Response to Intervention: Early Identification of Students with Learning Disabilities

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Abstract

The number of students with learning disabilities (LD) has grown substantially in the last three decades. These students account for more than half of the special education programs. As with the growing number, there is a great debate on the identification procedures of students with LD during early years. One of the models to early identify students with disabilities is Response to Intervention (RtI). The purpose of this article is to describe RtI on the identification of students with learning disabilities (LD) in the early years of childhood. First, a brief overview of RtI is provided, including the most popular models. Next, utilization of RtI in the identification of LD is described. Then, an overview of approaches that RtI is used to maximize achievement for a wide range of students is provided. Finally, future research directions in the area of special education within a model of RtI are discussed.

Keywords: Response to intervention, learning disabilities, early identification, reading.

Response to Intervention: Early Identification of Students with Learning Disabilities

Over the last three decades there has been a dramatic increase in the number of students who receive special education and related services. In the 1976-77 school year, only 3.7 million students were receiving special education and related services; currently, more than 6 million students from ages 6 to 21 are receiving special education and related services under IDEA (U.S. Department of Education, 2005). A similar trend can be observed for students with learning disabilities (LD). The number of students diagnosed with LD has increased over 200% since 1977. Among all of the categories of students with disabilities that are receiving special education services, students with LD are the largest group. In fact, more than half of the special education population is comprised of students with LD (U.S. Department of Education). One of the major reasons for this unprecedented growth is the implementation of improved identification procedures

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(Kavale & Spaulding, 2008). However, these identification procedures have several problems.

The problem of identifying students with LD has been a controversial and much disputed subject within the field of special education. Information compiled over the last decade has shown that the misidentification of students with LD has negative implications for both the education of the individual student and for the educational system as a whole. For instance, Vaughn and Fuchs (2005) reported that if students who present academic difficulties are not correctly identified, they miss early intervention opportunities, including supplemental educational services, and as a result might fall behind their peers in content areas. Early intervention is critical for students with poor academic skills, because students who receive supplemental education services are less likely to be labeled as LD in subsequent years (Vaughn & Fuchs, 2005). Negative outcomes of misidentification can also be observed on the national level. For instance, the total cost of educating an average LD student is approximately twice the amount expended to educate a student without a disability. More specifically, the additional cost of educating the average LD student is as much as $ 5,969 more per student (Chambers, Shkolnik, & Perez, 2003). Therefore, developing and utilizing a more effective method of identifying students with disabilities is not only essential for the support of students with learning differences, but also has implications for the national economy and the efficacy of educational spending.

Response to intervention (RtI) is an emerging approach that holds considerable promise for preventing the academic failure of all students while improving the procedures by which students with LD are identified (Vaughn & Fuchs, 2005). The aims of this paper are to provide a brief overview of RtI, including the most popular models, and to explain how RtI expands practice in the identification of LD. Another aim of the study is to describe an overview of some of the common ways that RtI is currently being used to maximize achievement for a wide range of students.

RtI: A Brief Overview
RtI is defined as a systematic approach for monitoring student progress and making decisions about the need for instructional modifications or intensified services (Johnson, Mellard, Fuchs, & McKnight, 2006). The main idea of RtI is to identify the academic difficulties of students as early as possible to provide the necessary supplemental educational services. RtI combines high-quality, well-designed teaching and assessment methods to determine whether students who are not succeeding under current teaching strategies could be more successful with the use of other effective teaching practices (Brown-Chidsey & Steege, 2005; Glover & DiPerna, 2007). High quality instruction refers to instruction or intervention that is designed according to students' needs, and demonstrated by scientific research as an efficient instruction method to help students to increase their learning (Batsche et al., 2005). In the RtI model, professionals assess a student's academic progress by evaluating his or her score on the previous year's high stakes test, and choosing the criteria accordingly, or they may test an entire grade and choose the criteria based on students' collective performance. Students' progress is

systematically monitored during intervention, and depending on their performance, they can be moved to Tier-2 interventions. Students who increase their academic skills are said to respond to intervention and they may be reintegrated to Tier-1; students who show limited improvement despite having received high-quality, well-designed, and empirically validated instruction are provided with more intensive instruction (Linan-Thompson, Vaughn, Prater, & Cirino, 2006). If, after this period of intensified instruction, students still show very little progress and perform below a predetermined benchmark, they are identified as at-risk to develop academic deficiencies in the later grades and are likely to be eligible for special education services (Fuchs & Fuchs, 2006).

Researchers have listed several advantages of using the RtI approach with students who have learning difficulties. The RtI model not only increases the academic achievement of all students, it also provides early intervention to struggling students. Through systematic screening of all students in the early grades, RtI provides immediate intervention to students who are at risk of academic failure, meaning students are not required to fail before receiving high-quality instruction (Pierangelo & Giuliani, 2008). In addition, RtI improves the LD identification procedure and has the potential to reduce the number of students referred to special education and related services (Case, Speece, & Malloy, 2003; Pierangelo & Giuliani, 2008). Students who require only a minimal amount of help are returned to the regular academic environment, and special education resources are reserved for those that really need them.

A Multi-tiered Service Delivery Model
RtI is called a "multi-tiered model" because of the movement of the student across different tiers of intervention (Kratochwill, Volpiansky, Clements, & Ball, 2007). Each tier represents increasingly intense educational services designed according to the needs of the students. Tiered instruction provides a systematic procedure for providing supplemental services to students struggling in schools (Linan-Thompson, Vaughn, Prater, & Cirino, 2006). Researchers have developed several versions of RtI models that have differing numbers of tiers. The debate among researchers and educators on the number of tiers that should constitute an RtI model is ongoing. Some researchers describe three-tiered RtI models (e.g. Fuchs & Fuchs, 2007), while others present four-tiered models (e.g., Klingner & Edwards, 2006). The following is a description of a three-tiered model proposed by Johnson and colleagues (2006).

In this model, Tier-1 is the least-intensive level of service delivery and is comprised of evidence–based instruction that all students experience in general education classrooms. Evidence-based instruction refers to instruction that has empirical evidence supporting the effectiveness of the intervention being used (Brown-Chidsey & Steege, 2005). General education teachers utilize evidence-based interventions and high-quality instruction in reading, math and in other academic subjects. Tier-1 is a crucial step in any RtI model because it serves as a *gate* to other related services. Students who need additional educational services beyond those provided in Tier-1 are identified and proceed to Tier-2 instruction.

Tier-2 is comprised of students who present insufficient academic skills during Tier-1. In Tier-2, students receive specialized interventions in addition to general education instruction. These specialized interventions occur 3 or 4 times per week for 9 to 12 weeks, and each session lasts 30 to 60 minutes. Trained personnel instruct small groups of 2 to 4 students. After 9 to 12 weeks, students who make progress return to Tier-1 instruction. If students do not show adequate progress, they either remain in Tier-2 for another 9 to 12 weeks, or they are directed to Tier-3 to receive more intensive instruction (Johnson et al., 2006).

Tier-3 interventions are the most intensive level of service delivery and are provided to students who did not respond to Tier-1 and Tier-2 interventions. Tier-3 is also known as the entry to special education. Tier-3 instruction is conducted by special education teachers and lasts longer than Tier-1 and Tier-2. Interventions in Tier-3 are highly individualized with small groups of no more than three students. Most of the students who do not respond to Tier-3 interventions participate in special education programs at the end of the phase.

Core Principles of RtI
Effective RtI models have several core principles: universal screening, high-quality classroom instruction, evidence-based instruction, progress monitoring, and fidelity of implementation. Universal screening is a principle that is used in RtI models to identify which students need additional support and closer attention (Mellard & Johnson, 2008). The efficacy of universal screening relies on the principle of high-quality classroom instruction. In the RtI model, students should receive high quality-instruction in their general education classrooms before they are provided with more intensive instruction. By providing high-quality instruction, schools can prevent underachievement due to poor instruction, and insure that under-performing students identified through universal screening are actually in need of intervention. Another important principle is providing evidence-based instruction. In the RtI model, it is assumed that students are provided with evidence-based instruction prior to engaging in RtI. Another core concept is progress monitoring (Johnson et al., 2006). Progress monitoring is used to make decisions about the intensity of intervention, to evaluate if the student is benefiting from the instructional program, and to estimate the projected level of student achievement upon conclusion of instruction (Mellard & Johnson, 2008). Fidelity of implementation is also a crucial principle in single subject research. Fidelity of implementation is defined as the delivery of instruction in the way the instruction was designed to be delivered (Gresham, MacMillan, Boebe-Frankenberger, & Bocian, 2000). If the instruction is not implemented in a manner consistent with the research phase, the observed effects of the instruction on student achievement may differ from the expected outcome; this could lead to the abandonment of effective instructional methods, and could also mislead future research.

It is important to note that, although several of the aforementioned core principles are commonly cited in RtI literature, there is much inconsistency among researchers in the field. For example, Barnes and Harlacher (2008) reported that the core principles of RtI

models are multiple tiers, assessment system, protocol, and evidence-based instruction, yet Pierangelo and Giuliani (2008) refer instead to the use of all available resources to teach all students, research-based interventions, monitoring classroom performance, conducting universal screening, using multi-model service delivery, making data-based decisions, and monitoring progress frequently. A consistent vocabulary and agreement about the core principles of the RtI model would benefit future research by facilitating dialogue among researchers and making the most effective model available to schools. The lack of consistency may have a negative impact on the success of the RtI model in schools because decision-makers are forced to draw their own conclusions from conflicting research, which effects how quickly and efficiently programs can be implemented. To this end, it is important to examine the correlations that exist between certain core principles and an RtI program's relative success or failure.

Models of RTI
There are three RtI approaches schools can use when determining what level of intervention and resources a student requires: (a) problem-solving model, (b) standard treatment protocol, or (c) mixed model (Feiker, 2007). The elements of RtI are applied similarly in both the problem-solving model and the standard treatment protocol. Although there is considerable research on both methods, a great number of studies focused on reading skills have examined the effects of standard treatment protocol within the RtI framework (Glover & DiPerna, 2007). This may explain why researchers generally prefer to use standard treatment protocols, whereas practitioners prefer to use the problem-solving approach (Fuchs & Fuchs, 2006). Following is an in-depth description of both of these models.

In the problem-solving model, a team of professionals identifies interventions that target a student's individual needs. Universal screening is used to identify students who have academic problems. In Tier-1, all students receive high-quality instruction. Progress monitoring is used continuously to assess underachieving students' performances. Students who do not progress adequately in Tier-1 are re-evaluated by a team of professionals in Tier-2, where they receive additional support and more intensive instruction. The team of professionals, which usually consists of the classroom teacher and the school's designated assistance personnel, determines the extent of the student's academic problems, examines their causes, and then designs, implements, and evaluates the intervention plan (Fuchs & Fuchs, 2006). The team uses a variety of interventions based on the needs of the student. In addition to being highly individual, the interventions are more flexible, as they are modified according to the dictates of continuous progress monitoring. In Tier-3, students who still show insufficient progress receive more intensive intervention.

In the standard treatment protocol, interventions for all struggling learners are standardized (Barnes & Harlacher, 2008). In Tier-1, the students are provided with high-quality instruction and evidence-based interventions. If the students are unresponsive to Tier-1 instruction, they are moved to a more intensive, Tier-2 instruction. If the students' progress is still not adequate, they may receive more intensive services. Some students

may qualify for special education depending on the state's or district's policies (Fuchs & Fuchs, 2006).

The mixed model utilizes both the problem-solving model and standard treatment protocol. The high standards of accountability inherent in the problem-solving model are combined with standardized interventions (Feiker, 2007). Research shows that all of these RtI models have both advantages and limitations. For instance, the standard treatment protocol provides greater control, whereas the problem-solving model is more sensitive to individual differences (Fuchs, Mock, Morgan, & Young, 2003).

LD Identification and RtI
The Individuals with Disabilities Education Improvement Act (IDEA, 2004) is one of the major steps toward overcoming identification and early intervention problems. According to IDEA "a local educational agency (LEA) may use a process that determines if the child responds to scientific, research-based intervention as a part of the evaluation procedures" [§ 614 (b) (6) (A-B, IDEA 2004)]. Although the law does not explicitly require the use of RtI for the purpose of LD identification, states do not have to continue the use of IQ-achievement discrepancy formulas. Previously, students with LD were identified by using IQ-achievement discrepancy model. The IQ-discrepancy model states that a student can be diagnosed with LD by a discrepancy between an achievement score and intelligence score. Many researchers now argue that the IQ-discrepancy model has not been successful in correctly identifying students with LD. Fuchs and colleagues (2003), for example, argue that students who are identified by the IQ-achievement discrepancy model as having LD and students who do not classify as having LD perform similarly on formal reading tests. In another study, Aaron (1997) demonstrated that both students with and without LD improve their reading skills when a reading problem is clearly identified and explicit instructions are provided.

Using the RTI model of LD identification can increase the likelihood that students identified as LD truly have additional academic needs. In special education, a great number of students - especially minority students - are identified as LD even though they do not manifest any characteristics of LD. Since the diagnosis of high-incidence disabilities includes subjectivity, misdiagnosis and disproportionate representation occur more often in these categories than in the low incidence categories (Blanchett, 2006). The RtI model can reduce the bias in referral and identification process for students with LD by utilizing systematic, school-level screening (Vaughn & Fuchs, 2005).

Second, in the IQ-discrepancy model, students do not receive supplemental services until they are identified as LD; consequently, they typically deal with reading problems until the end of second or the beginning of third grade (Bradley, Danielson, & Doolittle, 2007). This identification model is also referred to as the "wait-to-fail" model and is problematic for several reasons (Gresham, 2005). For instance, research has shown that if students begin school as poor readers and do not receive adequate educational services, they are likely to remain poor readers or make very little progress in their reading skills as school progresses (Stanovich, 1986). Furthermore, students who have

not developed good reading skills by second grade are not likely to gain access to available services later that can facilitate their improvement. RtI can be classified as a preventative model because most of the RtI applications are introduced to students in the early stages of school (Justice, 2006). Schools can help students to improve their academic skills before it is too late.

In recent years, there has been an increasing amount of research on the relationship between RtI and reading difficulties (Gettinger & Stoiber, 2007; Glover & DiPerna, 2007; Vellutino, Scanlon, Small, & Fanuele, 2006). Reading is an essential skill for academic success (Calhoon, 2005) and it is in this area that most students with LD are struggling. More than 80% of students identified with LD have a primary deficit in the area of reading (Wagner, Cameto, & Newman, 2003). Considering the number of students with LD who present reading difficulties, and the importance of reading skills to academic success, it is not surprising those researchers who are concerned with academic improvement focus on students with reading disabilities.

However, a large body of the previously mentioned studies fails to consider the fact that having poor reading skills is not the only characteristic of students with learning difficulties. For example, many students manifest severe deficiencies in math. Fuchs, Fuchs, and Prentice (2004) reported that 4% to 7% of school age children present difficulties in math. Given the difficulties experienced in math by many students with LD, it is important to develop effective strategies for helping these students. However, disproportionate attention has been paid to problems with reading, and research on the effectiveness of RtI on other academic skills -including math - is very scarce. This raises several questions about the use of RtI as an LD identification procedure: Is RtI a model for identifying reading disabilities or LD? Are reading disabilities and LD equivalent? If so, how can students with poor math skills be identified? Is RtI effective in other academic areas? If yes, under what circumstances? If the debate is to move forward, we need a better understanding of the implementation of the RtI model in other academic subjects, because deficient reading skills may not be the single indicator for LD (Scruggs & Mastropieri, 2002), and equating LD and reading disabilities may cause more severe problems in the identification of LD.

RtI and Other Student Populations
While RtI has been utilized primarily to determine LD, it may also be an effective method for identifying students with emotional and behavioral disorders (EBD). The main problem with the identification of students with EBD is that the current identification procedure has a high degree of subjectivity (Gresham, 2005). The current practices for identifying students with EBD are based on the refer-test-place model, in which students are not exposed to systematic empirically based interventions and early intervention is not provided. Early intervention is as crucial for students with EBD as it is for those with LD, because if the antisocial behaviors characteristic of EBD are not recognized and treated by the third grade, these behaviors will remain through later grades (Walker, Colvin, & Ramsey, 1995). Although evidence on the effectiveness of RtI on social behavior is limited, schools have utilized several behavior support

approaches. Researchers have proposed a three-tier model of behavior support to prevent and remedy problem behavior. The three-tier model of behavior support is similar to the three-tier model of academic support. In Tier-1, a school-wide discipline plan is implemented. Students who do not respond to Tier-1 interventions are moved to Tier-2. In Tier-2, professionals provide students with various support plans and additional feedback on their behavior. In Tier-3, students receive more intensive behavior modification (Fairbanks, Guardino, & Lathrop, 2007).

To implement RtI model for identification of students with EBD, schools may need additional resources, funding, and well-trained professionals (Hawken, Vincent, & Schumann, 2008). Since application of RtI to both academic and social behavior is an emerging approach, teachers need adequate knowledge and support to design and utilize evidence-based interventions and continuously monitor students' progress (Kratochwill et al., 2007). When a teacher does not implement an intervention with fidelity, the intervention may not result in positive outcomes. As a consequence, a student can be identified as a nonresponder due to the teacher's lack of required skills to implement the intervention. Therefore, professional development is a key for successful implementation of RtI model.

RtI model also has the potential to improve the identification of English language learning (ELLs) students by using evidence-based interventions based on student needs. Current approaches to identification have resulted in a disproportionate representation of minority students in special education. For instance, many ethnic minorities are learning English as their second language, and their language difficulties are often mistaken with LD (Ortiz, 1997). With the implementation of an RtI model, the rates at which minority students' are inappropriately referred for special education can be reduced. For instance, Healy, Vanderwood, and Edelston (2005) applied a three-tier prevention model to their examination of 15 first grade low-performing ELL students to determine whether at-risk ELL students can benefit from a phonological awareness intervention delivered in English. The intervention was delivered entirely in English to small groups with no more than five students per group. Graduate students administered the intervention twice per week for 30 minutes per session. After 12 sessions, those students who were able to produce 45 correctly segmented sounds on phoneme segmentation fluency (PSF) task, and 50 correct letter sounds on nonsense word fluency (NWF) task exited the program. Six of the 15 participants passed the criteria and nine students continued until 25th session. Results of this study indicated that 12 of the 15 students met their goals on PSF and NWF. The authors also reported that according to the RtI approach, the participants in the study do not have a disability and would not be eligible for supplemental services.

Although research shows that RtI has the potential to improve the identification of students with reading difficulties, difficulties arise when an attempt is made to implement RtI with ELL students that have reading difficulties. Implementing evidence-based interventions is crucial to prevent misidentification. However, the key problem with this explanation is that there exist a limited number of evidence based-reading interventions that are effective for students with reading difficulties (Wanzek & Vaughn,

2007). Although limited, existing reading interventions have demonstrated to be effective, but one must question whether these interventions are as effective for increasing the reading achievement of students from diverse backgrounds. Does one size fit all? For instance, if Intervention A is found to work better than Intervention B, can researchers assume that the findings can be generalized to students from culturally and linguistically diverse backgrounds? As Klingner and Edwards (2006) stated, researchers need to continue investigating what really works for all students, including students from culturally and linguistically diverse backgrounds. Furthermore, all educators should engage in culturally responsive pedagogy in order to plan interventions that account for a student's cultural background and language proficiency. Until educators have the support and education they need, RtI models cannot be as effective as planned.

Summary and Conclusion

One of the most significant concerns in the special education field is the increasing number of students with LD. In the last decade, many researchers in special education and other related fields have studied the implications of the RtI model for increasing academic achievement of all students and improving the LD identification process. In fact, a few of the field's most prominent journals, such as Learning Disabilities Research and Practice, and the Journal of Learning Disabilities, have devoted special issues to the discussion about the utility and applications of RtI. Although RtI is in the early stages of development, it can be a valuable model for improving the educational outcomes of many struggling students in today's schools. RtI provides a systematic way to evaluate whether the instruction being provided to students is useful and effective, therefore increasing the likelihood that all students can be successful. Moreover, it offers great promise for increasing the quality of the LD identification process. Research on RtI demonstrates that RtI enables schools to provide high-quality instruction to all students and addresses many of the shortcomings that complicate identification of students with LD. The hope of many professionals is that early identification and evidence-based interventions increase the possibility of identifying reading deficiencies promptly so that students do not have to wait to qualify for special education services (Haager, 2007). A well-designed RtI model can assist schools in identifying the right students at the right time to ensure successful school outcomes for all students.

Although RtI may improve the quality of the identification procedure used for students with LD, there are many areas that require additional attention from researchers. For instance, researchers need to investigate the effectiveness of RtI in other academic areas in addition to reading during early years of schooling, and focus more research on early childhood while considering other areas of development. Furthermore, more research is required before the association between RtI and the identification of students with EBD can be more clearly understood. In addition, the following questions need to be addressed: What is the long-term impact of RtI on students with and without disabilities? Does RtI effectively identify difficulties in other content areas such as math, science, and social science? Is RtI as effective with students in middle and high schools? By concentrating on these issues, professionals and researchers can insure that RtI models can be implemented more successfully, that identification problems can be solved to a

significant degree, and that special education services can be reserved for students who truly need additional support. If researchers do not spent additional effort to address these crucial questions, as Klingner and Edwards (2006) stated, "RtI models will simply be like old wine in a new bottle."

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Müdahaleye Yanıt Verme: Öğrenme Güçlüğü Olan Çocukları Erken Tanılama

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Öz

Son 30 yılda öğrenme güçlü tanısı alan çocukların sayısı giderek artmaktadır. Bu öğrenciler özellikle Amerika Birleşik Devletlerindeki özel gereksinimli öğrenci tanısı alan tüm öğrencilerin yarıdan fazlasını oluşturmaktadır. Artan bu sayıyla beraber, bu öğrencilerin erken yaşlarda tanılanmasına yönelik tartışmalarda giderek artmaktadır. Öğrenme güçlüğü olan öğrencileri erken tanılamada kullanılan bir model de müdahaleye yanıt verme yöntemidir. Bu makalede, öğrenme güçlüğü olan öğrencilerin erken tanılanmasında müdahaleye yanıt verme yöntemi tanıtılacaktır. Öncelikle, müdahaleye yanıt verme yöntemi genel olarak tanıtılacaktır, bu süreçteki en yaygın modeller de paylaşılacaktır. Devamında, müdahaleye yanıt verme yönteminin kullanımı tanıtılacaktır. Bununla birlikte, farklı öğrenci türleri için müdahaleye yanıt verme yönteminin diğer yaklaşımları tanıtılacaktır. Son olarak, özel eğitim alanında müdahaleye yanıt verme yönteminin kullanımına yönelik öneriler sunulacaktır.

Anahtar Kelimeler: Müdahaleye yanıt verme, öğrenme güçlüğü, erken tanılama, okuma.

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