall below a previously identified benchmark receive Tier One interventions. For example, Dynamic Indicators of Basic Early Literacy Skills are measures of skills that have been proven critical to learning to read (Kaminski and Good, 1998). Benchmarks on these key skills could be used to identify students who are either at risk to develop reading problems or currently on track to attain appropriate literacy skills (Good et al., 2001). In an RTI model, students falling below a given benchmark on one or more of these markers could be candidates for interventions (Simmons et al, 2003).
    Local norms. This approach focuses on identifying students relative to their classmates using local norms. Locally aggregated assessment data can be used in two ways in making decisions regarding the identification of students for interventions. First, a school that administers simple fluency measures may select the lowest scoring 25% of the students at any given administration for intervention services. Alternatively, a school may establish local norms and agree to provide services to any student scoring below the 25th percentile according to these pre-established local norms.
    Dual Discrepancy Criteria. Fuchs (2003) proposes that in order for children to progress to a more intensive intervention two criteria should be met. First, the child is performing below a pre-established benchmark. That is, if the child is already performing at a level considered not at risk for reading failure then lack of progress for a period of time in the current curriculum is not a cause for concern. The second criteria states that children who require more intensive interventions are not only below a pre-established performance level but also are not responding to the current instruction.

This is a key concept to successful implementation of the RTI model. To illustrate, a child may enter first grade performing far below his classmates. This child is provided with a classroom intervention and his progress is monitored. If he is responding to the classroom intervention by making adequate growth in reading, he would not qualify for a more intensive intervention even if he were below his classmates in reading skill. Therefore, the child whose low level of reading performance may be due to missing a significant amount of school the previous year rather than to failure to respond to the curriculum is not removed from the classroom. Instead, he is closely monitored to assure that he continues to respond to classroom instruction and to determine if he ultimately needs a more intensive intervention.

Local norms are also applicable when implementing a dual discrepancy approach to the provision of increased services. Using local data it is possible to determine average rates of growth in reading fluency. Comparison to these expected growth rates would serve to determine whether a child was continuing to perform significantly below his or her peers and was learning at a significantly slower pace

Tier Three and Special Education Eligibility

Some advocates of the RTI model argue that any child who has not responded to scientific, research based interventions at Tier One and Tier Two is eligible for special education. The California Association of School Psychologists (CASP) suggests that at this level students be **considered** for special education (CASP, 2003). As part of that consideration a comprehensive evaluation would be conducted. However, the focus of the evaluation would not be on determining an ability/achievement discrepancy. Rather, the focus of the evaluation would be to provide further information regarding the student's reading difficulties that may inform the individual educational plan in addition to determining whether the student met criteria for special education services.

For example, a reading based assessment would assess multiple skills critical to successful reading. One model to use for such an assessment is adapted from Virginia Berninger's assessment model as outlined in the *Process Assessment of the Learner* (Berninger, 1998). In this model, all the sub-skills that relate to reading are assessed: sub-word, single word, text, and oral language in order to fully analyze the student's areas of strength and deficit in reading. Such an assessment provides information useful to teachers in designing an intervention that builds upon a student's strengths as well as addresses identified areas of weakness. For example, a student who has phonics knowledge but poor fluency would require a different intervention than one who has neither phonics knowledge nor fluency. Likewise a student's oral language proficiency will influence expectations for reading proficiency.

Role of School Psychologist

School psychologists can be valuable contributors to the implementation of an RTI model. Their diverse training in assessment, instruction, intervention design, and consultation provide a knowledge base that is vital to successful design and implementation of this model. The following summary is intended to highlight some of the numerous contributions school psychologists can make to the RTI model.

Collaboration

At Tier One school psychologists can facilitate collaboration amongst teachers at their respective grade levels. Acting as a facilitator, a school psychologist can assist teachers in understanding assessment information, its relationship to progress on standards and curriculum, and the use of assessment data to identify at risk students (Strong, Christo & Cooley, 2002). School psychologists also have the knowledge and consultation skills to facilitate consideration of appropriate instructional modifications for struggling students. At Tier Two school psychologists can facilitate collaboration between support personnel and teachers. Collaboration at Tier Three may involve many of the types of collaboration school psychologists currently practice in fostering communication between regular and special education.

Identifying Interventions

The use of evidence based interventions (EBI) has been identified as an important research area in school psychology (Kratochwill & Stroiber, 2000). On a broader level, effort to infuse EBIs into practice has prompted a move toward evidence based practice (EBP) in schools. Cournoyer and Powers (cited in Kratochwill & Shernoff, 2004) define evidence based practice as being "guided by two distinct but interdependent principles" (p.36). The first principle requires that practices have some proven history of efficacy and the second that such practices, once implemented, are evaluated for effectiveness in the given setting.

In response to the first principle noted above, the school psychologist has the knowledge to lead investigations of the existing research base regarding specific interventions. School psychologists are trained to be critical consumers of research and as such can provide schools with guidance in selecting interventions that have a research base indicating efficacy.

However selecting and implementing interventions that are likely to be effective for individual children or groups of children requires more than the ability to identify research based strategies. Kratochwill and Shernoff (2004) identify two characteristics critical for those involved in identifying interventions for implementation. They include "an understanding of (a) core psychological processes involved…. and (b) the theoretical framework guiding the intervention" (p. 43). In addition, identifying and understanding the multiple factors important to successful interventions such as the setting, participants and available resources (e.g. Shapiro, 2004) is an important contribution that school psychologists can make to intervention planning. This knowledge base will promote the selection of interventions that are most likely to be effective in the given context.

Further, the ability of school psychologists to bring a psychological perspective to intervention planning will foster the likelihood of intervention success. For example, school psychologists, as mental health professionals, understand the key role of motivation for all participants in successful interventions.

School psychologists can also provide strategies for monitoring intervention implementation to assure that interventions are implemented with fidelity.

Assessment

As a measurement specialist the school psychologist is invaluable in helping schools design methods for monitoring progress that are valid and reliable (Christo, Brady & Leaman, 2003). The school psychologist can assist staff in identifying those

measures and benchmarks that will be most useful to them. School psychologists have the background knowledge to help teaching teams establish benchmarks and cut scores (Stage & Jacobson, 2002), delineate characteristics that identify children at risk of reading disabilities, and use student data effectively.

A critical role of assessment in an RTI model is measuring the effectiveness of an intervention for a given student. School psychologists can provide service providers with knowledge regarding effective methods for setting measurable goals and monitoring progress toward those goals. The literature on problem solving approaches provides useful guidelines to developing such goals and methods for measurement. Fuchs (2003) and Fuchs and Fuchs (2002) provide useful analyses of measurement issues within an RTI model.

The assessment role of the school psychologist at Tier Three most closely resembles the traditional role. However, there are several important differences. First it is hoped that with increased implementation of early intervention there will be fewer students who reach this level. Therefore, the school psychologist's case load for children requiring full assessments would be reduced. If this is the case, it is expected that psychologists will have more time to devote to comprehensive evaluation for these "difficult to figure out" children. Second, the history of response to preceding interventions will provide information useful in this assessment. Third, the focus of the assessment will likely be less on eligibility on more on providing information useful in understanding this child's learning difficulties and in designing appropriate interventions. Providing information on specific processing deficits associated with reading can be useful to planning interventions. For example, a student with deficits in rapid naming and phonological processing may require a more intensive intervention than one with a deficit in phonological processing only (Bowers & Wolf, 1999; Wolf, Bowers & Biddle, 2000). In addition, the ability of the school psychologist to consider the whole child within his or her context will be pivotal to successful third tier interventions.

Summary

Response to intervention approaches have evolved out of both the problems of the current special education system and the promise of research demonstrating the effectiveness of early intervention. In the area of reading, there is a significant research base identifying effective interventions and the characteristics of children who are likely to have struggles in learning to read. This research provides solid guidelines for schools in responding to the need for a response to intervention model in the area of literacy. Two themes that are critical to successful implementation of an RTI model are using both past research and an evidence based approach in intervention design and the availability of systems for effectively monitoring student progress. Collaboration between regular and special educators is also crucial.

Significant questions remain in regards to implementing a response to intervention model. They include issues related to teacher training; program implementation; resource allocation; measurement of progress; developing consistencies across school districts and eligibility decisions; and consideration of how factors such as health, environment, and general cognitive ability affect response to intervention.

It is clear that there is a significant role for school psychologists in the implementation of an RTI model. Important roles for school psychologists that have been

noted in this article rest upon their knowledge of consultation, psychological foundations of learning and instruction, knowledge of measurement issues such as reliability and validity, and interpretation of data. Practicing school psychologists are poised to become pro-active participants in the implementation of RTI models in their schools. The model has high potential for improving service delivery and school psychologists have the skills and knowledge to facilitate successful implementation of RTI.

However, it is necessary to also acknowledge that some training programs and past job expectations may not have emphasized the skills that will be necessary for school psychologists who are involved in implementing response to intervention models. Therefore, it is important for practicing school psychologists, school districts and professional organizations to realize the importance of in-service training and develop methods for providing that training.

Finally, Kratochwill and Shernoff (2004) identify the need to foster a community of researchers, practitioners and policy makers focused on collaboration regarding evidence based practices. Such collaboration among these professionals would provide considerable data of use to all professionals involved in improving outcomes for children in schools. School psychologists as active participants in RTI models at their respective schools will be critical participants in such an undertaking, and the profession of school psychology will certainly benefit from this collaborative effort.

References

Adams, M. (1990). *Beginning to read: thinking and learning about print*. London, England: MIT Press.

Al Otaiba, S. & Fuchs, D. (2002). Characteristics of children who are unresponsive to early literacy instruction: A review of the literature. *Remedial and Special Education, 23*(5): 300-316.

Berninger, V. (1998). *Guides for intervention: Reading and writing*. San Antonio, TX: The Psychological Corporation.

Bereiter, C., Brown, A. Campione, J, Carruthers, I. Case, R. Hirshberg, J, et al. (2002). *Open court reading*. Columbus, OH: SRA/McGraw-Hill.

Blachman, B., Schatschneider, C., Fletcher, F. & Clonan, S. (2003). Early reading intervention: A classroom prevention study and a remediation study. In B. Foorman (Ed.), *Preventing and remediating reading difficulties; Bringing science to scale* (pp. 253-274). Baltimore, MD: York Press.

Bowers, P. & Wolf, M. (1999). The "double-deficit hypothesis" for the developmental dyslexias. *Journal of Educational Psychology, 9*(1), 1-24.

Bradley, R., Danielson, L. & Hallahan, D. (Eds.). (2002). *Identification of learning disabilities: Research to practice.* Mahwah, NJ: Lawrence Erlbaum Associates.

California Association of School Psychologists (2003). *Critical constructs and principles regarding the reauthorization of IDEA.* Retrieved October 22, 2004 from www.caspsurveysorg?NEW/CASP_IDEAfinal.htm

Christo, C., Brady, J. & Leaman, S. (Spring, 2003) The important role of school psychologists in current educational reforms. *CASP Today,.*

Deno, S., Fuchs, L., Marston, D. & Shin, M., (2001). Using curriculum-based measurement to establish growth standards for students with learning disabilities. *School Psychology Review*, 30(4) 507-524.

Denton, C. & Mathes, P. (2003). Intervention for struggling readers: Possibilities and challenges. In B. Foorman (Ed.), *Preventing and remediating reading difficulties: Bringing science to scale* (pp. 229-252). Baltimore, MD: York Press.

Donovan, M. S., & Cross, C.T. (2002). *Minority students in special and gifted education.* Washington, DC: National Academy Press. Retrieved January 2, 2005 from http://www.nap.edu/catalog/10128.html

Ehri, L. (2004). Teaching phonemic awareness and phonics: an explanation of the National Reading Panel meta-analysis. In P. McArdle & V. Chhabra (Eds.), *The voice of evidence in reading research* (pp. 153-186). Baltimore, MD: Paul Brookes.

Finn, C., Rotherman, A., & Hokanson, C. (Eds.). (2001). *Rethinking special education for a new century*. Washington, D.C.: Thomas B. Fordham Foundation and Progressive Policy Institute.

Fletcher, J., Coulter, W., Reschly, D., & Vaughn, S. (2002). Alternative approaches to the identification of learning disabilities: Some questions and answers. *Annals of Dyslexia, 52*, 30-69.

Foorman, B. (Ed.). (2003). *Preventing and remediating reading difficulties: Bringing science to scale.* Baltimore, MD: York Press.

Fletcher, J., Shaywitz, D., Katz, L., Liberman, I., Stuebing, K., Francis, D. et al. (2002). Cognitive profiles of reading disability: Comparisons of discrepancy and low achievement definitions. *Journal of Educational Psychology*, 86, 6-23.

Fuchs, L. (2003). Assessing intervention responsiveness: Conceptual and technical issues. *Learning Disabilities Research and Practice, 18*(3), 172-186.

Fuchs, L & Fuchs, D. (1999). Monitoring student progress toward the development of reading competence: A review of three forms of classroom-based assessment. *School Psychology Review, 28*(4), 659-671.

Fuchs, L. & Fuchs, D (2002*). Progress monitoring, accountability and LD identification.* Testimony to the President's Commission on Excellence in Special Education. Retrieved December 5th, 2004 from http://www.aimsweb.com/_lib/pdfs/Lynn%20F%20Commission.pdf

Fuchs, D., Fuchs, L., Mathes, P., Lipsey, M., & Eaton, S. (2000). A meta-analysis of reading differences between underachievers with and without the LD label: A brief report. *Learning Disabilities: A Multidisciplinary Journal, 10*(1), 1-4.

Gaskin, J., Ehri, L., Cress, C., & Donnelly, K. (1997). Procedures for word learning: Making discoveries about words. *The Reading Teacher, 50*, 312-327.

Good, R, Simmons, D., & Kame'enui, E. (2001). The importance and decision making utility of a continuum of fluency-based indicators of foundational reading skills for third-grade high-stakes outcomes. *Scientific Studies of Reading, 5*(3), 257-288.

Gresham, F. (2001). *Responsiveness to intervention: An alternative approach to the identification of learning disabilities.* Paper presented at the Learning Disabilities Summit: Building a Foundation for the Future, Washington, D.C.

Individuals With Disabilities Education Improvement Act of 2004. 20 U.S.C. 1400 et seq

Houghton-Mifflin (2001). *Houghton-Mifflin reading: A legacy of literacy.* Boston, MA: Houghton-Mifflin.

Iverson, S. & Tunmer, W, (1993). Phonological processing skills and the Reading Recovery program. *Journal of Educational Psychology. 85*, 112-136.

Kaminski, R. & Good, R. (1998). Assessing early literacy skills in a problem solving model: Dynamic indicators of basic early literacy skills. In M. Shinn (Ed.), *Advanced applications of curriculum based measurement* (pp. 113-142). New York: Guilford.

Kovaleski, J. (2003). *The three tier model for identifying learning disabilities: Critical program features and systems issues.* Paper presented at the Response to Intervention Symposium, Kansas City, MO.

Kratochwill, T. & Stroiber, K. (2000). Uncovering critical research agendas for school psychology: Critical dimensions and future directions. *School Psychology Review, 29*(4), 591-603.

Kratochwill, T. & Shernoff, E. (2004). Evidence-based practice: Promoting evidence-based interventions in school psychology. *School Psychology Review, 33*(1), 34-48.

Lyon, R., Fletcher, J,, Shaywitz, S., Shaywitz, B., Torgesen, J., Wood, F. et al. (2001). Rethinking learning disabilities. In C. Finn, A. Rotherman & C. Hokanson (Eds.), *Rethinking special education for a new century* (pp. 259-287). Washington, D.C.: The Fordham Foundation.

Mastropieri, M. (2003). *Feasibility and consequences of response to intervention (RTI): Examination of the issues and scientific evidence as a model for the identification of individuals with learning disabilities.* Paper presented at the Responsiveness to Intervention Symposium, Kansas City, MO.

Mathes, P. & Torgesen J. (1998). All children can learn to read: Critical care for the prevention of reading failure. *Peabody Journal of Education 73*(34), 317-340.

National Reading Panel (2000). *Report of the National Reading Panel. Teaching children to read: an evidence-based assessment of the scientific literature on reading and its implications for reading instruction: Reports of the subgroups*. Unpublished manuscript, Washington, D.C.

National Research Council (2002). *Minority students in special and gifted education.* Paper presented at the Committee on Minority Representation in Special Education, Washington, D.C.

No Child Left Behind Act of 2001. 20 U.S.C. 6300 *et seq.*

Presidents Commission on Excellence in Special Education (2002). *A new era: Revitalizing special education*. Washington, D.C.: U.S. Department of Education. Retrieved January, 3rd, 2003 from http://www.ed.gov/inits/commissionsboards/whspecialeducation/reports.html

Rayner, K., Foorman, B., Perfetti, C., Pesetsky, D. & Seidenberg, M. (2001). How psychological science informs the teaching of reading. *Psychological Sciences in the Public Interest, 2*, 31-73.

Shapiro, E. (2004). *Academic skills problems: Direct assessment and intervention.* NY: Guilford Press.

Shaywitz, S. (2003). *Overcoming dyslexia*. New York: Alfred Knopf.

Shefelbine, J. (1999). *Beginning phonics skills test.*

Shinn, (n.d.). *Assessing response to intervention: Getting it right with the AIMSweb system.* Retrieved December 27th, 2004 from http://www.aimsweb.com/_lib/pdfs/AIMSweb%20RTI.pdf

Shinn, M., Shinn, M., Hamilton, C. & Clarke, B. (2003). Using curriculum based measurement in general education classrooms to promote reading success. In M. Shinn, H. Walker & G. Stone (Eds.), *Interventions for academic and behavior problems II: Preventive and remedial approaches* (pp. 113-142). Bethesda, MD: National Association of School Psychologists.

Simmons, D., Kame'uni, E., Good, R., Harn, B., Cole, C. & Braun, D. (2002). Building, implementing and sustaining a beginning reading improvement model: Lessons learned school by school. In M. Shinn, H. Walker & G. Stone (Eds.), *Interventions for academic and behavior problems II: Preventive and remedial approaches* (pp. 537-570). Bethesda, MD: National Association of School Psychologists.

Stage, S., & Jacobson, M. (2002). Predicting student success on a state-mandated performance-based assessment. *School Psychology Review, 31*(1), 71-92.

Stanovich, K., & Siegel, L.(1994). Phenotypic performance profile of children with reading disabilities: A regression-based test of phonological-core variable-difference model. *Journal of Educational Psychology, 86,* 24-53.

Strong, K., Christo, C., & Cooley, L (2003) *School-wide change and the role of the school psychologist: A three-point system for increasing school success for all*

students. Paper presented at the California Association of School Psychologists Annual Meeting, Los Angeles, CA.

Swanson, L. (1999). Instructional components that predict treatment outcomes for students with learning disabilities: Support for a combined strategy and direct instruction model. *Learning Disabilities Research and Practice. 14*, 129-141.

Swanson, H., Hoskyn, M. & Lee, C. (1999). *Interventions for students with learning disabilities: A meta-analysis of treatment outcomes*. New York: Guilford Press.

Torgesen, J. (2000). Individual differences in response to early intervention: The lingering problem of treatment resistors. *Learning Disabilities Research and Practice, 15*, 55-64.

Torgesen, J. (2004). Lessons learned from research on interventions for students who have difficulty learning to read. In P. C. McCardle, V (Ed.), *The Voice of Evidence in Reading Research* (pp. 355-382). Baltimore, MD: Paul Brooks.

Torgesen, J., Alexander, A., Wagner, R., Rashotte, C., Voeller, K., & Conway, T. (2001). Intensive remedial instruction for children with severe reading disabilities: Immediate and long-term outcomes from two instructional approaches. *Journal of Learning Disabilities, 34*, 33-58.

Tunmer, W., Chapman, J. & Prochnow, J. (2003). Preventing negative matthew effects in at-risk readers. In B. Foorman (Ed.), *Preventing and remediating reading difficulties; Bringing science to scale* (pp. 1221-164). Baltimore, MD: York Press.

United States Department of Education (2002). *No child left behind: Elementary and secondary education act.* Washington, D.C.: U.S. Government.

Vaughn, S. & Fuchs, L. (2003). Redefining learning disabilities as inadequate response to intervention: The promise and potential problems. *Learning Disabilities Research and Practice, 18*(3), 137-146.

Vaughn S., & Linan-Thompson, S. (2003). Group size and time allotted to intervention. In B. Foorman (Ed.), *Preventing and Remediating Reading Difficulties; Bringing Science to Scale* (pp. 299-324). Baltimore, MD: York Press.

Vellutino, F. & Scanlon, D. (1996). Cognitive profiles of difficult-to-remediate and readily remediated poor readers.. *Journal of Educational Psychology*, *88*(4), 601-639.

Wolf, M. Bowers, P. & Biddle, K. (2000). Naming speed processes, timing and reading: A conceptual review. *Journal of Learning Disabilities, 33*, 387-407.