RESPONSE TO INTERVENTION

Stephanie Al Otaiba, PhD
Professor of Teaching and Learning Simmons Endowed Chair
Simmons School of Education Southern Methodist University
Dallas, Texas, USA

Jeanne Wanzek, PhD
Associate Professor, School of Teacher Education
Florida Center for Reading Research
Psychology C234U Florida State University

Paul Yovanoff, PhD
Professor of Teaching and Learning
Simmons School of Education Southern Methodist University
Dallas, Texas, USA

Abstract

The purpose of this interdisciplinary paper is to describe Response to Intervention (RTI), or multi-tier systems of support, for early literacy to improve reading outcomes for students with or at risk for reading disability. First we review the current US policy on RTI for the purpose of early literacy intervention and for identification of reading disabilities. We situate this within recent efforts in developing countries supported by the World Bank and the Early Grade Reading Assessments. Then, we highlight a large experimental study we conducted with first graders and provide findings from a third grade follow up. We conclude with implications for research, practice, and policy.

Keywords: Early literacy intervention, assessment, response to intervention, educational policy

Introduction and Main Text

Over a decade ago in the US, the amendments to the Individuals with Disabilities Education Act (2004) allowed states to use RTI both for prevention and for identification of learning disabilities. The amendments stemmed from concern among researchers, policy makers, practitioners, and parents that the IQ-Achievement discrepancy based formulas used to identify students with reading disabilities had become a "wait to fail" model (Fuchs & Fuchs, 1998; Vellutino et al., 1996). One concern was that students were

typically not eligible for reading interventions until they were about 10 years old, which was problematic given converging evidence indicating that preventing disability is easier and more efficient than remediating (e.g., Torgesen, 2000). Another concern was the over- and under-identification identification of reading disabilities for students from minority backgrounds, for students attending schools serving a high proportion of students from low socio-economic backgrounds, and for students with Limited English Proficiency (e.g., Hosp and Reschly, 2004). Furthermore, the IQ-Acheivement tests did not provide teachers with help planning interventions or guide progress monitoring (e.g., Fletcher, Francis, Shaywitz, Lyon, Foorman, Stuebing et al., 1998).

The field was optimistic that children would be better served through RTI given converging findings (cf. National Institute of Child Health and Human Development, 2000) that early reading instruction interventions which provided phonological and phonetic instruction could prevent most reading problems and that those students who did not respond to generally effective intervention would have "true reading disabilities" (Vaughn, Moody, & Schumm, 1998; Vellutino et al., 1996). Under RTI, evidence based instruction would occur in Tier 1 or general education settings along with screening and progress monitoring. Students who did not respond would be immediately given extra layers of increasingly intensive intervention beginning in Tier 2, and for those very few students who did not respond, in more intensive Tier 3.

RTI models are in use in all 50 of the United States for prevention, but policy guidelines for how to use RTI to identify students as reading disabled are lacking (Zirkel & Thomas, 2010). The Institute of Education Sciences authorized a review of the literature on RTI and subsequently published a practice guide for RTI that identified five core components for the effective implementation of RTI (Gersten et al., 2009). These include universal screening, a high quality core reading program, progress monitoring, increasingly intensive tiers of intervention, and fidelity of implementation. Furthermore, the World Bank has supported development of   Early   Grade   Reading   Assessments (http://www.ineesite.org/uploads/files/resources/EGRA_Toolkit_Mar09.pdf) that can be used to screen and progress monitor students in an effort to iteratively improve reading outcomes, particularly for children living in developing countries.

There remains ongoing concern about the limits of the current evidence base to guide RTI implementation. This concern led us to conduct a randomized control trial comparing two models of RTI: the typical model which requires students to begin in Tier 1 and move through increasing lay or to immediately be placed in Tier 2 or Tier 3 based on initial screening and

subsequent progress monitoring. We called this later model "Dynamic." We were also interested in describing the characteristics of students who did not respond to either model and in examining longer term (third grade) reading outcomes.

Study 1: Effects of First Grade RTI

We conducted a randomized controlled experiment to compare the efficacy of two Response to Intervention (RTI) models – Typical RTI and Dynamic RTI (Al Otaiba et al., 2014). This study involved 10 schools and 34 first-grade classrooms ($n = 522$ students). Dynamic RTI provided Tier 2 or Tier 3 interventions immediately according to students' initial screening results.Typical RTI was designed to follow the two-stage RTI decision rules that begin with Tier 1 and provide more intensive intervention based upon response to Tier 1. Interventions included phonics, phonological awareness, fluency, and comprehension and were identical across conditions except for when intervention began. Reading assessments included letter-sound, word, and passage reading, and teacher-reported severity of reading difficulties. The intent-to-treat analysis used multi-level modeling and revealed an overall effect favoring the Dynamic RTI condition ($d = .36$). In addition, growth curve analyses demonstrated that students in Dynamic RTI showed an immediate score advantage, and that the effects accumulated across the year. Furthermore, the analyses of standard score outcomes confirmed that students in the Dynamic condition who received Tier 2 and Tier 3 ended the study with significantly higher reading performance than students in the Typical condition.

Study 2: Characteristics of Students Who Did Not Respond Adequately

Greulich et al. (2014) used a mixed methods approach to describe the characteristics of children who did not resond adequately (defined as not meeting a reading standard score of at least 90) to either Typical or to Dynamic RTI. In this study, participants were limited to the 156 students who received supplemental intervention services within the larger study. An all-subset regression revealed that among students' intial skills, the most variance in response was explained by letter word reading, the fluency composite, and blending words. Adding additional teacher ratings of behavior and academics, accounted for a small amount of additional variance. A ROC curve analysis indicated 87.5% of students were correctly classified, yielding a sensitivity of 85.3 and a specificity of 65.0. Findings from qualitative observations of intervention sessions suggested that inadequate responders demonstrated physical and verbal task avoidance and displayed emotions of hopelessness and shame.

Study 3: Third Grade Follow-Up

The purpose of this study was to compare the long term effects of two first grade RTI models (Dynamic and Typical RTI) on the reading performance of students in second and third grade. After attrition from the origional 522 participants, we located 352 in second grade and 278 in third grade. First we considered whether at the start of first grade students had been at risk and needing either Tier 2 or Tier 3 or as never at risk (NR). Then, we considered those at risk students who received intervention as easy to remediate (ER) or as requiring sustained remediation (SR). Students in the Dynamic RTI condition had higher reading comprehension scores at the end of third grade. At the end of second grade, ER and SR students had lower reading scores than NR students. At the end of third grade, the ER students perfromed similarly in reading as the NR students; thus we closed the gap for this group. However, the SR students continued to have significantly lower scores than NR students. ER students in the Dynamic RTI condition had higher reading scores at the end of second grade than those in the Typical RTI condition.

Conclusion and Implications for Research, Practice, and Policy

As RTI efforts continue to spread within the US and globaly, it is vital that students with the most intensive needs receive the help they need and not wait to fail. Researchers should continue to develop more intensive interventions, to learn whether multiple years of intervention lead to accumulating effects, and to track students longitudinally. In addition, learning which set of screening and progress monitoring tests lead to the best allocation of resources will be vital. Policy makers should ensure that special education remains "special" to protect resources to ensure that students with reading disabilities receive sustained intervention.

References:
Al Otaiba, S., Connor, C. M., Folsom, J. S., Wanzek, J., Greulich, L., Schatschneider, C., Wagner, R. K. (2014). To wait in tier 1 or intervene immediately: A randomized experiment examining first grade response to intervention (RTI) in reading. *Exceptional Children, 81* (1) 11-27. DOI: 10.1177/0014402914532234.
Al Otaiba, S., Kim, Y.S., Wanzek, J., Petscher, Y., & Wagner, R. K. (2014). Effects of two models of first grade multi-tier intervention: Examining second and third grade outcomes and comparing outcomes based on first grade response status. *Journal of Research on Educational Effectiveness, 7* (3), 250-267. DOI 10.1080/19345747.2014.906692
Fletcher, J., Francis, D., Shaywitz, S., Lyon, G. Foorman, B.. Stuebing, K. et al. (1998). Intelligent testing and the discrepancy model for children with

learning disabilities. *Learning Disabilities Research & Practice, 13,* 186–203.

Fuchs, L. S., & Fuchs, D. (1998). Treatment validity: A unifying concept for reconceptualizing the identification of learning disabilities. *Learning Disabilities Research & Practice*, *13*(4), 204-19.

Gersten, R., Compton, D., Connor, C.M., Dimino, J., Santoro, L., Linan-Thompson, S., and Tilly, W.D. (2008). *Assisting students struggling with reading: Response to Intervention and multi-tier intervention for reading in the primary grades. A practice guide.* (NCEE 2009-4045). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Retrieved from http://ies.ed.gov/ncee/wwc/publications/practiceguides/.

Greulich, L. Al Otaiba, S., Schatschneider,C., Wanzek, J., Ortiz, M., & Wagner, R.K. (2014). Understanding inadequate response to first grade multi-tier intervention: Nomothetic and idiographic perspectives. *Learning Disability Quarterly*, 37, 204-217. Doi:10.1177/0731948714526999

Hosp, J. L., & Reschly, D. J. (2004). Disproportionate representation of minority students in special education: Academic, economic, and demographic predictors. *Exceptional Children*, 70, 185–200.

Individuals with Disabilities Act of 2004, Public Law 108-446, 118 Stat. 2647 (2004)

National Institute of Child Health and Human Development. (2000). *Report of the National Reading Panel. Teaching children to read: an evidence-based assessment of the scientific research literature on reading and its implications for reading instruction: Reports of the subgroups* (NIH Pub. No. 00-4754).Washington, DC: U.S. Government Printing Office. Retrieved from http://www.nichd.nih.gov/publications/nrp/upload/report.

Torgesen, J. K. (2000). Individual differences in response to early interventions in reading: The lingering problem of treatment resisters. *Learning Disabilities Research & Practice*, *15*(1), 55-64.

Vaughn, S., Moody, S.W., & Schumm, J.S. (1998). Broken promises: Reading instruction in the resource room. *Exceptional Children, 64*, 211-225.

Vellutino, F. R., Scanlon, D. M., Sipay, E. R., Small, S. G., Pratt, A., Chen, R., & Denckla, M. B. (1996). Cognitive profiles of difficult to remediate and readily remediated poor readers: Early intervention as a vehicle for distinguishing between cognitive and experiential deficits as basic causes of specific reading disability. *Journal of Educational Psychology, 88*(4), 601–638.

Zirkel, P. A., & Thomas, L. B. (2010). State laws and guidelines for implementing RTI. *Teaching Exceptional Children*, *43*(1), 60-73.