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Provides Valuable Information Regarding
Response-to-Intervention Approaches to
Support Early and Sustained Success for All Students

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This volume of The California School Psychologist provides valuable information regarding “response-to-intervention” (RTI) approaches with an emphasis on supporting early and sustained success for all students. These articles provide information for school psychologists and other professionals working in the schools, and also contributes to the literature and scholarship that aims to promote the educational success of students. Previous articles published in The California School Psychologist, including those in the recent volumes addressing (a) school engagement and (b) strength-based assessment are available on-line at www.education.ucsb.edu/school-psychology.

This volume includes the special topic section on Response-to-Interventions Approaches to Support Early and Sustained Success for All Students. The Center for School-Based Youth Development at the University of California, Santa Barbara (UCSB) is sponsoring this special section of The California School Psychologist. Resources for this initiative were made possible through a Gevirtz Graduate School of Education – Funds for Excellence Grant from Ambassador Don and Marilyn Gevirtz. It is the mission of the UCSB Center for School-Based Youth Development to enhance school engagement for all students through strength-based assessment and targeted interventions designed to promote social and cognitive competence. This mission will be facilitated through research and development and by increasing the cadre of educators who are knowledgeable about and support a comprehensive and coordinated approach to student support services. Drs. Furlong, Jimerson, Morrison, and Cosden are the UCSB faculty collaborating to establish the Center for School-Based Youth Development. For additional information about the Center, you may visit their website at www.education.ucsb.edu/csbyd.

Promoting the educational success of students is the primary focus of educational professionals. Systemically identifying individual needs and providing appropriate interventions to address those needs is central to the task of enhancing student outcomes. For years, the Individuals with Disabilities Education Act (IDEA) provided guidelines for the identification of specific learning disabilities. The current special topic section is timely as the reauthorization of the Federal IDEA, referred to as the Individuals with Disabilities Education Improvement Act, (IDEIA), was signed into law in December 2004. Drafts of the federal regulations for implementing the IDEIA have recently only recently emerged. The excerpts below from the IDEIA highlight key changes regarding the assessment and identification of children with specific learning disabilities (portions underlined for emphasis).

**SPECIFIC LEARNING DISABILITIES - (IDEIA; 614, b, 6, A, B)**

(A) **IN GENERAL-** Notwithstanding section 607(b), when determining whether a child has a specific learning disability as defined in section 602, a local educational agency shall not be required to take into consideration whether a child has a severe discrepancy between achievement and intellectual ability in oral expression, listening comprehension, written expression, basic reading skill, reading comprehension, mathematical calculation, or mathematical reasoning.
This reauthorization modifies sections of the statute addressing the assessment and identification of learning disabilities and the concept of a pre-identification strategy called RTI. The topic of RTI has already emerged as an important topic among educational professionals and educational practices are already being modified. However, there is a paucity of resources that provide essential knowledge regarding the conceptual and empirical underpinnings of RTI and actual implementation.

The Response-to-Intervention (RTI) approaches for identifying learning disabilities is a topic that warrants substantial consideration and scrutiny, partially in relation to the reauthorization of IDEA. Perhaps more importantly, RTI approaches should also be examined as potential mechanisms to enhance our understanding of youth development, and promote school success. There are numerous valuable perspectives and research to be shared regarding optimal strategies for the identification of learning disabilities and the related topic of effective early interventions to promote learning. It is important that school psychologists better understand whether or not RTI processes inform intervention strategies to enhance developmental and educational outcomes, and how these processes have been implemented in various locations across the country. There are numerous implications for providing students with appropriate interventions to address both academic and behavioral needs. Promoting the social and cognitive competence of all students is essential to facilitate the academic success of students in schools. This volume of *The California School Psychologist* journal provides information addressing five broad areas of scholarship: (a) an overview of conceptual considerations regarding “Response-to-Intervention;” (b) a review of literature related to “Response-to-Intervention;” (c) empirical articles related to “Response-to-Intervention;” (d) application articles demonstrating the uses and implications of Response-to-Intervention processes for practitioners; and (e) an emphasis on incorporating this information into preparing future professionals.

This volume of *The California School Psychologist* offers eight articles that address important aspects of RTI, including: a review of RTI approaches that examines implementation questions, a series of articles that incorporate both conceptual and empirical information regarding the implementation of RTI, articles addressing the use of RTI approaches with preschool children and English language learners, a review of behavior monitoring tools that may be used in RTI, and an article highlighting the importance of consultation in implementing and sustaining RTI. Three additional articles that are included in this volume provide information regarding school readiness needs of Latino preschool students, the effects of crisis intervention work on school psychologists, and a study examining temperament differences among children manifesting behaviors characterized by conduct disorder and oppositional defiant disorder classifications. The following provides brief highlights from each article provide an overview of the topics addressed in this volume.

The first article (Burns & Ysseldyke, 2005) examines four contemporary large-scale RTI models Heartland Model (Iowa), Intervention-Based Assessment (Ohio), Instructional Support Teams (Pennsylvania), and the Problem-Solving Model in Minneapolis (Minnesota) Public Schools to identify and address several important questions regarding implementation. Important questions addressed in this article include: (a) Are there validated intervention models?; (b) Are there adequately trained personnel?; (c) What leadership is needed?; (d) When does due process protection begin?; and (e) Is RTI a defensible endpoint in the identification process? The authors highlight that in these examples, the RTI process led to positive outcomes for children with and without disabilities, and emphasize that all four
models were: (a) phased-in over time; (b) relied on extensive training for a multidisciplinary team; and (c) followed a protocol to develop data-based adaptations.

The second article (VanDerHeyden & Jimerson, 2005) emphasizes that although RTI is a more flexible service delivery model, it is essential to articulate how RTI can be effectively implemented and to examine whether it is functionally meaningful. The authors suggest that RTI models reveal substantial promise for screening and intervention service delivery, and will likely serve as a catalyst for system change to promote the educational success of children. This article offers a succinct review of probable advantages and possible challenges of implementing RTI and also provides an overview of data emerging from the Screening to Enhance Equitable Placement (STEEP) problem-solving model. The authors also highlight information from the California Association of School Psychologists (CASP) position paper that identifies critical constructs and principles that will be important to consider in implementing response to intervention models.

The third article (Christo, 2005) provides a conceptual overview of the key elements of a three-tiered Response-to-Intervention (RTI) model. The author discusses the three-tiered model as it would be implemented to promote the development of reading. This article includes information addressing: (a) the characteristics of interventions at each stage; (b) criteria for determining the delivery of services; and (c) the role of the school psychologist at each stage. In addition to noting key concerns regarding implementation of RTI models, the author concludes that RTI models are valuable approaches for designing intervention programs and that school psychologists have a key role to play in helping to design and implement such programs.

The fourth article (Hagans-Murillo, 2005) emphasizes the importance of establishing early literacy skills. The author suggests that a general RTI approach holds promise of preventing learning difficulties with preschoolers. This article examines potential benefits of implementing a RTI model in preschool settings as well as the feasibility of implementation, including: (a) current preschool assessment practices; (b) teacher preparation; and (c) program philosophical orientations. In contrast to the research supporting the effectiveness of systematic early literacy interventions in reducing pervasive reading problems, the author highlights that it is disconcerting that many preschool programs have not incorporated these findings into practice. Several important questions that remain are also highlighted, including: (a) the costs of implementation in relation to the benefits and (b) teachers’ acceptability of RTI procedures and outcomes.

The fifth article (Healy, Vanderwood, & Edelston, 2005) reports the results of a study addressing the very important topic of using a three-tier prevention model with first grade English Language Learner (ELL) students to promote reading success. This article reports the results of a study involving students in a large urban school district in California, where first grade students were screened with measures of phonological awareness and nonsense word fluency to determine those in need of a Tier two reading intervention. The lowest performing English language learner (ELL) students were selected and received a manualized phonological awareness intervention combined with a token economy. Using weekly monitoring to assess improvement of their reading skills, twelve of the fifteen students reached a proficient performance benchmark and were exited from the intervention and the remaining three students were referred for Tier three (intensive) intervention. The authors highlight the practical and scholarly limitations, further considerations, and implications of this study for school psychologists.

The sixth article (Bolt, 2005) highlights that there is currently insufficient research on outcomes associated with different RTI approaches to inform decision-making. Drawing upon practical experience as a school psychologist with the Heartland Area Education Agency in Iowa, this article ad-
addresses two aspects of the RTI approach: (a) intervention selection that is based on an individualized problem analysis; and (b) the identification of specific instructional needs as a part of the special education eligibility determination process. The author provides a discussion of how the Heartland Problem-Solving Model was applied to address the needs of a kindergarten student and also identifies limitations and challenges associated with the approach, and provides suggestions for future research and implementation of RTI models.

The seventh article (Riley-Tillman, Kalberer, & Chafouleas, 2005) provides a brief review for school-based professionals focusing on behavior problems – one that provides multiple options for assessment and monitoring procedures and outlines considerations for selecting among these options. The authors offer a brief review of how to choose a strategy to monitor behavior effectively, including: (a) permanent products; (b) behavior rating scales; (c) systematic direct observation; and (d) behavior report cards. The strengths and weaknesses of each method are discussed along six areas of consideration: goodness of fit, directness, generalization, feasibility, training, and intrusiveness. In addition, the methods are considered in relation to each stage of the intervention process. The authors highlight that in the case of behavioral progress monitoring, it is critical for the psychologist to consider both the technical aspects of the method as well as the implications of use.

The eighth article (Knotek, 2005) emphasizes that the successful and sustainable implementation of RTI models will necessitate a mechanism to support professional development, treatment fidelity, and the transportability of evidence-based interventions to the unique ecologies of individual school sites. This article discusses challenges related to the implementation of RTI models and suggests that the implementation of these models will require: (a) professional development; (b) adherence to protocols of evidence-based interventions; and (c) collaboration. The author presents a case for the use of consultee-centered consultation to sustain the implementation and dissemination of RTI models in schools. The article also provides a brief review of how one RTI model, Instructional Consultation, integrates consultee-centered consultation into its implementation and professional development procedures.

The ninth article (Pyle, Bates, Grief, & Furlong, 2005) presents the results of a study that investigated the contextual, social, language, and learning factors that influence the success of 112 Latino preschoolers transitioning to kindergarten. Analyses revealed that parents’ self-reported comfort with home-school collaboration was a stronger predictor of kindergarten success than the academic and social skills measured in this study. The authors highlight that school readiness is a product of the interactions between the child, family, and school personnel and that these relationships are important because of their continuing influence on children after they begin school.

The tenth article (Bolnik & Brock, 2005) explores the effects of crisis intervention work on school psychologists. A group of 200 randomly selected school psychologists provided the data used in this study. The results indicated that among those who who had previously participated in a crisis intervention, over 90% reported one or more of the specific negative reactions following crisis intervention work. Physical reactions and fatigue/exhaustion were among the most frequently reported reactions. The authors suggest that school psychologists develop a self-care plan tailored to his or her needs and resources, and that when it comes to coping with crisis intervention work “one size does not fit all.”

The eleventh article (Joyce & Oakland, 2005) presents the results of a study examining temperament-based learning style preferences of youth ages 8-17 years, using the Student Styles Questionnaire (SSQ). Participants were classified as either conduct disorder (CD; n = 40) or oppositional defiant disorder (ODD; n = 40). Four dimensions of learning style preferences based on temperament theory were examined (i.e., Extroverted-Introverted, Thinking-Feeling, Practical-Imaginative, and Or-
ganized-Flexible). Youths with ODD displayed a stronger preference for acquiring and assessing new information in Practical styles than did children with CD. Students with CD and ODD did not differ on strength or preference in the other three areas. The authors emphasize that including temperament qualities in assessment and intervention may be valuable information to enhance student adjustment.

This collection of articles provides a tremendous amount of information that may be used by educational professionals working with children, families, and colleagues to enhance the academic success and promote positive developmental trajectories of students. Clearly, the mass use of RTI approaches is on the horizon. Most practitioners and scholars would agree that this affords numerous opportunities and challenges. The authors of the manuscripts in this volume provide valuable information and insights that advances our understanding of RTI. A pervasive theme throughout these manuscripts was the need for further research to examine the implementation and outcomes associated with RTI approaches. In addition, the manuscripts addressing school readiness needs of Latino preschool students, the effects of crisis intervention work on school psychologists, and temperament differences among children manifesting behaviors characterized by conduct disorder and oppositional defiant disorder classifications, each contribute valuable knowledge that school psychologists may use to enhance the education of children. The California School Psychologist contributes important information regarding response to intervention approaches to support early and sustained success for all students.

REFERENCES

Comparison of Existing Responsiveness-To-Intervention Models to Identify and Answer Implementation Questions

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Responsiveness-to-intervention (RTI) is the front-running candidate to replace current practice in diagnosing learning disabilities, but researchers have identified several questions about implementation. Specific questions include: Are there validated intervention models? Are there adequately trained personnel? What leadership is needed? When does due process protection begin? and Is RTI a defensible endpoint in the identification process? These questions were addressed by examining four existing large-scale RTI models, Heartland Model (Iowa), Intervention-Based Assessment (Ohio), Instructional Support Teams (Pennsylvania), and the Problem-Solving Model in Minneapolis (Minnesota) Public Schools. The RTI process led to positive outcomes for children with and without disabilities, but all four models were phased-in over time, relied on extensive training for a multidisciplinary team, and followed a protocol to develop data-based adaptations. Clarification about team membership, leadership, and initiation of due process is still required. Additional questions about RTI were generated regarding students in secondary grades, parental involvement, and fidelity of implementing. Recommendations for implementation are included.

Key Words: RTI, Implementation, LD, Identification, Models

Why is there widespread consensus that the discrepancy model failed (Aaron, 1997; Fletcher et al., 1998)? Some argue that the discrepancy model is so inconsistently implemented that its validity in practice cannot be fully ascertained (Scruggs & Mastropieri, 2002). Others suggest that the discrepancy model is not the best assessment approach for learning disabilities (LD) and that superior models exist (Hale, Naglieri, Kaufman, & Kavale, 2004). Still others contend that the construct of LD is fundamentally flawed and will probably never be adequately conceptualized for differential identification purposes (Algozzine & Ysseldyke, 1982, 1983; Coles, 1998; Ysseldyke & Marston, 2000).

The discrepancy model was institutionalized in 1977 when it was used to operationalize LD in the initial federal regulations for the Education for All Handicapped Children Act (1975; renamed Individuals with Disabilities Education Act [IDEA] in 1990). Shortly thereafter, the Office of Special Education Programs (OSEP) in the U.S. Department of Education funded the Institute for Research on Learning Disabilities (IRLD) at the University of Minnesota to study LD diagnostic practices. Initial research from IRLD and other scholars quickly started to discredit the model, but the funding and subsequent research occurred after the model was enacted. Change in education is a slow and frustrating process (Ysseldyke, 2001); thus despite considerable criticism, the discrepancy model remained the prevailing LD diagnostic approach for approximately 30 years.

In August of 2001, OSEP conducted a two-day summit to discuss LD practice and future policy. Gresham (2001) presented a model that used a responsiveness-to-intervention (RTI) approach to diagnose LD in which children would be identified as LD only if problem behaviors did not significantly improve after implementing a validated intervention. Almost simultaneously, the President’s Commission on Excellence in Special Education (PCES, 2001) endorsed an RTI diagnostic approach for LD. RTI has since been endorsed by a number of professional associations, including the National Association of School Psychologists, and appears to be the most prominent alternative to the discrepancy model (Fuchs, Mock, Morgan, & Young, 2003).

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Using a lack of progress to determine special education eligibility is not a new concept (e.g., Fuchs & Fuchs, 1998; Vellutino et al., 1996), but a universally-accepted operational definition of RTI is yet to be determined. However, some points of consensus seem to exist including use of a multi-tiered approach to intervention (Marston, 2003) and the critical importance of directly assessing academic skills (Burns, Dean, & Klar, 2004; Fuchs, 2003; Gresham, 2001). Generally speaking, RTI involves the following five steps: students participate in effective general education instruction provided by their classroom teacher, progress is monitored, those students who do not respond to the effective instruction are given additional or different remediation, progress is again monitored, and those students who are not responsive to the more intense intervention are either qualified or evaluated for special education (Fuchs et al., 2003).

The recent reauthorization of IDEA (2004) explicitly stated that districts need not use a discrepancy model to diagnose LD and allowed for assessing response to scientifically-based interventions as a diagnostic tool. However, for RTI to avoid a similar fate as the discrepancy model, research is needed before RTI can be operationalized in federal and state regulations. Recently researchers have called attention to a number of unanswered questions about RTI and called for empirical investigation of these issues. Unanswered questions include: (a) To what criteria should a child’s progress be compared to judge responsiveness (Fuchs, 2003)? (b) What leadership is needed to insure that the practice of RTI is properly implemented (Fuchs et al., 2003)? (c) Are parents ready for a noncategorical approach to LD diagnosis and service (Fuchs et al., 2003)? (d) Are there validated intervention models and adequately trained personnel (Vaughn & Fuchs, 2003)? (e) When does due process protection begin (Vaughn, & Fuchs, 2003)? and (f) Is RTI a defensible endpoint in the identification process (Vaughn & Fuchs, 2003)?

Some of the identified questions about RTI are already being studied (e.g., demarcating unresponsiveness was examined by Fuchs, 2003), and others involving attitudes and beliefs will be difficult to answer before implementation (e.g., parents’ readiness for a noncategorical approach). However, some questions are relevant to implementation and need immediate inquiry. Fortunately, large-scale RTI models are already in place and may suggest answers to these implementation questions. Fuchs et al. (2003) identified four large-scale RTI models that are exemplars of wide-scale problem solving: the Heartland Agency Model in Iowa (Heartland, 2004; Ikeda, Tilly, Stumme, Volmer, & Allison, 1996), Ohio’s Intervention-Based Assessment (Tetzrow, McNamara, & Hollinger, 2000), Pennsylvania’s Instructional Support Team (IST; Kovaleski, Tucker, & Stevens, 1996), and Minneapolis (Minnesota) Public Schools’ Problem-Solving Model (PSM; Minneapolis Public Schools, 2001). All four models have been identified as examples of best practice for large-scale problem solving efforts (Barnett et al., 1999; Kovaleski, 2002; Marston & Magnusson, 1988; Tilly, 2002), and recent meta-analytic research found that the four models demonstrated large effects for improving student learning and systemic variables such as reducing the number of children referred to and placed into special education (Burns, Appleton, & Stiehouser, 2005).

In this paper we examine these four large-scale RTI models to address questions about RTI implementation. Specific questions investigated were: (a) Are there validated intervention models? (b) Are there adequately trained personnel? (c) What leadership is needed for success? (d) When does due process protection begin? and (e) Is RTI a defensible endpoint in the identification process? Consistencies between models suggested potential answers to these questions and inconsistencies suggested potential areas of research needed before effective RTI implementation could occur.
LARGE-SCALE RTI MODELS

Below are brief descriptions of the four models identified by Fuchs et al. (2003). Comprehensive descriptions exceed the scope of the current paper and readers are referred to specific references about each model and to Fuchs et al.

The Heartland Area Educational Agency 11, one of 15 AEAs, in Iowa, implemented a problem-solving model in 1985 in which school personnel were taught to move through a four-level process in the identification and remediation of student difficulties (Ikeda & Gustafson, 2002). At levels I and II, educational professionals consult first with the child’s parents (Level I) and then the building’s assistance team (Level II). Unsuccessful efforts after Level II lead to the involvement of Heartland Agency personnel (usually as teams) in an extended problem-solving process (Level III) that emphasizes problem analysis within the confines of general education. Finally, students who are not successful at Level III are considered for special education eligibility (Level IV). The Heartland Agency is currently transitioning to a three-tiered model, but the reformed tiers are not yet fully developed (Tilly, 2003).

The IST model began in Pennsylvania in 1990 and was phased into elementary buildings within all of the state’s 501 school districts over a five-year period (Kovaleski, Tucker, & Duffy, 1995). The model was implemented in an attempt to bridge special and general education programs by shifting the focus of special education from categorical services to effective instruction in general education (Kovaleski et al., 1996). The primary component of the IST model is the building instructional support teacher who is a specially trained teacher, without an assigned caseload, who works with classroom general education teachers to attain student goals (Kovaleski et al., 1995). This support is limited to 50 school days, after which the IST meets to discuss student progress and decide if a multidisciplinary evaluation is warranted. There are no formal phases or stages within IST, but three basic steps are followed (Pawlowski, 2001). First, an initial peer conference occurs between the referring teacher and a consulting member of the IST (e.g., school psychologist or school worker). Next, the teacher’s concerns are behaviorally defined and a formal meeting of the IST is held. Finally the IST develops interventions that are collaboratively implemented by the classroom teacher and the support teacher. IST was described as “the best-known statewide pre-referral intervention program in the nation” (Fuchs et al., 2003, p. 162), and in addition to Pennsylvania, was implemented on much smaller scales in Connecticut, Michigan, New York, and Virginia.

Ohio’s statewide Intervention-Based Assessment (IBA) project uses high-quality data, obtained by direct assessment in natural sessions, to design and evaluate interventions for referral problems (Barnett et al., 1999). Functional assessments and analyses are conducted by a multidisciplinary team (MDT) consisting of educational professionals and the child’s parents (Telzrow et al., 2000) using conjoint behavioral consultation. As with IST, there are no specific phases in IBA, but unlike IST there are no mandated timelines. However, at any time the MDT could suspect a disability and would then conduct an evaluation to determine if instructional methods necessary for success qualify as specially designed instruction, the child’s characteristics match the federal definition of one or more special education disabilities, and the condition would have an adverse effect on the child’s education without special education and related services (McNamara & Hollinger, 2003). IBA emphasizes early intervention by focusing on elementary- and preschool-aged children (Barnett et al., 1999).

Minneapolis Public Schools embarked on a reform effort in 1993 that would change the role of both special and general education personnel (Marston, Muyskens, Lau, & Canter, 2003). The PSM uses formative data to focus instruction and purportedly accommodates students in general education
There are three stages in the PSM that progress from teacher classroom interventions based on global screening data (Stage 1), to refined interventions and progress-monitoring strategies developed by a problem-solving team (Stage 2), and consideration of special education referral in Stage 3 (Marston et al., 2003).

RESEARCH QUESTIONS

Do we have validated intervention models and measures to assure instruction validity?

Vaughn and Fuchs (2003) raised the first question about RTI: Do empirically validated intervention and response strategies exist? As shown in Table 1, all four models use data-based decision making and frequent monitoring of progress. Heartland, IBA, and PSM use curriculum-based measurement (CBM) to measure student response to intervention, a measurement methodology described by Gresham (2001) as an essential component of RTI. IST uses curriculum-based assessment (CBA; Gravois & Gickling, 2002) to provide data useful for designing instructional adaptations within RTI as recommended by Burns et al. (2004). A comparison of these two assessment models would exceed the scope of the current article. Therefore, readers are encouraged to see comparisons of CBA and CBM in the literature (e.g., Burns, 2004; Burns, MacQuarrie, & Campbell, 1999; Shinn, Rosenfield, & Knutson, 1989) for additional information on how they compare and differ.

The current review did not find mention of specific instructional methodologies, but instead revealed a protocol that emphasized formative assessment, frequent progress monitoring, and informal assessments relevant to the curriculum (CBA and CBM). Research supported the instructional effectiveness of using CBM (Fuchs & Fuchs, 1986) and CBA (Burns, 2002; Shapiro, 1992; Shapiro & Ager, 1992) for various academic subjects, and the reliability and validity of both have been empirically supported (Burns 2004; Marston, 1989). In addition, using both CBA and CBM together provide an especially useful and effective assessment-to-intervention model (Burns, 2002; Shapiro, 2004).

Are there adequately trained personnel to implement an RTI model?

Implementing RTI on a national level would require a “very large number of appropriately trained personnel” (Vaughn & Fuchs, 2003, p. 144). This statement is both accurate and probably understated because for many, RTI represents a new paradigm (Reschly & Ysseldyke, 2002). Training appeared to be an important implementation component for all four models because each was implemented in phases that involved broad training, including general education teachers, and preparation of specific professionals. Phased-in implementation and training lasted four years in Ohio for 329 schools (Telzrow et al., 2000), five years in Pennsylvania’s 501 school districts (Kovaleski et al., 1995), and almost 10 years in Minneapolis’s approximately 100 school buildings (Marston et al., 2003).

Perhaps the point most consistently emphasized among the four models was use of a multidisciplinary collaborative team, but there was not a consensus as to what professionals should make up that team. The general education teacher was the only consistently mandated member of the team, and other team members included the special education teacher (IBA), school psychologist (IBA), instructional support teacher (IST), school counselor (Heartland, 2004), and principal (IBA and IST). Phase III of the Heartland model involves Heartland staff, which are usually school psychologists and masters-level special educators trained in behavioral problem solving (Fuchs et al., 2003). The PSM is unique in that each school can determine team membership based on school structure and needs of its students (Lau et al., 2005).
### Table 1: Five RTI Implementation Questions and How Each is Addressed by the Four Large Scale RTI Models

<table>
<thead>
<tr>
<th>Question</th>
<th>Heartland Agency (Iowa)</th>
<th>Intervention-Based Assessment (Ohio)</th>
<th>Instructional Support Team (Pennsylvania)</th>
<th>Minneapolis Public Schools Problem-Solving Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Validated Intervention Model?</td>
<td>Data-based instructional decision making with frequent monitoring of progress.</td>
<td>Data-based problem solving through functional analysis and measurement in both baseline and throughout intervention.</td>
<td>Uses curriculum-based assessment to assess and adapt instruction, and to monitor progress.</td>
<td>Data-based instructional decision making with frequent monitoring of progress and evaluation of instruction.</td>
</tr>
<tr>
<td></td>
<td>Requires collaboration within a multidisciplinary team.</td>
<td>Requires collaboration within a multidisciplinary team.</td>
<td>Requires collaboration within a multidisciplinary team.</td>
<td>Requires collaboration within a multidisciplinary team.</td>
</tr>
<tr>
<td></td>
<td>Required team members are general education teachers and counselors, and Heartland staff at Level III.</td>
<td>Required team members are principal, special education teacher, general education teacher, and school psychologist.</td>
<td>Required team members are principal, general education teacher, instructional support teacher, and others as needed.</td>
<td>Each school determines PSM team membership based on needs of students and school structure.</td>
</tr>
<tr>
<td>Necessary Leadership?</td>
<td>Site-based management.</td>
<td>Local control.</td>
<td>Principal is instructional leader.</td>
<td>Principal is instructional leader.</td>
</tr>
<tr>
<td>When should due process begin?</td>
<td>Four levels with fourth being consideration for special education.</td>
<td>Ongoing problem-solving until problem is solved or disability is suspected.</td>
<td>After 50 school days without adequate progress.</td>
<td>Three stages with the third being consideration for special education. Continuous teach-test-teach-test cycle.</td>
</tr>
<tr>
<td>Defensible Endpoint?</td>
<td>Fewer new special education placements, increased academic skills and number of passing scores on state proficiency test, and more intensive special education.</td>
<td>Fewer special education referrals and new placements.</td>
<td>Increased student time on task, task completion, and task comprehension, reduced special education referrals and placements, fewer grade retentions, and cost savings.</td>
<td>Fewer new special education placements, increased student academic skills and adaptive behavior, increased special education services, and earlier intervention.</td>
</tr>
</tbody>
</table>
What leadership will make RTI successful?

Fuchs et al. (2003) inquired about necessary leadership to make RTI successful. The Heartland model and IBA both emphasize local autonomy, but only IBA and IST require principal involvement and principal participation varies in Heartland (Ikeda & Gustafson, 2002). The PSM does not outline a clear administrative role except to say that principals should be the instructional leader who models PSM procedures and decision-making (Lau et al., 2005).

Leadership remains a question in need of additional research with several questions yet to be answered. For example, given that RTI is a convergence of general and special education, would district-level leadership come from special education (e.g., director of special education), general education (e.g., director of curriculum and instruction), or would this dichotomy become irrelevant? What role would building principals have and would they be given autonomy in administering RTI within their buildings? To which state-level department would RTI activities and results be reported? These are questions with important implications for implementation and need to be addressed before RTI can be put into practice on a national level.

Recently the University of Minnesota’s Center for Reading Research conducted a “Consortium for Responsible School Change in Literacy,” involving researchers from six universities and two major professional organizations, focused on leadership and instructional research. Members of the Consortium met for two days in November 2004 to share their research findings and identify the common requirements for successful school improvement in literacy. Table 2 is a list of two of the categories of findings as outlined by Taylor (2005). While the focus of the list is on literacy, it applies across multiple subject areas and suggests that leadership is needed at both the individual teacher and systemic level. Implementation of RTI models will likely require far more than tweaking existing assessment practices. It will require fundamental system change that, in turn, will require significant leadership. The need for leadership is not restricted to initial implementation of RTI, but is perhaps more important for sustaining RTI practices.

Table 2.
Leadership Components Necessary for Change

Support for Organizational Change
1. **Vision and Commitment.** Members of a school community must develop a shared vision and establish a long-term commitment to literacy improvement.
2. **Buy-In and Leadership.** A structure or model for a school improvement is essential, and most staff within a school must consciously select a particular school improvement model for it to be successfully implemented. Once a school has commitment, strong leadership is needed to keep the reform effort moving forward with success.
3. **Data-Driven Reform.** Use of data at the student, teacher, and school level is needed to promote change.
4. **Collaborative School Community.** To be successful with a school improvement effort, teachers and administrators must become a collaborative school community.

Support for Individual Change
1. **Professional Learning.** It is essential that teachers have the opportunity to engage in ongoing, focused, challenging, job-embedded professional learning.
2. **Change in Teaching.** Teachers’ professional learning must focus on reflection and change in thinking and in teaching.
When should due process begin?

Federal and state mandates limit the length of time between parental referral and completion of an evaluation plan. However, involvement in these RTI models is generally not limited to any timeframe and only IST has a time limit (50 school days of instructional support teacher involvement). PSM involves a “continuous test- teach-test-teach model” (Marston et al., 2003) that generally requires four to six weeks for Stage 1 and six to eight weeks for Stage 2 (Lau et al., 2005), but student response dictates least restrictive environment decisions and necessary timelines (Marston et al., 2003). Moreover, PSM and Heartland use non-categorical descriptors for special education disabilities (e.g., Student Needing Alternative Programming in PSM). IBA and IST are pre-referral models in which traditional eligibility assessments could occur, but data from the RTI process are considered in the evaluation. A traditional evaluation for special education could occur within all of the four models, but the evaluation is unlikely to include norm-referenced psychoeducational measures (e.g., IQ test) in Heartland or MPS (Reschly, 2003).

Clearly, due process protections would occur for children in Heartland’s Level IV and PSM’s Stage 3, but what if the levels or stages that precede the special education consideration exceed state mandates? Perhaps some due process consideration is needed earlier if the RTI model does not have mandated timelines. Alternatively, placing a timeline on the process might alleviate this issue to a degree; the effect of which would have to be researched.

Is inadequate response to instruction a defensible endpoint?

In order for RTI to be a defensible endpoint in the identification process the deficit responsible for the lack of responsiveness should be best described as LD and the program should be of sufficient value to warrant classification (Vaughn & Fuchs, 2003). As stated earlier, two of the programs used different terms besides LD, thus the best name for the deficit causing unresponsiveness is not obvious. The second point simply restated could be that positive student outcomes are needed for children classified as both responsive and unresponsive.

Fuchs et al. (2003) contended that there was “insufficient evidence of the effectiveness” (p. 166) for the four extant RTI approaches. However, data exist for each of these approaches and collectively support the effectiveness of the large-scale RTI models (Burns et al., 2005). Researchers found that RTI reduced referrals to and/or placements in special education (Kovaleski et al., 1995; Marston et al., 2003; McNamara, 1998; McNamara & Hollinger, 1998; Reschly & Starkweather, 1997; Rock & Zigmond, 2001; Sornson, Frost, & Burns, 2005; Tilly 2003), but the total number of students assisted through pre-referral and special education remained relatively stable (Kovaleski et al., 1995; Marston et al., 2003). This suggests that children are receiving sufficient support without being diagnosed with a disability. Schools that implemented Heartland or IST also saw more children demonstrating proficient skill levels on state accountability tests (Heartland, 2004; Sornson et al., 2005) and IST led to reduced numbers of student grade retentions (Kovaleski et al., 1995). Moreover, student participation in RTI led to increased student skills such as improved reading (Marston et al., 2003; Tilly 2003), improved adaptive behavior (Reschly & Starkweather, 1997), and increased time on task, task comprehension, and task completion (Kovaleski, Glickling, & Morrow, 1999).

Research suggested that children who successfully progressed through RTI (responsive to intervention) experienced positive outcomes, but these data are also necessary for those demarcated as unresponsive. The aforementioned schoolwide variables such as improved performance on state accountability tests and reduced grade retentions included both children who were responsive and those who were determined eligible for special education. In addition, participants in the Kovaleski et al.
(1999) study were 492 students referred to IST regardless of whether or not they were sufficiently responsive. Thus, these data also suggested that children identified as unresponsive and subsequently referred to or placed in special education also experienced positive outcomes such as increased academic skills. Moreover, special education within these four RTI models experienced increased services offered within special education, became more intense (Ikeda & Gustafson, 2002; Reschly & Starkweather, 1997), happened at earlier grades (Reschly & Starkweather, 1997), was more cost effective (Sornson et al., 2005), and directly linked resources with student needs (Tilly, 2003). Therefore, students diagnosed with a disability due to unresponsiveness also experienced positive outcomes, which suggested sufficient value to warrant the classification as unresponsive.

Given that RTI models resulted in fewer referrals to, and placements in, special education, school psychologists may be concerned about districts needing fewer psychologists. This was not the case in Minneapolis Public Schools. Despite decreased student enrollment the number of school psychologists employed in these schools almost doubled after PSM implementation (Lau et al., 2005). However, the school psychologist’s role was markedly different than that found in traditional special education models (Lau et al., 2005; Marston et al. 2003). Compared to national averages, these psychologists spent less time engaged in assessment activities, and more time in direct intervention and consultation. Moreover, these school psychologists reported higher job satisfaction than suggested by national surveys (Reschly, 2003).

ADDITIONAL QUESTIONS

Consistencies between the extant RTI models suggested answers to important implementation questions, but inconsistencies between them suggested additional questions. For example, the Heartland model is implemented in both elementary and secondary schools (Ikeda & Gustafson, 2002) and PSM is currently expanding into secondary grades (Marston et al., 2003), but IBA and IST are limited to elementary schools (Barnett et al., 1999; Kovaleski et al, 1995). Therefore, it is unclear how RTI would affect the lives of students attending high school and what implementation procedures are needed at the secondary level.

As stated earlier, IBA and Heartland require parental participation, but IST only suggests that teams attempt to include parents (Kovaleski et al., 1995) and PSM only requires parental notification (Lau et al., 2005). Longitudinal research found positive and direct links between academic achievement and parental involvement (Englund, Luckner, Whaley, & Egeland, 2004), but what that entails within RTI is yet to be determined.

Regardless of program model, RTI implementation fidelity is critical to intervention success. For example, students in schools that implemented IST with a higher level of fidelity experienced higher task completion, task comprehension, and time on task (Kovaleski et al., 1999). Fortunately, research has suggested that IBA can be implemented with consistency (Telzrow et al., 2000). Adequate implementation appeared to be a key obstacle to overcome for most prereferral models (Burns, Vanderwood, & Ruby, 2005), which could negatively affect student outcomes (Burns & Symington, 2002). However, none of the models included published procedures to assure implementation fidelity and as of yet, how fidelity of RTI implementation would be assessed in practice remains an unanswered question.

In addition to fidelity within the problem-solving model, the assessment of response to intervention requires that validated interventions occur with sufficient fidelity. In recent investigations, CBM systems were implemented to provide teachers with data needed to monitor student response to instruction and to make instructional adaptations (Ysseldyke, Bolt & Patterson, 2005; Ysseldyke, Thill,
A comparison between experimental and control groups suggested that there was no treatment effect. Subsequently, it was learned that teachers in both studies had not implemented the instruction with a large percentage of students in the experimental group. Elimination of those students from the analysis produced an opposite effect and, in fact, the treatments in both studies were actually effective. Thus, it is critical to always ascertain the extent to which treatments were implemented, and whether they were implemented as intended.

**RECOMMENDATIONS FOR RTI IMPLEMENTATION**

Large-scale RTI models resulted in positive student and systemic outcomes for children (Burns et al., 2005), but meta-analytic research on traditional special education models found negligible to small effects (Kavale & Forness, 1999). Therefore, identifying children as unresponsive within an RTI model appears to be a defensible endpoint in the identification process and positive outcomes warrant a move toward this approach, but only if professionals adhere to lessons learned from previous diagnostic models. Perhaps most important is the need for phased-in implementation and extensive training of both specialized and schoolwide personnel. Moreover, a multidisciplinary team should frequently measure the target skill/behavior in baseline and intervention phases, assess the match between student skill and curricular materials, and make data-based instructional adaptations. However, clarification about team membership, leadership, and initiation of due process is still required.

Standards for training and practice in school psychology call for data-driven decision making and accountability decisions (Ysseldyke et al., 1997). Suggestions outlined in this paper would require daily data-driven instructional decision making, but accountability is also needed regarding these changes in practice. Thus, it is imperative that school psychologists join with other educational professionals in documenting the extent to which RTI is effective in improving outcomes for students, including students with disabilities and limited English proficiency.

Answers are available to important questions and some remain unresolved. The unanswered questions represent potential obstacles to successful RTI implementation and should be researched before RTI is operationalized in regulations. Positive outcomes for children were found, but only after extensive training and careful implementation. Hopefully, that approach will be followed on the national model and will be phased in over time after sufficient research; Iowa, Minnesota, Ohio, and Pennsylvania may be good places to start.

**REFERENCES**


Using Response to Intervention to Enhance Outcomes for Children

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Response to Intervention (RTI) models have substantial promise for screening, intervention service delivery, and to serve as catalysts for system change to enhance the educational outcomes of children. RTI represents a more flexible service delivery model; however, it is essential to articulate how RTI can be effectively implemented and demonstrated to be functionally meaningful. This article provides a brief review of probable advantages and possible challenges of implementing RTI and also provides an overview of data emerging from the Screening to Enhance Equitable Placement (STEEP) problem-solving model. Further research is necessary to clearly delineate the purpose(s), operationalize procedures and judgments, and evaluate the decision-making utility of the RTI models in practice.

Key Words: RTI, STEEP, Implementation, Models

Along with the 2002 Reauthorization of the Elementary and Secondary Education Act — No Child Left Behind (NCLB) — policy makers, parents and educational professionals are facing the most significant changes in federal educational policy in perhaps 30 years (CASP Board of Directors, 2003; p. 1).

Response to Intervention (RTI) has emerged as a topic of great interest to researchers and practitioners working in schools. Recently RTI has garnered both attention and momentum through attention provided by policymakers in response to growing research and practical implementation (Fletcher, & Reschly, 2005; Gresham et al., 2005; Kavale, Kaufman, Naglieri, & Hale, 2005; Shrank et al., 2005). Extensive field trials implemented in Iowa and Minnesota have demonstrated the viability of RTI within the special education screening and eligibility determination process (Ikeda, Tilly, Stumme, Volmer, & Allison, 1996; Marston, Muyskens, Lau, & Canter, 2003; Reschly & Grimes, 1991). Consensus between special and general education reform agendas has propelled RTI into the forefront as a viable alternative to traditional diagnosis of high-incidence disabilities, particularly learning disability (LD). The criteria in the reauthorized IDEA guidelines for identifying LD state that: (a) a severe discrepancy between achievement and intellectual ability shall not be required; and (b) a response to intervention (RTI) may be considered.

Several lines of research have contributed to the development and popularity of RTI as an alternative assessment approach. The reliability, validity, and utility of the discrepancy-based formula for identifying LD has been questioned conceptually, empirically, and pragmatically (Fuchs, Fuchs, Mathes, Lipsey, & Roberts, 2001; Gresham & Witt, 1997). The problem of disproportionate identification of children with LD by race and gender has continued to be an exigent issue (Donovan & Cross, 2002; Holtzman & Messick, 1982). Simultaneously, the utility of curriculum-based measures (CBM) for (a) identifying children not likely to benefit from the general education curriculum without assistance, (b) predicting important long-term outcomes, and (c) tracking individual student growth and informing instructional programming has been established. Intervention research, most particularly in the area of early reading, has demonstrated the power of early intervention to remediate current and prevent future deficits, while indicating a lack of differentiated instruction and effectiveness for children placed...
into special education under the high-incidence categories (Kavale & Forness, 1999).

These data and others have led to consensus among scientists and policymakers concerning the need for change. Whereas there has been some consensus concerning the need for change, there has not been consensus on how this change can best be achieved. Changes in the identification process will likely fall somewhere along the continuum of weak or ineffective pre-referral interventions implemented with low integrity to demonstrating special benefits for those ultimately identified and placed into special education classrooms (Fuchs & Fuchs, 1998). Whereas RTI has considerable promise as a tool within special and general education, it is a vulnerable construct if misapplied. The following explores probable advantages of RTI models, the challenges that have yet to be resolved with the widespread use of and decision-making under RTI, and describes one RTI model (i.e., Screening to Enhance Equitable Placement) that has been used successfully in several schools.

**Probable Advantages of RTI**

Properly conceived and implemented RTI offers several advantages over other methods of identification. In this section, we present probable advantages of RTI models. Associated challenges are presented in the next section. It is important to address the challenges because there is the ever-pressing concern that the advantages are possible but not absolute without effective implementation.

**Improved treatment validity.** One of the primary advantages involves its direct link to treatment or consequential validity. Messick (1995) and others (e.g., Hayes, Nelson, & Jarrett, 1987) have argued that the value of an assessment is tied to the consequences of its use with children. Because RTI provides assistance to children to determine whether or not more assistance should be provided, adults are focused in their efforts to properly articulate a concern, develop targeted intervention to resolve the concern, and collect information to determine whether or not the concern has been adequately addressed or whether different solution efforts need to be implemented. This approach changes the goal of assessment from what some have described as “admiration” of the problem (Gresham, VanDerHeyden, & Witt, in submission) to problem-solving. RTI provides an opportunity for psychoeducational assessment and assessors to “aim at the target” (Macmann & Barnett, 1999) of producing real improvement for children in the classrooms in which they must function and learn.

**Contextualized decision-making.** RTI emphasizes the pre-referral conditions (child and environment) and this context becomes part of the decision-making equation. RTI models require that child assessment become context specific and represent some estimate of the degree to which the child is likely to attain important educational outcomes in the general education setting in the absence of special services (this is ultimately the judgment teams are being asked to make). This approach of assessing child performance within context allows practitioners to quantify (a) the state of instructional affairs in the child’s regular education environment and (b) potential learning given optimal instructional conditions. This information allows practitioners to improve general education programming and also determine whether children are likely to continue to struggle without special help or whether instruction has been inadequate. Hence, children are likely to receive help in the general classroom environment much more quickly under RTI models. If the intervention is effective, future deficits may be prevented at the individual child level (Lennon & Slesinski, 1999) and teachers may use the same strategies to assist other children in the same classroom.

**Improved identification accuracy for LD.** Because intervention becomes a specified, operationalized variable under RTI models, false positive identification errors should be reduced dramatically. For this advantage to be realized, implementation must occur correctly and decision-making procedures, shown to be reliable and meaningful, must be adequately specified. As data-gathering proceeds, it will be important to identify acceptable standards against which to judge the value of an RTI model. The
present discrepancy-based classification of LD is not an acceptable standard for comparison as it has been found to have classification agreement rates barely above chance levels (Macmann et al., 1989). The discrepancy model has been criticized particularly for failing to distinguish between low achievers and children with LD (Gresham & Witt, 1997). When implementing RTI, because instruction is manipulated to judge its effect on learning directly, low-achieving children who are low-achieving because they have not had adequate instruction (previously false positive identification errors) are less likely to be identified as having LD. Further, ensuring adequate instruction as a prerequisite to individual child assessment will positively affect disproportionality (Marston, et al., 2003; VanDerHeyden & Witt, in press). The use of universal screening, with adequately specified criteria for selecting at-risk groups of children, delivering intervention strategies of sufficient power, and judging the effects of remedial efforts can protect against over- and under-identification errors. Removing the current reliance on teacher identification and requiring direct measures of child performance in context will enhance identification accuracy (Macmillan, 1998; Macmillan et al., 1998; Macmillan & Speece, 1999; Marston, Mirkin, & Deno, 1984; Shinn, Tindal, & Spira, 1987; VanDerHeyden & Witt, 2005).

More effective intervention. RTI is likely to facilitate less restrictive interventions and placements for children. Requiring universal screening and structured intervention services in general education classrooms conducted with sufficient control to permit reliable and meaningful decision-making will result in a broader range of supports within general education. The school psychologist’s role is likely to shift to a greater emphasis on instructional consulting and contextual decision-making. This shift is likely to create a need for graduate programs to enhance the skill sets of practitioners to provide such services in schools. This shift also will have tremendous benefits for systems and children. If effectively implemented, RTI allows school psychologists to bring their expertise to bear on assessment strategies at the classroom level and assist teachers to use data formatively to enhance their instructional programming. Because interventions are delivered in a structured fashion, they are more likely to be effective. Structured interventions are those that (a) allow for some estimation of the likelihood of the intervention being effective under specified stimulus conditions, (b) allow for some estimation of the degree of match between the stimulus conditions for an individual child and the intervention selected, (c) allow for estimation of the integrity with which the intervention is delivered, and (d) allow for sensitive ongoing progress monitoring data.

Possible Challenges of RTI Models

For RTI to provide maximum benefits several challenges need to be resolved. Empirical studies in the field are needed to determine which components are needed for maximum effectiveness.

Decision-making criteria under RTI models must be operationalized and validated through research. Others have noted that determining the purpose of RTI will be critical to determining how implementation should proceed (Fuchs, 2003). Selection of the reference group necessarily reflects the identified purpose of RTI. For example, if the focus is on prevention, then less stringent initial cutpoints for identification will allow practitioners to identify more children for supplemental services. More stringent initial cutpoints reduce the costs of intervention services potentially, but also reduce the degree to which general prevention effects can be obtained. Also, use of at-risk comparison samples will inflate the incidence estimates under RTI models (Vaughn, Linan-Thompson, & Hickman, 2003). Several approaches to identification through RTI have been examined, including, monitoring response to general education services (Case, Speece, & Molloy, 2003; Speece, Case, & Molloy, 2003), monitoring response to intervention provided to a small subset of the population following identification through a problem-solving model of assessment (VanDerHeyden et al., 2003), and monitoring response to supplemental instruction (Vaughn et al., 2003).
Effective intervention delivery poses new challenges for teams. Adequate control of relevant intervention variables will be a key challenge under RTI models. The selected intervention must be one that, if properly implemented, is likely to effectively remediate the problem to which it is applied. The intervention, once properly specified, must be implemented with integrity and with sufficient frequency, intensity, and duration to permit effectiveness. These variables are necessary to eliminate confounds when a lack of response is observed. To conclude that the child has demonstrated an unsuccessful RTI and thus, should be considered for special education services, the intervention must have been properly identified and sufficiently implemented to rule out alternative explanations for the outcome (e.g., poor integrity, insufficiently powered intervention). Additional variables needing further research include which child behaviors are most important to measure (short term growth on instructional level task versus child response under conditions that differ from intervention conditions and more closely reflect conditions in the regular classroom), how child change or lack of change in RTI is best reflected (level of performance, trend of performance, combined level and trend of performance). Identifying which behaviors to measure and under what conditions to measure them (Daly et al., 2004; Fuchs, 2003; Good, Simmons, & Kame'enui, 2001) will be central to predicting generalized outcomes and attaining treatment validity under RTI. There is some precedent for using level and trend of performance during controlled intervention (Fuchs & Fuchs, 1998; VanDerHeyden et al., 2003) or general education instruction (Case et al., 2003; Speece et al., 2003) to judge RTI. The degree to which age of the child, prior instructional experience, and other variables (i.e., intervention power) influence slope will be important areas for future investigation. Because there is no incontrovertible index of LD, research findings may reflect the diagnostic realities that exist. Hence, the “real” effect of RTI may be to prevent the many false positive errors in identification that previously occurred as a result of decontextualized assessment and inadequate pre-referral protections.

**IMPLICATIONS OF IMPLEMENTING RTI MODELS**

What value does the concept of RTI bring to the equation of prevention efforts in early academic skill areas? The concept of RTI offers the promise of a controlled demonstration of potential growth rates. Knowing potential growth rates allows practitioners, program administrators, and parents to understand child performance within the learning context. RTI allows those who work with children to examine current learning conditions and how those differ from optimal learning conditions implemented during an RTI trial, child growth given current learning conditions relative to child growth given optimal learning conditions during an RTI trial. Child-environment fit can be evaluated to enhance child performance in the regular learning environment or a decision can be made to provide supplemental or specialized services to augment the regular learning environment. System change can occur when RTI indicates that the current learning conditions differ from conditions arranged during an RTI trial and that the majority of children exposed to RTI show optimal growth.

Fuchs, Mock, Morgan, and Young (2003) categorized existing published RTI efforts into two approaches. One approach was described as the standard protocol based intervention approach illustrated by the work of Torgeson and colleagues (Torgeson et al., 2001) and Vellutino and colleagues (Vellutino et al., 1996, 1998). The second approach was described as problem-solving models of assessment, illustrated by the large scale efforts in Minnesota (Marston et al., 2003) and Iowa (Ikeda, Tilly, Stumme, Volmer, & Allison, 1996). D. Fuchs et al. (2003) noted the promise of standard approaches to intervention and characterized problem-solving models as more susceptible to individual differences in implementation. In their analysis, D. Fuchs and colleagues predicted that the standard approach would be more costly and time-consuming but would be likely to maintain consistently a higher level of quality and therefore, be more effective.
It is possible that a standard approach could be used within a problem-solving model of assessment (VanDerHeyden et al., 2003; VanDerHeyden & Witt, 2005), allowing for consistency in quality of intervention but doing so in a way that maintains efficiency by providing the standard intervention to a small subset of children deemed to be most at-risk. VanDerHeyden et al. (2003) found that 11% of children screened were identified to participate in individual intervention. Using a standard protocol to deliver an intervention that was designed to control for multiple causes of poor performance and based on principles of effective instruction, a high rate of intervention success was obtained within 5-9 sessions. Specifically, only 5% of children screened failed to respond successfully to intervention. Further, the children who did not respond successfully were proportionately similar to population base rates by race and gender. The intervention used for this assessment required 10 minutes per day to implement and included modeling, guided practice with immediate corrective feedback and prompting, timed independent practice for a score with incentives for improved performance, and delayed error correction. Successful interventions were those that produced a rate of growth comparable to the average growth of children not at risk in the school and level of performance that reached the instructional criterion imposed in the study (Deno & Mirkin, 1977) on a criterion-level, novel probe. Even with this stringent criterion for success, 95% of children screened ultimately responded successfully to this short-term intervention indicating that their learning difficulties could likely be addressed in general education (VanDerHeyden et al., 2003). This type of hybrid approach, although very simple, may allow for more accurate and more efficient identification of children who require more individualized problem-solving efforts. This approach merits further investigation. In the section that follows this screening model is described in greater detail.

SCREENING TO ENHANCE EQUITABLE PLACEMENT

Witt, Daly, and Noell (2000) described a problem-solving model of assessment called Screening to Enhance Equitable Placement (STEEP). The STEEP model has similarities to other problem-solving models that have been described in the literature (Fuchs & Fuchs, 1998; Good & Kaminski, 1996; Shinn, Collins, & Gallagher, 1998). Most problem-solving models use a series of scripted procedures to "filter" children at a school and identify those who might need special assistance to meet important academic objectives. Most models rely on universal screening using sensitive measures (often curriculum-based measurement), application of decision rules to identify at-risk children, supplemental instruction provided in general education (e.g., whole class, small group, and extra tutoring), followed by individualized intervention with frequent assessment to monitor progress and evaluate child performance relative to environmental requirements to determine that (a) the problem has been successfully resolved or (b) the problem merits further intervention. The components of the STEEP model are described below (and summarized in Table 1). Where the STEEP model is used, consideration for special education services requires that a child pass through three gates: poor performance relative to same-class peers and a functional instructional criterion (Deno & Mirkin, 1977); poor performance given powerful incentives; and poor performance given individual, protocol-based intervention performed with integrity for 10 consecutive days. Each gate is described in the following section.

Schoolwide universal screening. Curriculum-based assessment and measurement (CBM) probes are administered classwide in reading, math, and writing. CBM is a process of using a brief "test" derived from the curriculum to assess children. In math, for example, the child would typically complete a page of math problems representing one or more skills that the teacher has recently taught. Teachers can be trained to reliably administer CBM probes and administration requires about 1 hour per class. In one hour, it can be determined how all children in a class are performing on basic math,
Table 1.
Summary of the Components of Screening to Enhance Equitable Placement (STEEP)

Stage I. Schoolwide Universal Screening
Curriculum-based assessment and measurement (CBM) probes are administered classwide (i.e., reading, math, and writing), performance of individual students is examined.
About 15% of children screened proceed to Stage II, the performance/skill deficit assessment.

Stage II. Performance/Skill Deficit Assessment
Students are offered a reward for exceeding their previous performance and are then re-examined using the classwide academic assessment probe that had been previously administered. Progress is monitored to determine whether other intervention strategies or assessments are warranted.
About 11% of children proceed to Stage III, individual intervention.

Stage III. Individual Intervention
Students exhibiting skill deficits (in classes where the majority of the class is performing at or above the instructional range) participate in daily individual intervention performed by the classroom teacher in the regular classroom setting during the regular school day. The student’s instructional level is determined by sampling until the student scores in the instructional range. Progress is monitored to determine whether other intervention strategies or assessments are warranted.
About 3-5% of children do not respond successfully to short-term protocol-based intervention delivered with integrity in the regular classroom setting.
to instruction model, the children who continue to perform below the instructional standard when the class median has reached mastery and who are unlikely (based on their current growth rate) to reach the instructional range within the next week (i.e., another week’s growth of that student’s average growth during intervention would not increase the student’s performance to the instructional range within one week) are identified and referred for the next phase, the performance/skill deficit assessment.

The above process illustrates what occurs if a classwide problem is identified. Using classwide intervention where classwide problems exist introduces variation into the performance of the children to permit more accurate identification of which individual children may be at risk. More accurate identification is facilitated because trend and level data can be examined to identify at-risk individuals (Fuchs & Fuchs, 1998; VanDerHeyden & Witt, 2005). Philosophically, where a classwide problem is observed, classwide intervention is appropriate, communicating that many children need help. Pragmatically, classwide intervention is more efficient than working individually with many low-performing children. If a classwide problem is ruled out following the classwide assessment, then children who perform below the 16th percentile for their classes and fall below the instructional range move to the next level of assessment, a brief assessment of the effect of incentives upon performance (i.e., performance/skill deficit assessment). When STEEP is used, approximately 15% of children are identified through the schoolwide screening to participate in further assessment (VanDerHeyden et al., 2003). The school-based team conducts the performance/skill deficit assessment.

Performance/skill deficit assessment. During the performance/skill deficit assessment, the consultant provides the student with a copy of the classwide academic assessment probe that had been previously administered. Students are told that they can earn a reward of their choice from the treasure chest by “beating their last score.” This score is written in the top left-hand corner of the student’s paper. Students are allowed to sample briefly the items in the treasure chest. The treasure chest is a small transparent box containing several small tangible items (e.g., pencils, balls, stickers, bracelets, and coupons for free time). The probe is then re-administered. The performance/skill deficit assessment for math and writing can be administered to groups of three to five students simultaneously, whereas the performance/skill deficit assessment of reading is administered individually in a quiet space on the school campus. This component requires no more than five minutes per assessment. Children whose performance improves to the instructional range to earn an incentive do not participate in further assessment. Children whose performance does not improve to the instructional range will participate in an individual intervention in their classroom. Approximately 11% of the total cases screened are found to exhibit a skill deficit that merits individual intervention or the third gate (VanDerHeyden et al., 2003).

Individual intervention. At this point (as soon as one week after the schoolwide screening), those children exhibiting skill deficits, in classes where the majority of the class is performing at or above the instructional range, participate in daily individual intervention performed by the classroom teacher (or teacher designee) in the regular classroom setting during the regular school day. In this stage, a standard protocol-based intervention that requires approximately 10 minutes is applied to estimate the child’s potential for learning given relatively simple intervention procedures. The student’s instructional level is determined by sampling backward through successively lower level materials until the student scores in the instructional range. Protocol-based interventions consist of four basic steps: modeling, guided practice with immediate error correction, independent timed practice with slightly delayed error correction, and the opportunity to earn a reward for “beating the last highest score.” The interventions are protocol-based, designed to address multiple possible causes of poor performance, and designed to produce evidence (i.e., permanent products) that they occurred to allow for estimation
of treatment integrity. Use of a standard intervention for screening has many benefits over the more precise, but more time-consuming approach of individualized assessment and intervention that would occur with most problem-solving models. Because many children will respond to a standard intervention, the need to draft an individual intervention for every child is reduced to the smaller subset of children who do not respond to the standard protocol. Improved efficiency in the process may enhance the integrity with which the procedures occur. The school-based consultant (usually the school psychologist) collects the data weekly, quantifying two critical variables: the degree to which the intervention occurred correctly and the child’s performance on a novel, instructional-level probe of the target skill and a novel, criterion-level probe of the target skill. The school-based consultant enters the data into a database and graphing tools automatically generate graphs for the teacher, principal, and consultant. If problems occurred in implementing the intervention, then the consultant re-trains the teacher. The purpose of this brief intervention is to measure the child’s RTI. To measure RTI, a minimum of 10-15 consecutive intervention sessions, conducted with integrity, are required. Intervention progress for a student (i.e., slope derived from ordinary least squares regression) is evaluated relative to data pertaining to “normal” progress as well as data pertaining to the progress of children receiving specialized intervention. Structured decision rules are applied to determine if the child is a “responder” or “nonresponder” to the intervention or whether additional data are needed. Data on nonresponders are made available to the school-based team to assist in determining whether or not a child should receive an eligibility evaluation. Some estimates indicate that about 3-5% of children screened fail to respond sufficiently to brief intervention performed with integrity for 5-9 days (VanDerHeyden et al., 2003). Hence, if the decision rules of STEEP are applied in a school, the school-based team can expect approximately 5% of children to require extensive individualized intervention and potentially a full eligibility evaluation.

**Data benefit both special and regular education.** As a side-effect of completing each step, data are generated that are useful for both regular and special education decision-making and programming. For example, routine schoolwide screening permits identification of classwide, gradewide, and schoolwide problems that can be addressed through curriculum revision and supplemental instruction, and allows for monitoring to ensure growth for all students in the regular education curriculum. Once STEEP has been completed a list of children who may require special education services has been generated that is more accurate than teacher referral (VanDerHeyden et al., 2003), baseline performance prior to receipt of special services has been specified, and strategies have likely been identified that effectively produce growth for the child. For those who do not respond successfully to structured intervention, additional assessment can be performed to determine individual strengths and needs and inform educational programming and placement decisions.

**Implementation data.** VanDerHeyden, Witt, and Naquin (2003) reported the technical properties of decisions made based on STEEP relative to other methods of identification, especially teacher referral. All first and second grade children (N = 182 children; 364 screened cases in reading and math) were screened using several screening tools (schoolwide CBM, teacher identification, Comprehensive Inventory of Basic Skills, Revised (Brigance, 1999) subtests in reading and math, and state reading test). Any child who was identified through any of the screenings (n = 101 reading and math cases) participated in a more comprehensive assessment that included individual curriculum-based assessment with 5-9 sessions of individual intervention (RTI criterion). Additionally, all children in second grade were administered the ITBS and a randomly selected subset of children who failed at least one of the screenings were administered the WJ-R. Any child who failed the CBM screening participated in the remaining steps of STEEP for reading or math with one change. Only a single instructional session was included as part of STEEP in the study. Each case was coded as STEEP-positive (if the child
performed in the bottom 16% of the class and in the frustrational range, was not improved to the instructional range to earn an incentive, and was not improved to the instructional range given a single instructional session. All remaining cases were coded as STEEP-negative. To permit a series of accuracy analyses, the RTI criterion, performance on the ITBS, and performance on the WJ-R were used as standards for comparison. Because the results were similar across the outcome measures, only the analyses using the RTI criterion were reported. VanDerHeyden et al. found that STEEP produced many fewer errors in identification relative to the other screening devices. Use of STEEP produced improvements in both under- and over-identification errors. Further, accuracy of identification with STEEP was stable across environments, whereas teacher referral accuracy varied according to the general achievement level of the class (VanDerHeyden & Witt, 2005). STEEP was more accurate than the other screening devices, and was also more similarly accurate across race and gender. Alarmingly, prior to intervention 56% of children falling below the 16th percentiles in their classes were of minority ethnicity (initial cutpoint for determining risk), whereas only 15% of children attending the school were of minority ethnicity. Following 5-9 intervention sessions, 29% of those who did not respond to intervention were of minority ethnicity. Before intervention, 57% of the minority students in the school appeared in the high-risk category, whereas following intervention, only 7% of the minority students at the school fell into the high-risk category (nonresponders to intervention). One would expect that about 5% of children, irrespective of race might fail to respond to intervention. Hence, the use of RTI models has potential to reduce disproportionate identification (VanDerHeyden & Witt, in press).

STEEP has been operating in the Vail School District in Arizona for two years. In two years, the percentage of children in the district identified as LD (previously on an upward trend), has been reduced from 6% of children in 2001-2002 to 3.5% of children in 2003-2004. Additionally, gains on the high-stakes tests have been observed (VanDerHeyden & Burns, in press). Additionally, the number of children being evaluated has been reduced by greater than 50% and the percentage of those who are evaluated and qualify has been increased from a stable baseline of 50% to greater than 90% in 2003-2004.

PROBLEM SOLVING AND CALIFORNIA

In their position paper addressing the reauthorization of IDEA the California Association of School Psychologists (CASP) discuss critical constructs and principles (CASP Board of Directors, 2003) that will be important to consider in implementing response to intervention models. These include appropriate: (a) funding for educational services; (b) support for all children; (c) scientific framework for assessment and intervention; (d) clarification of learning disabilities; (e) empirically validated practices must be employed for both assessment and Intervention; (f) eligibility for services must be established using objective, empirically valid definitions and assessment methodologies for all handicapping conditions; and (g) appropriately trained and credentialed personnel are essential at all stages of assessment and intervention. The CASP position paper highlights the anticipated implications for school psychologists in each of the above areas and emphasizes that, “Highly trained and skilled school psychologists are essential to the success of proposed educational reform of both general and special education” (CASP Board of Directors, 2003; p. 4). The STEEP problem-solving model described above is congruent with the three-tiered process for screening, early identification, and eligibility model delineated by the CASP Board of Directors (2003; see Table 2). The STEEP problem-solving process would occur during the Tier 1 phase of the CASP three-tiered process. Those students who did not respond to the STEEP strategies, would then proceed to the Tier 2 phase of the proposed CASP three-tiered process.
Table 2.
Detailed Description of a Three Tiered Process for Screening, Early Identification, and Eligibility for Special Education Services in the Category of Learning Disabilities

- Tier 1 begins when pupils fail to make expected progress within general education.
  - Tier 1 interventions are preventative in that the process is invoked as soon as a child’s acquisition of academic skills (particularly reading) is behind that of his/her peers.
  - Students identified as functioning below the instructional range must receive timely, persistent, research-based interventions addressing the identified deficiency.
  - The effect of curricular and instructional suggestions made to the classroom teacher in Tier 1 must be measured through relevant and frequent data collection.
  - For children who fail to make adequate progress, a systematic and multidisciplinary problem-solving process is invoked in Tier 2.

- Tier 2 involves a multidisciplinary, problem-solving process for pupils who fail to make adequate progress following Tier 1 interventions.
  - The problem-solving process in Tier 2 must involve both general and special education teachers and support personnel, but still falls within the administrative and fiscal responsibility of general education.
  - The Student Study Team (or other mechanism employed in Tier 2) has the following essential features: (a) a commitment to collaborative problem-solving regarding a student’s difficulties within the general education classroom; (b) problem definition/functional analysis of the problem; (c) generation of empirically supported intervention strategies employing the resources available in the school, home and community to implement and sustain these interventions; and (d) systematic evaluation of intervention effects.
  - When a student’s rate of progress continues to be problematic, a referral for a comprehensive psycho-educational evaluation is appropriate.

- Tier 3 is used to define the special education referral process for pupils who continue to fail to make adequate progress.
  - The evaluation is for determining eligibility under IDEA as learning disabled, and utilizes all previously collected data concerning rate of progress, results of direct observation, and additional individual assessment.
  - The Tier 3 assessment would be a comprehensive multidisciplinary assessment of the child’s educational needs.
  - The psycho-educational evaluation shall include an individual assessment based on current theory and research regarding learning disabilities.
  - Cognitive assessment relative to the area of academic need is essential in the identification of learning disabilities, as well as other developmental or “high incidence” disabilities (e.g., ADHD).
  - If the results of this comprehensive evaluation indicate that a student’s instructional needs cannot be met solely in the general education program, an IEP Team meeting may be convened to determine appropriate supports and services in special education.

Note. The above table is from the CASP Board of Directors (2003) and is reprinted with permission.

CONCLUSION

RTI models have considerable promise for screening, intervention service delivery, and catalysts for system change. Research is needed to articulate purposes, operationalize procedures and judgments, and evaluate the decision-making utility of the models in practice. RTI represents a more flex-
ible service delivery model, but in order to ensure that children are reliably and effectively provided with assistance and achieve the objective of providing the “right assistance at the right time” (Pasternak, 2002), then it will be critical to articulate how RTI can be judged (which behaviors to measure, how frequently, for how long, under what stimulus conditions, and compared to what reference group using what units of measurement) and demonstrate that this judgment is functionally meaningful.

REFERENCES


Critical Characteristics of a Three Tiered Model Applied to Reading Interventions

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The purpose of this article is to provide the reader with a conceptual understanding of the key elements in a three tiered Response to Intervention (RTI) model. The three tiered model is discussed in terms of how it would be applied in implementing an intervention program to promote the development of reading. The characteristics of interventions, criteria for determining the delivery of services and the role of the school psychologist at each stage are discussed. The article concludes that RTI models are excellent approaches for designing intervention programs and school psychologists have a key role to play in helping to design and implement such programs. Concerns regarding the implementation of such models are noted.

Key Words: RTI, Three Tiered Model, Reading, Implementation

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 (Gresham, 2001; President’s Commission on Excellence in Special Education, 2002) 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 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 (Fletcher et al., 2002; Fuchs, Fuchs, Mathes, Lipsey & Eaton, 2001; 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 grade three. 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).

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, however, 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 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? and (c) Who will determine a standard for response to intervention? Regardless of how RTI will be applied 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, which 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, & Donnelly, 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 IDEIA 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/cf/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 inter-
ventions. 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 read-
ing 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 exten-
sions 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 individ-
ually 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,

**Tier Two**

Tier Two interventions are implemented for those students not responding to Tier One interven-
tions. 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-Th-
ompson, 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 mem-
bers’ deficient skills (Torgesen, 2004; Vaughn & Linan-Thompson, 2003). 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 that 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 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, 1999). 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 and colleagues (2001) 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 and colleagues (2001) 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 & 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, progress is closely monitored to assure that the student continues to respond to classroom instruction and to determine whether more intensive intervention is needed.

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 meets 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 & Strober, 2000). On a broader level, efforts to infuse EBIs into practice have 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 fewer students will reach this level with increased implementation of early intervention. 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 Tier Three 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 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, measurement issues such as reliability and validity, and interpretation of data. Practicing school psychologists are poised to become proactive 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 inservice 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.

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Critical Characteristics of Three Tiered Model


Using a Response-to-Intervention Approach in Preschool to Promote Literacy

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A response-to-intervention model (RTI) has been identified as a promising way to identify and intervene early with children who are experiencing learning difficulties. The general RTI approach also holds promise of preventing learning difficulties with preschoolers. This article examines the potential benefits of implementing a RTI model in preschool settings as well as the feasibility of implementation with respect to current preschool assessment technologies, teacher preparation, and program philosophical orientations. Although the research supporting the efficacy of systematic early literacy interventions in reducing pervasive reading problems is convincing, it is concluded that current preschool programs have not embraced these findings into everyday practice. Implications for school psychologists serving young children are addressed.

Key Words: RTI, Preschool, Literacy, Early Identification

Learning to read is the foundation for children’s success both in and outside of the classroom, yet reading problems persist among America’s children. The National Assessment of Educational Progress (NAEP, 2003) estimates that only 31% of fourth graders are reading at a proficient level. Moreover, NAEP results show that the poorest readers are reading even lower than previous assessments, whereas higher-performing readers have made gains in reading. In a study looking at the persistence of poor reading skills, Cunningham and Stanovich (1997) found that first grade reading skills were a strong predictor of how a child will be reading in 3rd, 5th, and 11th grades. These studies, along with many others (Baydar, Brooks-Gunn, & Furstenberg, 1993; Dickenson & Sprague, 2001; Juel, 1988; Scarborough, 2001; Shaywitz, Escobar, Shaywitz, Fletcher, & Makuch, 1992), suggest that the acquisition of literacy skills follows a developmental trajectory that is stable over time, both for advanced and delayed readers.

Although the outlook for children struggling to learn to read is bleak, one way of improving outcomes is to identify and intervene with young children to ensure they have mastered essential early literacy skills prior to beginning formal reading instruction. Convergent research evidence now shows that the acquisition of important pre-literacy skills, such as phonological awareness, directly affects the ease of reading acquisition and subsequent reading achievement (National Reading Panel, 2000; Simmons & Kaméenui, 1998; Whitehurst & Lonigan, 2001). More importantly, these skills can be reliably measured, successfully taught, and systematically monitored in young children before they enter kindergarten; thus, decreasing the prevalence of children experiencing reading difficulties in school. The purpose of this article is to describe available research literature examining response to intervention (RTI) approaches in education, and propose a RTI model for implementation in early childhood settings that focuses on early identification and intervention of preschool age children at-risk for reading difficulties. Early literacy data collection methods and intervention models appropriate for preschool settings will be described as well as the benefits and challenges of implementing a RTI model in early childhood settings. Additionally, implications for school psychologists providing early intervention services will be discussed.

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RTI DEFINED

In response to the President’s Commission on Excellence in Special Education (2002) and the reauthorization of the Individuals with Disabilities Education Improvement Act (IDEIA, 2004; PL-108-446), there is growing interest in RTI approaches for remediating learning problems and making decisions regarding eligibility and services for special education, specifically identifying children with learning disabilities (LD). Although no single model defines a RTI approach, it generally includes the following core elements: (a) implementing research-based instruction; (b) monitoring student progress using socially important outcome measures; and (c) modifying instruction, if needed, based on student progress and need (Fuchs, Mock, Morgan, & Young, 2003). The need for instructional modifications and/or additional services is based on the child’s failure to make adequate progress. This approach was initially conceptualized by Heller, Holtzman, and Messick (1982) as a means of identifying students with LD, and was further elaborated by Fuchs and Fuchs (1998) and Speece and Case (2001). Currently, several school districts around the country are utilizing a RTI service delivery approach as a way to meet the needs of diverse learners and have reported positive results in decreasing rates of referrals to special education (Ikeda, Tilly, Stumme, Volmer, & Allison, 1996; Kovaleski, Gickling, Morrow, & Swank, 1999; Telzrow, McNamara, & Hollinger, 2000), and decreasing disproportionate representation of minorities in special education (Marston, Muyskens, Lau, & Canter, 2003). Unfortunately, little, if any, research is available demonstrating RTI models in early childhood settings. Implementing an early literacy RTI approach in preschool has the potential to significantly decrease the number of children who are experiencing reading difficulties and increase the number of students who receive timely early intervention in literacy.

RTI: Data Collection

Implementing a RTI approach necessitates the inclusion of several critical elements for making decisions regarding student needs. First, data regarding children’s basic skills are needed to determine who is in need of intervention. A second consideration is determining the content and intensity of what will be taught. Third, data are needed to determine the effectiveness of the intervention in meeting the child’s instructional needs. Thus, data collection instruments must meet a wide-variety of purposes to be considered for use in a RTI model. In a recent report by the U.S. Office of Special Education Programs, National Center on Student Progress Monitoring (2005), seven standards of technical adequacy critical to evidence-based student progress monitoring were identified: (a) availability of alternate forms; (b) specification of rates of improvement; (c) specification of benchmarks and/or goal setting; (d) sensitive to small increments in learning; (e) leads to improvement in teacher planning and student learning; (f) established reliability; and (g) validity.

Two of the most commonly cited and empirically-validated progress monitoring measurement systems used in a RTI model are Curriculum-Based Measurement (CBM; Shinn, 1989) and Dynamic Indicators of Basic Early Literacy Skills (DIBELS; Good & Kaminski, 1996). Both measurement systems meet most, if not all, criteria stated above. Specifically, CBM tasks have established technical adequacy and are considered reliable and valid indicators of reading, writing, math, and spelling for children in first through eighth grades (Marston, 1989). Alternate forms are available to facilitate progress monitoring (Shinn, 1989), and goal setting guidelines and instructional placement standards are established (Fuchs, 1998; Fuchs & Deno, 1982). Additionally, research shows that utilizing CBM procedures enhance the quality of instruction and achievement of students receiving specialized services (Fuchs, Fuchs, & Hamlett, 1990). Similarly, DIBELS tasks, specifically Initial Sound Fluency (ISF), Phonemic Segmentation Fluency (PSF), and Nonsense Word Fluency (NWF), have been estab-
lished as technically adequate measures of early literacy skills for children in kindergarten through first grade. These tasks also include alternate forms, are sensitive to learning over short periods of time, and have specified benchmarks for determining adequate performance. Although both measurement systems are appropriate for use in RTI models, CBM and DIBELS tasks have not been established as useful or appropriate for measuring preschool literacy skills, nor have the psychometric properties been validated with preschool-age children.

The technology for implementing a successful RTI model for preschool-age children to improve reading outcomes is in the early stages of development. A workgroup at the University of Minnesota recently developed a series of early literacy and language indicators for preschool-age children. Of the approximately 10 measures developed as potential tools for identifying children in need of intervention and evaluating the effectiveness of interventions, three tasks best meet the measurement requirements put forth by the National Center for Student Progress Monitoring: Picture Naming, Rhyming, and Alliteration. Preliminary research indicates that these measures hold promise for implementing a response to intervention approach with preschoolers to improve literacy outcomes.

The Picture Naming (PN) task is a measure of a child’s expressive language development. On this task, the child is presented a series of color pictures of objects found in common settings (e.g., home, classroom, and community) and told to name the pictures as quickly as possible. The number of pictures named correctly in one minute is the child’s score. A total of 120 color pictures are available. The alternate-form reliability over one-month for this task ranges from .44 to .78 (McConnell, Priest, Davis, & McEvoy, 2002). Test-retest reliability of the PN task across three weeks is .67 (Missall & McConnell, 2004). The criterion-related validity of the PN task with the Peabody Picture Vocabulary Test –Third Edition (PPVT-3) is .56 to .75, and .63 to .79 with the Preschool Language Scale-3. When compared to preschooler’s performance on the DIBELS tasks, the PN task correlated .32 to .37 with Letter Naming Fluency, and .44 to .49 with Initial Sound Fluency (McConnell et al., 2002). Construct validity of the PN task is evident by significant correlations between children’s scores and chronological age ($r = .41$ and $r = .60$), and the differential performance of typically developing children ($r = .63$), children attending Head Start ($r = .32$), and children receiving early childhood special education services ($r = .48$; McConnell et al., 2002). Additionally, studies show the PN task to be sensitive to small changes in the development of preschoolers’ expressive language skills (Missall & McConnell, 2004).

The Rhyming task is a measure of a child’s developing phonological awareness skills. On this task, the child is presented a series of cards. Each card includes four pictures: a picture at the top of the card (i.e., stimulus word), and three pictures below. The examiner points and names each picture and tells the child to point to one of three pictures that sounds the same as the top picture (Missall & McConnell, 2004). The number of correctly identified pictures in two minutes is the child’s score. Fifty-four stimulus cards that can be randomly sampled for administration are available for this task. Test-retest reliability on the rhyming task ranges from .83 to .89 over three weeks (Missall & McConnell, 2004). Criterion-related validity of the Rhyming task was established with the PPVT-3 ($r = .56$ to .62); Concepts About Print (CAP; $r = .54$ to .64); and the Test of Phonological Awareness (TOPA; $r = .44$ to .62; Missall & McConnell, 2004). Moderate to high correlations were found with the PN task ($r = .46$ to .63), and Alliteration task ($r = .43$), and the DIBELS’ Letter Naming Fluency ($r = .48$ to .59), and Initial Sound Fluency ($r = .44$ to .68; McConnell et al., 2002; Missall & McConnell, 2004). This measure also is sensitive to small changes in learning with significant positive correlations found between children’s performance on the Rhyming task and age. Performance differences also were found between typically developing children and children with identified disabilities, children from low-income homes, children with speech and language disabilities, and English Language Learners (Missall & McConnell, 2004).
Like the Rhyming task, the Alliteration task is a measure of a child’s beginning phonological awareness skills. Similarly, the examiner presents a series of stimulus cards to the child that depicts four pictures: one at the top (i.e., stimulus word) and three pictures below. The examiner points and names each picture and tells the child to find the picture with the same initial sound as the stimulus word. The number of correctly identified pictures in two minutes is the child’s score. A total of 46 stimulus cards are available for this task that can be randomly selected for administration. Test-retest reliability for this task over three weeks is .46 to .80. Criterion-related validity was established with the PPVT-3 (r = .40 to .57), the TOPA (r = .75 to .79), the CAP (r = .34 to .55) and the DIBELS’ Letter Naming Fluency (r = .39 to .71; McConnell et al., 2002). Construct validity evidence includes positive correlations between performance on the Alliteration task and age, and differentiated performance on this task between typically developing children and children with disabilities, and children from low-income backgrounds and English Language Learners (Missall & McConnell, 2004).

Based on the criteria established by the National Center on Student Progress Monitoring (2005), the PN, Rhyming, and Alliteration measures meet two of the seven technical adequacy standards recommended for progress monitoring: availability of alternate forms and sensitivity to small increments in learning. Currently, empirical evidence is not yet available regarding (a) children’s typical rates of progress, (b) guidelines for goal setting and benchmarks, and (c) improvement in teacher planning and subsequent student achievement. Although the current psychometric characteristics of these measures are promising, more data are needed to establish acceptable reliability and validity estimates, as well as document improved teacher-effectiveness from using these measures. However, merely demonstrating the technical adequacy of RTI data collection tools is insufficient for implementing RTI procedures in educational settings. As illustrated by Fuchs (2003), to make informed decisions regarding student responsiveness to intervention, further research is needed to establish the optimal timing of measurement (e.g., weekly, pre- and post-intervention growth, and post-intervention status), determining the criterion for deciding responsiveness (e.g., slope, level, and/or dual discrepancy), and clarifying a norm-group or benchmark to compare post-intervention performance.

RTI: Intervention Models

Aside from the provision of evidenced-based intervention combined with data collection to inform instructional decision-making, there are no conceptual or procedural standards that define intervention in an RTI model. However, two RTI intervention models have surfaced in the research literature as the most common approaches to providing intervention: problem-solving and standard-protocol (Fuchs et al., 2003; Vaughn & Fuchs, 2003). Although each model serves to provide effective, intensive, and individualized instruction to struggling learners, the methodology each approach uses is significantly different.

Problem-solving is possibly the most commonly implemented RTI intervention approach utilized in the field of school psychology. Based on Kratochwill and Bergan’s (1990) behavioral consultation model, problem-solving embodies a set of specified, sequenced decisions based on the assumption that interventions represent testable hypotheses that must be evaluated for each student. Thus, no intervention can be determined to be successful with a student before its implementation despite the empirical evidence of its effectiveness. The delivery of problem-solving intervention models has assumed a wide-variety of labels: pre-referral intervention teams, mainstream assistance teams, teacher assistance teams, intervention based assessment, building assistance teams, and instructional support teams (Conway & Kovaleski, 1998; Fuchs, 2003; Fuchs, Fuchs, & Bahr, 1990; Ikeda et al., 1996; Telezrow et al., 2000). Despite the difference in name, problem-solving is delivered via a four-step process to identifying student needs and determining responsiveness to intervention: problem identification, prob-
lem analysis, exploring solutions, and evaluating solutions. Through each step in the model, a student’s individual instructional needs are determined based on the collection of pre-intervention data, individualized instruction is provided based on student skill deficits, and continuous data are collected to guide instructional planning. It is only after a student has progressed through these steps, possibly more than once, and has not responded adequately to effective instruction that inferences regarding the presence of a disability and need for sustained, structured and individualized instruction outside the general education setting (e.g., special education) are considered.

The second approach to intervention in an RTI model is the standard protocol. Instead of individually-designed interventions that are developed and modified in response to individual student needs, the standard protocol approach is characteristic of a brief, intensive, small group intervention provided to students who exhibit similar skill deficits in an academic domain (Fuchs et al., 2003). Thus, a generally effective intervention program is provided to a generally homogenous group of students for a specified amount of time. At the end of the intervention phase, students are categorized as “responders” or “non-responders” and subsequently, inferences regarding non-responsiveness generally lead to the conclusion that those students possess underlying skill deficits that can’t be explained by poor instruction. Although less research has been conducted on this approach and thus, less is known about the function of data collection in informing instruction, the standard protocol approach remains promising for schools and districts that do not have the expertise or resources to conduct individual problem-solving cases. At the same time, the assumption that “non-responsiveness” is indicative of an underlying disability may be erroneous.

**RTI: IMPLEMENTATION IN PRESCHOOL SETTINGS**

Consistent with early intervention models, a preschool RTI approach would assume a proactive preventative model of promoting the timely acquisition of key emergent literacy skills, such as phonological awareness and alphabet principle knowledge, while decreasing the risk of developing learning difficulties. While literacy activities in preschool are typically characterized as implicit, informal, and naturalistic interactions with literacy-related materials and activities, young learners from diverse backgrounds require a more explicit, efficient, and expedient approach to intervention (Justice, Chow, Capellini, Flanigan, & Colton, 2003). In this vein, a standard protocol RTI approach to teaching emergent literacy skills may best suit the needs of preschool children in the earliest stages of acquiring important pre-academic skills. A protocol of carefully constructed activities and structured tasks designed to overtly and systematically promote literacy performance is proposed for inclusion in preschool classrooms. Utilizing this approach, a set series of activities in a specific area or domain for a particular amount of time each day or week would be prescribed. Data collection efforts and results dictate the intensity, structure, and grouping of the intervention as it relates to what should be taught, how, for how long, with whom, and by whom. As ongoing (e.g., weekly or bi-weekly) data are collected, the form, structure, content, and grouping of instruction may change based on the needs of individual students. Once children’s responsiveness to intervention is determined (e.g., level, slope, and/or dual discrepancy), the provision of instructional resources is allocated based on need, with children with the lowest amount of responsiveness receiving continued, intensive intervention.

**Benefits to Implementation in Preschools**

The potential promise of implementing a RTI approach in preschool settings for the prevention of short- and long-term learning difficulties is considerable. Aside from the large body of knowledge documenting the effectiveness of early intervention, especially for individuals from economically impoverished backgrounds (Bowey, 1995; Lonigan et al., 1999; Raz & Bryant, 1990), convergent re-
search strongly suggests that the provision of preschool emergent literacy instruction is a seemingly powerful vehicle for reducing the risk of later reading problems (Adams, 1990; Lundberg, Frost, & Petersen, 1988; Snow, Burns, & Griffin, 1998; Whitehurst et al., 1999). This is especially notable given the stability of individual reading differences in the early elementary years.

Challenges to Implementation in Preschools

Unfortunately, few preschool programs, especially programs serving children from disadvantaged backgrounds who are the most at-risk for developing reading problems, have realized their full potential in preventing reading problems (Barnett, 2004). Several explanations are offered as to why programs serving young children have not utilized data-based decision making models such as RTI to increase academic outcomes for young children, including (a) the focus of preschool curricula and instruction, (b) the adequacy of assessment, and (c) early childhood teacher training and professional development.

Preschool programs, especially those serving children from disadvantaged backgrounds such as Head Start, have been accused of providing few activities that promote emergent skills in literacy, and focusing rather on music, arts and crafts, and physical activities (National Academy of Sciences, 2003). For example, Burchinal et al. (2000) reported that preschool classrooms lack exposure and opportunity to engage in language and literacy activities. More recently, a study conducted by McGill-Franzen, Lanford, and Adams (2002) found that preschools serving children from low-income homes tend to adopt curricula and pedagogical approaches that endorse a narrow view of learning outcomes by providing preschoolers with little access to print, few opportunities to participate in literacy, and little experience listening to or discussing relevant literature. In a study investigating preschool teacher beliefs concerning the importance of teaching a variety of developmental skills, teachers rated social-emotional skills significantly higher than language, literacy, and early math skills (Kowalski, Pretti-Frontczak, & Johnson, 2001). Moreover, skills most closely associated with academic content received the lowest ratings. Dickinson (2001) reported a negative relationship between preschool teacher endorsements of social-emotional skills and their students’ performance on early literacy indicators.

The relatively low importance preschool teachers place on including pre-academic content and activities in the classroom ignores an extensive body of research identifying classroom features, materials, instructional content, teacher behavior, and classroom activities that support and extend children’s growing literacy and mathematics skills. The long-heated debate by developmentally appropriate practice enthusiasts and direct instruction advocates should be reconsidered within the seminal findings by the National Reading Panel (2000) and National Academy of Sciences (2003) that note the benefits of early childhood direct instruction on increasing academic outcomes for young children with no evidence of deleterious effects on children’s motivation and independence in learning. Research supporting the efficacy of child-centered, explicit-embedded instruction in the acquisition of academic skills that seemingly do not compromise children’s self-confidence and intrinsic motivation to learn may have influenced the most recent position statement from the National Association for the Education of Young Children on developmentally appropriate practice (Bredekamp & Copple, 1997). This policy statement indicates a shift from exploratory learning toward providing preschoolers direct instruction and opportunities to develop print awareness, learn letter names and letter-sound correspondences, build language skills, and experiment with writing. In many preschool programs, especially those serving children from low socioeconomic backgrounds, however, the incorporation of pre-academic content has yet to be realized.

Commonly, early childhood educators do not receive adequate pre-service training or subsequent
Using RTI in Preschool

professional development in functional assessment and intervention models to effectively and efficiently identify young children needing intervention and the skills that need to be taught. An executive summary written by the National Academy of Sciences (2003) on educating preschoolers concluded that few early childhood teachers are trained on the usefulness and purposes of traditional standardized assessments and thus, misuse is rampant. In another study examining teachers’ use of assessment and curricula, most teachers reported using a wide-variety of assessment measures. However, they commonly cited measures that were inadequate for linking assessment to intervention, with many teachers reporting use of self-developed and/or program-developed measures of unknown reliability and validity (Pretti-Frontczak, Kowalski, & Brown, 2002). When asked about curriculum practices, over half of the teacher responses did not meet the definition of an actual curriculum. Thus, preschool teachers’ current assessment and curricular practices may not meet professional standards that actually promote the growth and development of young children’s pre-academic skills.

IMPLICATIONS FOR SCHOOL PSYCHOLOGISTS

Much has been written in the past decade on the call for school psychologists to work as early interventionists (Barnett, 2002; National Association of School Psychologists, 1997). This seems warranted given the fact that most states awarding credentials in school psychology endorse practitioners to work with youth ages 3-22 (California Commission on Teacher Credentialing, 2004). Additionally, most training programs in school psychology place a significant emphasis on preparing school psychologists as problem solvers and significant members of school teams (Gutkin & Curtis, 1999), skills necessary for implementing a successful RTI agenda. However, with the passage of the Individuals with Disabilities Education Improvement Act of 2004 (PL-108-446) and the increased focus on preventing learning problems and intervening early with struggling learners, school psychology training programs will need to emphasize assessment models that inform intervention, while deemphasizing deficit-focused assessment. Moreover, school psychology practitioners will likely assume a more significant role in establishing partnerships with parents, strengthening home-school collaboration, and utilizing an ecological approach to the identification and prevention of problems in a variety of educational settings.

Currently, an initiative slated to be on the June 2006 ballot will, if approved, make preschool available for all of California’s preschoolers. The initiative calls for state and local policy and action to guide preschools toward preparing three- and four-year-olds for kindergarten by developing preschool content standards, providing continual quality professional development to preschool teachers, and developing and implementing an accountability system (California Department of Education, 2005). Additionally, the California Department of Education is advocating the development and utilization of preschool performance monitoring instruments to measure children’s developing early literacy, language, and math skills on an ongoing basis. It is proposed that these progress monitoring instruments directly assess children’s academic skills so that preschool teachers can modify instruction to fit the needs of their children. In this vein, school psychologists can play a major role in working with preschool programs in selecting progress monitoring measures that meet the standards set forth by the National Center on Student Progress Monitoring (2005). Furthermore, school psychologists can be instrumental in training preschool teachers on the administration, scoring, and interpretation of assessment data to identify at-risk children and link assessment data to instruction. With the mandate to implement a preschool accountability system, school psychologists can be instrumental in collaborating with preschool directors and teachers to ensure all preschoolers are equipped with the necessary skills to meet the demands of an increasingly academically-oriented kindergarten.
CONCLUSIONS AND FUTURE DIRECTIONS

Although research has yet to be conducted on implementing a RTI model in preschool settings, much of the risk of replacing the current IQ-achievement discrepancy model with a RTI approach to identifying LD is not relevant for implementation in preschool settings because the negative ramifications of falsely identifying preschoolers for inclusion in intervention is low (Kaminski & Good, 1998). That is, adhering to a high standard for assessment and intervention procedures to indicate the presence of LD as a function of inadequate response to instruction may not be as important as utilizing measurement tools that indicate who may be at-risk of developing reading difficulties, the focus of instruction, and when interventions have reduced the risk of reading problems. The focus on prevention instead of remediation in a preschool RTI model affords the use of assessment instruments with a less rigorous standard of reliability and validity because the cost of a decision error is relatively low. If a child were mistakenly provided with additional intervention, as opposed to labeled with a disability and placed in a special education program, negative consequences would be minimal. For young children who indeed have an unidentified disability, a preschool RTI perspective can serve as a model for identifying young children with a disability who may need sustained, structured and individualized instruction outside the general education setting.

Nonetheless, implementation of a RTI model in preschool necessitates the empirical investigation of the utility, feasibility, and value of RTI with preschoolers. Thus, many of the same unknowns of implementing RTI in K-12 settings are applicable to early childhood settings. Specifically, additional research is needed to compare the effectiveness and viability of a standard protocol and problem-solving approach to examine the fidelity of implementing a RTI model by teachers and/or paraprofessionals who may have little knowledge of functional assessment practices and data-based decisions; to analyze the costs of implementation in relation to the benefits; and to examine teachers’ acceptability of RTI procedures and outcomes.

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Early Literacy Interventions for English Language Learners: Support for an RTI Model

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As part of a three tier prevention model, first grade students in a large urban school district were screened with measures of phonological awareness and nonsense word fluency to determine those in need of a Tier 2 reading intervention. The 15 lowest performing English language learner (ELL) students were selected and received a manualized phonological awareness intervention combined with a token economy. The students were monitored weekly with a Phoneme Segmentation Fluency (PSF) task and a Nonsense Word Fluency (NWF) task to assess improvement of their reading skills. Students were exited from the intervention upon reaching a predetermined level of both the PSF and NWF tasks. Twelve of the fifteen students were exited from the intervention and the remaining three students were referred for Tier three (intensive) intervention.

Key Words: RTI, ELL, Phonological Awareness, Reading Intervention, Early Literacy

The Individuals with Disabilities Education Improvement Act of 2004 (IDEIA2004) provides school psychologists an opportunity to address several of the limitations inherent in using the IQ/achievement discrepancy model to determine eligibility for special education (Gresham & Witt, 1997). The law’s revisions prevent states from requiring use of the discrepancy model in determining Learning Disability (LD) eligibility and only encourages the use of one other model: response to an intervention (RTI) (Wrights Law, 2004). An RTI approach can be described as a method to determine whether a student has a disability by examining the student’s response to a high quality intervention implemented with integrity. It is suggested that those students who do not respond to intervention at an expected rate, based on empirical standards or professional judgment, and are shown to be performing at a substantially low level (e.g., 10th percentile or below), can be considered to be eligible for special education services because of a learning disability (LD). An assumption of an RTI approach for determining special education eligibility is that a student’s failure to respond to an evidence-based intervention implemented with integrity is an accurate predictor of future performance (Gresham, 2002).

Given the importance of reading skills, it seems critical to determine the utility of the RTI approach to special education eligibility by focusing on the effects of early literacy interventions. To date there is a significant amount of information that has shown early reading skills can predict later reading ability and that these skills can be improved (Speece, Mills, Ritchey, & Hillman, 2003; Stage, Abbott, Jenkins, & Berninger, 2003; Torgesen, Wagner, & Rashotte, 1994). However, much of this research has focused on English only students, and not on ELL students.

There are challenges to assessing English Language Learners (ELL) when attempting to determine eligibility for special education. Some have suggested the most appropriate way to conduct an assessment for special education eligibility is to use a bilingual psychologist and assess in both the native language and English (Kamphaus, 2000; Lopez, 1997). However, it may not be practical to have all ELL students assessed by a bilingual psychologist. Alternate ELL intellectual assessment approaches such as non-verbal assessment have significant limitations and some consider the methods inappropriate (Bainter & Tollefson, 2003).
Three Tier Model

RTI decision making can be implemented as a component of the three tier model (Walker et al., 1996). At the first level there is a universal intervention, usually a district-wide curriculum. Universal screening is done to assess which students are not responding to the curriculum. At the second tier, students who have not made significant progress are provided more intense selected instructional interventions (Torgesen, 2002). The third tier is reached when students do not respond to this more intense intervention. At this point, they may be referred for an even more intense intervention or special education as a student with a learning disability (Torgesen, 2002).

Phonological Awareness

One area of current interest in the intervention literature is phonological awareness. Early phonological awareness skills account for a significant amount of variance in later word recognition and comprehension (Catts, Gillispie, Leonard, Kail, & Miller, 2002; Kirby, Parrilla, & Pfeiffer, 2003; Schatsneider, Fletcher, Francis, Carlson, & Foorman, 2004). Phonological awareness skills are also strong predictors of reading for non-English speaking children. Engen and Hoien (2002) studied Norwegian speaking students in Norway and found that phonological awareness accounted for significant variance in both word decoding and reading comprehension.

It also appears that phonological awareness skills transfer across languages. Correlations between Spanish phonological awareness tests and English reading ability have been found to be as high as the correlations between English phonological awareness tests and English reading ability (Lindsey, Manis & Bailey, 2003; Quiroga, Lemos-Britton, Mostafapour, Abbott, & Berninger, 2002). Kindergarten Spanish phonological awareness skills have been found to correlate significantly with English reading skills at the end of first grade (Lindsey et al., 2003). Durgunoglu, Nagy, and Hancin-Bhatt (1993) found that Spanish phonological awareness in first-grade Spanish-speaking students positively correlated with English and Spanish reading ability.

In addition to transfer between languages, phonological awareness skills are higher in the language of instruction versus the native language. Bialystok, Majumder, and Martin (2003) found that English bilingual children who were taught in French performed higher on phonological awareness tasks in French as compared to their performance on phonological awareness tasks in English.

Because of this link between phonological awareness skills and later reading ability, phonological awareness interventions have been put in place with students at risk for future reading failure due to their low phonological awareness skills. Kjeldsen, Niemi, and Olofsson (2003) found that students performing at or below the 25th quartile had higher reading scores when given a phonological awareness intervention than the students who had not been given the intervention.

Several studies have shown the positive impact of phonological awareness interventions on overall reading performance among minority children (Morris, Tyner, & Perney, 2000; Phillips, McNaughton, & MacDonald, 2004). Given the evidence previously presented regarding the strong correlation of phonological awareness across languages (Lindsey et al., 2003), there is reason to believe phonological awareness interventions in English should benefit ELL students.

The Current Study

The purpose of this study was to explore the possibility of using an RTI model with ELL students to determine who needs additional intensive services. Quiroga et al. (2002) implemented such an intervention program to eight students whose first language was Spanish. The intervention consisted of both phonological awareness training and repeated readings of English. Although the students’
reading ability did improve after the intervention, the effects of the phonological awareness training and the effects of the repeated readings of English could not be separated. No other studies of this type were found in a PsychINFO and ERIC database search conducted in January 2004. Thus, additional study is needed.

Before RTI can be used with ELL students, several questions must be answered. First, can this population benefit from a phonological awareness intervention delivered in English? In addition, it is important to determine whether monitoring RTI will identify those students most in need.

**METHOD**

**Participants**

Two forms of screening measures were used with a first grade, low SES (100% free lunch), urban setting of 259 students. First, all first-grade students were given a school-wide reading mastery assessment. Forty-five students who had obtained less than mastery on the measure were then given both a Phoneme Segmentation Fluency task (described below) and a Nonsense Word Fluency task (described below). Twenty-five students met the criteria for the study (receiving scores of 30 and below [below the 25th percentile; AIMSweb, 2004] on both tasks). One of the students who met the criteria exhibited selective mutism in the classroom and was therefore excluded from the study. The 24 remaining students were grouped according to their track in school. Five more students were then excluded based on their school track. These students were off-track during part of the intervention and would have therefore missed parts of the intervention. Nineteen students (11 males, 8 females) were then chosen to participate. During the study, two children moved away and one child with autism dropped out. Because the focus of this study was on ELL students, one participant’s scores were also excluded from analysis because of his Fluent English Proficiency score on the California English Language Development Test (CELDT). There were 7 males and 8 females included in the final analysis. All students were ELL students, ranging from beginning to intermediate based on CELDT scores (see Table 1). Fourteen students’ first language was Spanish and the remaining student spoke Vietnamese. All participants were between the ages of six and seven years. All students continued to receive Open Court reading instruction in their classroom.

**Materials**

*Intervention curriculum.* A district and state approved, manualized phonological awareness curriculum, *Sounds and Letters for Readers and Spellers* (Greene, 1997) was used for this study’s intervention. This intervention was implemented in English because of the evidence that stronger intervention effects are seen when the intervention is in the primary language of instruction (Bialystok et al., 2003). The intervention was provided in small groups, with no more than five participants per group. With only a few exceptions no deviations for the intervention’s manual were made.

*Progress monitoring.* English Phoneme Segmentation Fluency (PSF) and Nonsense Word Fluency (NWF) were used as progress monitoring tools to monitor the students’ progress during the intervention (Shinn & Shinn, 2002). English progress monitoring tools were used because of the evidence of strong correlations between English and Spanish phonological awareness (Lindsey et al., 2003; Quiroga et al., 2002). PSF is an individually administered test that takes one minute to administer. Words were presented to participants orally, one at a time, and students are then asked to identify the specific phonemes in each word. The overall score is the number of segmented sounds correctly identified in one minute. During the winter of first grade, the 25th percentile is 31 correctly identified.

*Footnote.* Contact the first author at kheal001@student.ucr.edu for the specific intervention protocol.
segments (AIMSweb, 2004). PSF alternate form reliability is .88 for two weeks and .79 for one month (Kaminski & Good, 1996).

NSF is an individually administered test that also takes one minute to administer. Participants are given a sheet of nonsense words in the form of consonant-vowel-consonant and asked to read aloud the words. Participants can either read the word as a whole word or as the individual sounds that make up the word. The overall score is the number of letter sounds read correctly in one minute. During the winter of first grade, the 25th percentile is 30 correctly read sounds (AIMSweb, 2004). Good et al. (as cited in Official DIBELS home page, 2004) found that in first grade the alternate form reliability of NWF is .83, and the predictive validity to oral reading fluency is .82. Speece et al. (2003) found NWF to be a valid measure of early reading performance.

Token economy. A meta-analysis performed by Fuchs and Fuchs (1986) showed that progress monitoring has the greatest effect sizes when combined with behavior management. Given this finding, all participants were given a card with their names on it, in which they could earn stars for good behavior exhibited during the intervention session. After obtaining 10 stars students could choose a prize out of a “treasure box.”

Procedures

The original 19 students were broken up into four groups: three groups of five and one group of four, based on their classroom and track assignment. Two graduate students administered the phonological awareness training two times per week in 30 minute sessions to the participants. One unit of instruction was given during each intervention session. The Letters for Readers and Spellers (Greene, 1997) curriculum contains 18 lessons. At the completion of lesson 18, the intervention started back on lesson 1, using different vocabulary words. Each participant was assessed once a week with both PSF and NWF before the first training session of the week. The intervention lasted for 12-25 sessions depending on the participant’s degree of progress. After 12 sessions, those students whose trendline

<table>
<thead>
<tr>
<th>Participant</th>
<th>CEDLT</th>
<th>Baseline PSF</th>
<th>Final PSF</th>
<th>Baseline NWF</th>
<th>Final NWF</th>
<th>Exited</th>
<th>Exit Session</th>
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<td>17</td>
<td>50</td>
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</tr>
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<tr>
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<td>25</td>
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</tr>
<tr>
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<td>15</td>
<td>64</td>
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</tr>
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<td>27</td>
<td>51</td>
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<td>NA</td>
</tr>
</tbody>
</table>
exceeded their goal line and had met the exit criteria (45 correctly segmented sounds on PSF and 50 correct letter sounds on NWF) were exited from the program. Six students were exited after 12 sessions and subsequently the groups were reformed. Each group always contained five or fewer students.

**Design**

A modified single-case A-B design was used. In an RTI model, goals are set and decisions are made based upon whether or not goals are met. In this study, a goal line was set for each participant, using the participants’ baseline data and the exit criteria for both PSF and NWF to determine whether participants were making the required gains needed to reach their goal. Trend lines through each participant’s data were drawn in order to compare the participants’ growth each week to the growth needed in order to reach the goal.

**Inter-observer Agreement**

Two graduate students were involved in the progress monitoring. Treatment integrity data were collected during five different progress monitoring sessions. During these five sessions, both graduate students recorded scores for participants during both the PSF and NWF administrations. Inter-observer agreement on PSF ranged from 81% to 100% per administration, with a combined agreement of 95%. Inter-observer agreement on NWF ranged from 75% to 100% per administration, with a combined agreement of 91%. Total inter-observer agreement for both PSF and NWF ranged from 75% to 100% with a total combined agreement of 93%.

**RESULTS**

The baseline scores on PSF ranged from 0 – 30 \( (M = 15.4, SD = 10.2; \text{ see Table 1}) \). The baseline scores on NWF ranged from 0 – 27 \( (M = 16.5, SD = 7.9; \text{ see Table 1}) \). The final intervention progress monitoring point for PSF ranged from 14 – 68 \( (M = 54.3, SD = 13.0; \text{ see Table 1}) \). The final intervention progress monitoring point for NWF ranged from 5 – 86 \( (M = 52.7, SD = 16.7, \text{ see Table 1}) \). The participants as a whole went from means in the at-risk range to means in the mastery range (DIBELS Benchmark levels, 2004). Swanson and Sasche-Lee (2000) recommend using the pooled standard deviation of both the baseline and the treatment when calculating Cohen’s \( d \) single case effect sizes. The effect size for PSF was 1.7 and for NWF was 1.6. Due to autocorrelation interpreting effect sizes of single case designs must be done with caution (Parker et al., 2005). Of the 15 students who participated in the study, six were exited during the first exit period after receiving 12 intervention sessions. Overall, 12 of the students (80%) were exited by the twenty-fifth session (Table 1). These twelve students ranged in ELL status from beginning to intermediate as determined by CEDLT. Two participants (13.3%) had met the exit criteria for PSF, but not NWF by the conclusion of the intervention (Table 1). These students were identified as Intermediate ELLs. One student (6.7%) had met the exit criteria for NWF, but not PSF by the conclusion of the intervention (Table 1). This student was identified as an Intermediate ELL.

**DISCUSSION**

The purpose of this study was to examine some of the basic assumptions of an RTI model for special education eligibility with an ELL population. A critical assumption in an RTI model is that most students can benefit from structured intensive instruction. Therefore, it seems important to determine if ELL students benefit from an English phonological awareness intervention. It is also critical to
know whether the students’ performance facilitates identification of those most in need of additional services. Lack of response to a high quality intervention is intended to provide the IEP team with data that indicates the student has a disability and if need is established is eligible for special education.

The data from this study provide initial support for using an RTI model to intervene with ELL students who have concerns related to literacy. Participants 1 through 12 met both their PSF and NWF goals. In an RTI approach, this signifies that these students do not have a disability and therefore a team would not need to address eligibility concerns for these students. Participants 13 and 14 both met the goal for PSF, but not NWF. In the case of Participant 13 the student’s trend line was parallel and just under the goal line. However, as shown in Figure 1, Participant 14 clearly did not meet her goal for NWF. Her trend line was essentially flat and continuously widened further away and below her goal line. Somewhat surprisingly, Participant 15 met the goal for NWF, but not PSF.

For the three students who did not attain the desired cut off scores, three options exist. First, the current intervention could be continued without modification. This is what teams would typically decide to do with Participant 13, who if given a few more weeks of instruction would likely have met his goal. A second option is that these students could receive a different intervention. In some cases more assessment data might be necessary to help further define the problem, but in both of the remaining cases the problem seems fairly clear. Participant 14 has achieved her goal in phonological awareness, but not in phonics. Providing the student a more targeted phonics intervention to supplement classroom instruction is one option teams might choose. For Participant 15, the data initially may seem counter intuitive. Phonological awareness typically develops before phonics is completely established. Yet, the student met the goal for phonics (i.e., NWF), but not for phonological awareness (i.e., PSF).
One of the final options a team can consider for students who do not meet the goals set within a desired time frame is to look at more intensive interventions. The choice could be an intensive individualized intervention, or the team could decide to investigate eligibility for special education. Most likely, additional assessment data are not necessary. The disability would be determined by documenting the student did not respond to intervention. The need for special education could be determined through multiple measures including an individually administered achievement test.

**Implications for School Psychologists**

There are at least two different approaches to using RTI as a method for determining eligibility for LD. The first approach is to simply replace the current discrepancy model with the RTI model. When students are referred to a Student Study Team (SST), interventions are developed and progress monitoring is implemented to assess the impact of the intervention. At some pre-determined point, the SST examines the data and makes one of four decisions: (a) set a higher goal; (b) continue the intervention; (c) change the intervention; or (d) refer for special education eligibility determination. The IEP team uses the data from the intervention along with some indicator of peer standing (e.g., California Achievement Test – Sixth Edition [CAT6], Woodcock-Johnson-Third Edition-Achievement [WJIII-Ach], local norm system) to help them determine if the student is eligible for special education.

A second approach to RTI is to implement a prevention model that is focused on affecting the entire student population. The data from the prevention program can also be used to inform special education eligibility. In this study, a prevention oriented approach was used. The students were selected and the intervention started as part of a three-tier model (Walker et al., 1996). All students were first screened, and those students below cutoff scores in PSF and NWF were selected to participate in the intervention. Twelve of the fifteen students met the exit criteria for both NWF and PSF by the conclusion of the study. Only three participants were not exited from the program. The group as a whole went from mean PSF and NWF scores that were considered to be in the at-risk range to mean PSF and NWF scores that were in the mastery level range (DIBELS Benchmark Goals, 2004). By providing data suggesting that a stand-alone phonological intervention for ELL students can cause significant skills growth, this study provides preliminary support that instruction in English is beneficial to English Language Learner students.

The usefulness of this intervention has implications for the practice of school psychology. A typical school psychologist spends approximately 50% of the day testing, while only spending approximately 20% of their time conducting direct intervention (Reschly, 2000). In this case, a total of three hours per week was spent implementing and evaluating an intervention with the lowest performing first-grade students in one school. At the end of 16 weeks, only three students needed additional services.

Through this model, the school psychologist could spend less time in assessment testing and more time in other areas such as intervention implementation, progress monitoring, and consultation. It is important to note that the interventionists in this study were first-year school psychology graduate students implementing reading interventions for the first time.

**LIMITATIONS AND FUTURE CONSIDERATIONS**

The sample for this study all came from one low SES school. A possible area for future research would be to include ELL students differing in SES status and from multiple schools. It is important to determine the factors that influence acquisition of English phonics skills and the extent to which these factors affect their response to reading interventions. Additional interventions should be attempted
with ELL students using a randomized control trial design to determine the most effective way to intervene with students who are second-language learners.

Because this was a demonstration of implementing RTI in a natural environment, typically single-case methodology was not employed. For example, only one data point was collected during baseline to allow the intervention to be implemented as quickly as possible. Treatment integrity was only addressed by ensuring that the interventionists used a manualized intervention.

REFERENCES


Reflections on Practice Within the Heartland Problem-Solving Model: The Perceived Value of Direct Assessment of Student Needs

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Considerable variation exists across response-to-intervention (RTI) approaches. There is currently insufficient research on outcomes associated with these different RTI approaches to inform decision-making. However, school psychologists who are asked to work within an RTI model need guidance to select an approach that has a high likelihood of leading to optimal student outcomes. This article describes, illustrates, and supports two aspects of the RTI approach used at the Heartland Area Education Agency, from the perspective of a practicing school psychologist. These two aspects include (a) intervention selection that is based on an individualized problem analysis, and (b) the identification of specific instructional needs as a part of the special education eligibility determination process. An analysis of how the Heartland Problem-Solving Model (PSM) was applied to address the needs of a kindergarten student is provided to illustrate these features. Criticisms and challenges associated with the Heartland PSM are noted, along with guidance for future RTI model research and implementation.

Key Words: RTI, Heartland Problem-Solving Model, Special Education Eligibility

Widespread concern with traditional models for the identification of students with learning disabilities (LDs), as evidenced by recommendations made by those involved in the LD Roundtable (2002) and the LD Summit (Bradley, Danielson, & Hallahan, 2002) have highlighted the need to develop and implement alternative identification models. Given the reference to an alternate response-to-intervention (RTI) method in the reauthorization of the Individuals with Disabilities Education Improvement Act (IDEIA, 2004), it is likely that many school districts will consider implementing such a model in the near future. Although information is available on changes in the percentages of students receiving special education services that are associated with RTI approaches (Grimes & Kurns, 2003; Hartman & Fay, 1996; Marston, Muyskens, Lau, & Canter, 2003), there has been relatively little evaluation to date of effects of RTI model implementation on student achievement outcomes (D. Fuchs, Mock, Morgan, & Young, 2003). It is clear that more data on the effects of various RTI approaches are needed to inform practice; however, school psychologists who may be asked to implement these approaches in the very near future need guidance now on how to promote the best possible outcomes for students. The purpose of this article is to highlight and support, through case study analysis, two aspects of the Heartland Problem-Solving Model (PSM) considered to be important from the perspective of a practicing school psychologist.

Identified Differences of Various RTI Approaches

In a recent symposium on RTI, several researchers and practitioners described various features and outcomes of RTI approaches (National Research Center on Learning Disabilities, 2003). Although all of the described approaches included screening procedures, intervention implementation, progress monitoring, and evaluation of student responsiveness, they differed in a variety of ways, such as the...
number of intervention levels or tiers, the persons involved in developing interventions, the length of
time in which interventions were implemented, how students were selected for intervention, among
other differences. In the current paper, the perceived value of two aspects of the Heartland PSM are
described and illustrated. These include: (a) intervention selection based on a careful problem analy-
sis; and (b) consideration of student instructional needs as a part of the special education eligibility
determination process. These aspects were chosen based on the author’s perception of their impor-
tance after having worked as a school psychologist within the Heartland PSM. The following sections
include a description of how these selected aspects vary across RTI approaches, as well as an analysis
of the research available on outcomes associated with these differences.

The intervention selection process. One general RTI approach involves the use of a similar inter-
vention for all students with similar academic needs; this has been referred to as the “standard proto-
col” approach (D. Fuchs et al., 2003, p. 157). Using this approach, students who are identified as low-
achieving within a given content area receive the same empirically-supported intervention for a given
period of time. The extent to which the intervention improves achievement is then determined sepa-
ately for each student. By definition, interventions selected using this approach are empirically sup-
ported. Potential benefits of this approach in comparison to others are that: (a) treatment integrity is
more likely, given that only one intervention must be mastered and applied by educators; and (b)
research-based interventions are applied to a large group of students (D. Fuchs et al., 2003).

An alternative RTI approach involves the selection of an intervention that is tailored to individual
student needs, as determined through a more comprehensive problem analysis. Heartland Area Educa-
tion Agency (Heartland AEA) and those working within the Pennsylvania Instructional Support Team
project represent groups that have used this approach, the former of which has used curriculum-based
evaluation (CBE; Howell & Nolet, 2000), and the latter of which has used curriculum-based assess-
ment (CBA; Gravois & Gickling, 2002) to analyze individual student problems. CBE has been de-
scribed more specifically as a process that involves systematic investigation of the potential causes for
student academic and behavioral difficulties, validation of those causes, and linking the findings to
associated interventions (Howell et al., 2002). CBA has been described as a process for matching
instruction to a student’s particular skill level within the given curriculum, in order to teach to the
student’s current skill level and prior knowledge (Gravois & Gickling, 2002). The problem analysis is
intended to inform the selection of an intervention with a high probability of success for the individual
student. Both CBE and CBA involve examining the curriculum, instruction, and/or environment in
relation to the student’s current strengths and weaknesses, as determined through direct measures of
student skill and knowledge.

The majority of research studies that have examined RTI approaches have addressed response to
reading interventions, in particular. This is likely due to the fact that there has been more systematic
investigation of intervention strategies for reading than for other content areas (Seethaler & Fuchs,
2005). However, even within this more heavily investigated area, controlled investigations that com-
pared student outcomes associated with different intervention selection methods (i.e., standard proto-
col and problem-solving) were not identified.

Despite this lack of controlled comparative investigation, most related research studies tend to
highlight the need for tailoring research-based reading interventions to the individual needs of the
child, regardless of whether the studies have been classified as involving a “standard protocol” or
“problem-solving” approach by outside researchers. For instance, Vellutino et al. (1996) has been
classified as an example of the standard protocol approach (D. Fuchs et al., 2003); however, the inter-
vention under investigation in the study involved the provision of highly individualized instruction. In
fact, video-tapes of tutoring sessions (i.e., the “standard protocol”) were reviewed by the researchers
to ensure that instruction was tailored to the individual needs of the child. Results indicated that many students made substantial progress during intervention implementation. Although limited in power by a small sample size ($n = 56$), McMaster, Fuchs, Fuchs, and Compton (2003) suggested that their study supported an individualized one-on-one tutoring intervention as most effective. Vaughn, Linan-Thompson, and Hickman (2003) found that many students responded in a relatively short amount of time to a highly prescribed tutoring intervention that was provided to groups of three students at a time; however, they eventually altered the intervention for those students who were failing to respond in order to better address individual student needs. Altogether, these studies appear to highlight the value of individually-tailoring interventions to specific student needs.

A final approach to intervention selection that has been suggested for use within an RTI framework involves analysis of individual student cognitive processing deficits. Naglieri (2004) has proposed the use of an associated Planning, Attention, Simultaneous, and Sequential Processing (PASS) theory to guide intervention planning. This theory guided the development of the Cognitive Assessment System (Naglieri & Das, 1997). Only two research studies were identified that examined the effectiveness of this approach. Although one study suggested that cognitive strategy instruction was differentially effective for students who scored low on the planning component of the Cognitive Assessment System, the study included a very small sample ($n = 19$; Naglieri & Johnson, 2000). In a more recent study of 267 students, researchers found that a selected intervention was not differentially effective across students with specific cognitive weaknesses (Kroesbergen, Van Luit, & Naglieri, 2003). Given that only two research studies were identified, it appears that more research is needed to investigate whether assessment of cognitive processing deficits can provide a link to interventions that are more effective than others for particular students.

Criteria used to determine eligibility for special education. A second important difference across RTI approaches is the extent to which students’ instructional needs are determined prior to making a special education eligibility decision. L. Fuchs, Fuchs, and Speece (2002) suggested using evidence of a “dual-discrepancy” to determine whether a student has an LD and is therefore in need of special education services. They suggested using curriculum-based measurement (CBM) to determine both a student’s achievement level and rate of growth. A demonstrated discrepancy from peers in both achievement level and growth rate (i.e., “dual discrepancy”) following the implementation of an intervention is then considered necessary for students to be eligible for special education services. An earlier model of this approach included a trial of special education services to determine whether the services were effective prior to fully entitling a student; if they were not effective, the child would begin receiving general education services alone without additional intervention support (L. Fuchs & Fuchs, 1997). L. Fuchs et al. (2002) recently argued that it is likely that the students who fail to respond to this trial period are those most in need of special education services, and therefore they suggest that a trial special education period be used to collect more information to decide what programming is most appropriate for the child (e.g., general education with accommodations, more intense special education services, etc.). Using this approach, instructional needs are not identified before a student begins to receive special education services.

A contrasting approach requires the identification of the conditions under which a student is successful prior to the initiation of special education services. Within the Heartland Problem-Solving Model (Heartland PSM), eligibility for special education services is considered only after a student’s instructional needs have been carefully identified. It is important to note that the Heartland PSM is intended to address all types of educational problems: minor and severe, short-term and long-term, academic and social-behavioral, and not just the educational problems of students who are being considered for possible special education services. However, those students who, based on a careful analy-
sis of their needs, have demonstrated that they require a substantial amount of resources to make appropriate progress are determined to be “entitled individuals.” It is likely that many students identified as “entitled individuals” at Heartland AEA would be considered students with LDs in other places. Within the Heartland PSM, the following criteria must be met for a student to be eligible for special education entitlement: (a) a substantial discrepancy in an academic or social-behavioral area given equal or enhanced opportunities for the student to meet the given standard; (b) an insufficient increase in a student’s rate of learning following general education intervention, or the interventions needed to improve learning rate are too demanding to be implemented with integrity using general education services alone; and (c) the conditions under which the student does make progress within the area of concern must be identified (Heartland, 2002). In contrast to the dual-discrepancy approach, this model does not necessarily require a substantial deficit in growth rate for eligibility; instead, one must demonstrate what is needed to improve student learning. If what is needed is too extreme to be provided through general education services alone, the child may be considered eligible for special education services.

Similar to the lack of controlled research identified comparing the effectiveness of the two different intervention selection methods, no research was identified that compared student outcomes associated with the various eligibility criteria evident across RTI approaches. However, information on special education entitlement rates associated with RTI implementation was found. In Iowa, where many districts require the identification of specific student instructional needs prior to entitlement, there has been a slight increase in rates of students receiving special education services, which parallels increases identified nationally (Grimes & Kurns, 2003). In the Minneapolis Public Schools, a demonstrated discrepancy in student achievement and a need for intervention beyond what can be provided in general education are necessary to meet special education eligibility criteria; however, documentation of the conditions under which a student is successful is not required. Rates of students with mild academic disabilities have remained around 7% over time within this school district (Marston et al., 2003). More research is needed to answer questions about the value added to student outcomes as a result of including the identification of specific instructional needs as a part of special education eligibility decisions.

Without sufficient research, school psychologists will need to use their best judgment in advocating for various aspects of RTI approaches. The purpose of the following section is to describe the Heartland PSM, in general, and illustrate through case example the value in how interventions are selected and how instructional needs are identified within the Heartland RTI approach.

The Heartland Problem-Solving Model (Heartland PSM): A General Overview

Since the early 1990s, Heartland AEA has been implementing a unique model for the delivery of school psychology and special education services (Ikeda et al., 2002). The intent of the model is to match each student’s academic and social-behavioral learning needs with the resources available through general education services (and special education services, if deemed necessary). When a student’s academic performance or behavior is substantially discrepant from a given standard, typically that of peers, the student is referred to a problem-solving team (i.e., building assistance team or “BAT”). This team works to identify the resources needed to improve the student’s learning through a problem-solving process. This process involves the following steps: (a) an individual problem is identified and analyzed; (b) an individualized intervention plan is developed based on the results of the problem analysis, such that the intervention plan has a high probability of leading to student success; (c) the intervention is implemented and student outcomes are monitored; and (d) an evaluation of the results is conducted to determine whether to continue or modify the plan. When it appears that a problem is
particularly severe and may require significant resources, CBE (Howell & Nolet, 2000) is used to
guide an analysis of the problem. CBE involves analysis of alterable variables (as opposed to innate
student characteristics) in order to identify an intervention that can be implemented to positively influ-
ence student behavior and learning. For a more comprehensive description of the Heartland PSM,
readers are encouraged to examine Ikeda et al. and Tilly (2002). A summary of reported outcomes of
the Heartland model is presented in D. Fuchs et al. (2003).

Although the Heartland PSM has in the past focused primarily on individual student academic and
social-behavioral needs, it is currently undergoing revisions to include problem-solving efforts to ad-
dress school-wide needs. Using a school-wide approach, all students in the school are identified as
either (a) meeting expectations \textit{(benchmark)}, (b) needing strategic intervention \textit{(strategic)}, or (c) needing
intensive intervention \textit{(intensive)}, based on their performance on academic or behavioral screening
measures that are evaluated against an external standard. Depending on the percentage of students
meeting the externally-determined expectations, school and Heartland AEA personnel collaboratively
analyze student needs in relation to the curriculum, instruction, and the environment at either a school-
wide, small group, or individual student level. The school-wide model is intended to ensure that the
school, as a whole, is meeting high external standards, and to assist with addressing individual student
skill deficits more efficiently through group intervention. At the same time, the revised model main-
tains a commitment to the provision of systematic, individualized problem analysis and intervention
for students displaying severe problems and/or unique educational needs. For a more detailed descrip-
tion of this revised model, readers are encouraged to examine Grimes and Kurns (2003). Although
limited research on student outcomes associated with this model are currently available, the model
represents an application of suggestions provided by researchers for addressing academic and social-
behavior skills in educational settings (Simmons, Kame’enui, & Good, 2002; Sugai & Horner, 1999;

HEARTLAND PSM CASE STUDY: JOSHUA

The following case study illustrates how group and individual problem-solving was used to ad-
dress the needs of a kindergarten student (Joshua) within Heartland AEA. It is important to note that
this case study was completed by someone relatively new to the agency; individuals with more expe-
rience working within the Heartland PSM may have handled the case somewhat differently. However,
because this was completed by someone new to the agency, it may more accurately reflect some of the
challenges that those just beginning to implement a similar model may encounter in practice. The
school psychologist who completed this case study had received substantial problem-solving training
at Heartland, and was participating in regular supervision meetings.

Screening for early literacy problems was conducted at Joshua’s school using the \textit{Dynamic Indi-
cators of Basic Early Literacy Skills} (DIBELS; Kaminski & Good, 1998). The DIBELS are a set of
brief early literacy skill measures that can help identify students in need of additional intervention
(Hintze, Ryan, & Stoner, 2003). Using the DIBELS, students are classified as either at benchmark, in
need of strategic intervention, or in need of intensive intervention. At the given school, 18% of the
kindergarten students were selected for intervention based on a combination of failing to meet the
associated DIBELS benchmark levels, lack of progress as measured by fall and mid-year DIBELS
scores, and teacher recommendation. Based on a brief consultation with a reading expert, school per-
sonnel decided to have several kindergarten teacher associates (i.e., paraprofessionals) trained to ad-
minister \textit{Road to the Code: A Phonological Awareness Program for Young Children®} (Blachman, Ball,
Black, & Tangel, 2000). Although the effectiveness of this program has not been investigated in its
current form, it was developed out of several research studies pointing to the effectiveness of teaching
segmenting, blending, and other phonemic awareness skills to young children (Ball & Blachman, 1991; Blachman, Ball, Black, & Tangel, 1994; Torgesen, Morgan, & Davis, 1992). Target students were provided this instruction for 15 to 20 minutes a day, four days a week, across five weeks. Part way through the intervention, Joshua was identified as a student who was not responding. The school psychologist was then invited to provide assistance to the problem-solving team, which consisted of Joshua’s parents, teacher, teacher associate, and a school counselor.

**Problem Identification**

Joshua’s teacher expressed concern with both Joshua’s early literacy skill development and his difficulties attending to classroom instruction. DIBELS results indicated that Joshua remained substantially discrepant from his peers’ performance from five weeks earlier (see Figures 1, 2, and 3 for DIBELS results).

The school psychologist conducted an observation of Joshua during an individual work time that transitioned into a group instruction time using a momentary time-sampling technique. Joshua’s eyes were on the teacher for 48% of the moments sampled; randomly-selected male peers (n = 12) had their eyes on the teacher for 65% of the observed intervals. These data were used to verify that Joshua was discrepant from his peers in both literacy skill development and attention-related skills.

**Problem Analysis**

His teacher indicated that Joshua had particular difficulty demonstrating eye contact during group instruction. Joshua’s attention difficulties specific to group instruction time were verified through a

![Figure 1.](image)

**Figure 1.**

**Letter Naming Fluency Performance**

*Note.* Only Joshua was tested at the mid-year + five week point; the other data points at this time are estimates based on linear growth for the rest of the class.
Figure 2.
Phoneme Segmentation Fluency Performance
Note. Only Joshua was tested at the mid-year + five week point; the other data points at this time are estimates based on linear growth for the rest of the class.

Figure 3.
Nonsense Word Fluency Performance
comparison of structured observations of Joshua’s on-task behavior across individual seatwork and group instruction time. During the observations, the teacher engaged in a variety of positive classroom management strategies including tactics such as saying “one-two-three, eyes on me” to which the students replied in chorus “one-two-three, eyes on you.” Joshua rarely responded to this cue. The teacher also provided many students, including Joshua, positive comments such as “I like the way you are listening.” She reported that at one point she had very briefly implemented a simple behavior plan for Joshua (i.e., stickers on a sheet for behaving appropriately during intervals across the day) that was unsuccessful. With these data, the school psychologist had reason to believe that despite instruction that was adequate for teaching other students to maintain eye contact, Joshua was failing to consistently demonstrate this skill.

The school psychologist was informed that there was not a systematic early literacy instruction program in place at the school. She briefly examined the *Road to the Code* program materials and informally observed how this program was administered. Joshua appeared to require substantial prompting and direction to stay on-task during the observation. His phonemic awareness skills were examined by sampling his ability to blend sounds at the word and syllable levels (on which he was successful), followed by an investigation of whether he could blend sounds at the sound level (on which he was unsuccessful). He could not segment successfully at any of these levels.

**Intervention Planning**

Given that the segmenting and blending skills that Joshua currently lacked were addressed in the *Road to the Code* program, the team decided to continue providing this intervention on a 1:1 basis by the associate for 20-minute sessions three times a week. It was unclear whether instruction in eye contact had been sufficient for Joshua to acquire this skill; therefore, the school psychologist met with Joshua individually to demonstrate and practice eye contact in a 1:1 setting. Following this instruction, she sat in the back of the class with Joshua during a 15-minute group instruction time to provide regular individualized feedback on his demonstration of eye contact. This instruction and feedback was repeated on a weekly basis. The teacher attempted to ensure generalization of Joshua’s demonstration of this skill by providing stickers to him after sessions in which he was successful. These stickers were sent home to Joshua’s parents to offer him additional reinforcement. Although this reinforcement strategy had been used unsuccessfully in the past, the teacher indicated that she had previously neither implemented the strategy for a long period of time, nor had she previously targeted a specific behavior for reinforcement with the plan. Joshua indicated that he liked receiving stickers for demonstrating good eye contact.

**Plan Implementation and Progress Monitoring**

Joshua’s response to the intervention was monitored weekly using 10-minute momentary time-sampling observations of his eye contact during group instruction. Evidence of intervention integrity was documented through the sticker sheets that accumulated over the course of the intervention, as well as through a weekly check-in with the associate and teacher about the literacy intervention. Following initial implementation of the intervention, Joshua’s teacher indicated that he did a particularly good job of making eye contact when he was reminded to fold his hands and place them under his chin; this accommodation was then added to the plan.

**Plan Evaluation**

After seven weeks of implementation, the team reviewed Joshua’s progress. Based on additional DIBELS data collected as part of the end-of-year benchmark, it was determined that Joshua was mak-
ing substantial progress across continued implementation of Road to the Code. His rate of progress was similar or greater to that of his peers; however, Joshua’s overall performance remained substantially below that of his peers (see Figures 1, 2, and 3). A measure of his blending and segmenting skills indicated that he was able to blend consistently at the sound level, and was able to segment at all three levels (word, syllable, and sound levels). However, he had not yet mastered sound knowledge for all of the letters, which was a skill necessary to be successful at the beginning of first grade. It had not been possible to measure eye contact across all targeted observations given that on several occasions when the psychologist entered the room, group instruction had already started, and Joshua was seated in a position that made it impossible for the psychologist to unobtrusively monitor eye contact. Based on the three observations that were accurately completed during group instruction, Joshua’s eye contact averaged 30% of the moments sampled.

The team decided that additional resources would be needed for Joshua to catch-up to his peers in reading. A full and individual evaluation plan was developed and signed by Joshua’s parents to determine whether Joshua’s learning needs required the use of special education services. Within Heartland AEA, three questions need to be answered affirmatively in order for a student to be eligible for special education services. They include the following (answers obtained from Joshua’s case are provided):

1. Is the student’s rate of progress given equal opportunity less than the rate of typical peers or an expected rate of skill acquisition? Under what learning conditions has the student experienced the greatest rate of gain?
   Yes. Joshua’s increase in early literacy skills was associated with implementation of a 1:1 reading program that stressed phonemic awareness skill development.

2. Does the student’s performance remain significantly different than that of peers or identified standards?
   Yes. Joshua continues to deviate from peers in early literacy skills as measured by the DIBELS (e.g., below 10th percentile). He also remains substantially below the expected benchmark standards for performance on two of the three DIBELS measures administered.

3. Does the student continue to need curriculum and instruction that is significantly different than what is provided in the general education classroom? Additionally, what environmental conditions will best enhance the student’s performance?
   Yes. Joshua needs continued instruction to develop letter sound correspondence and improve his phonemic awareness skills. He tends to make the greatest progress when provided instruction in a 1:1 setting that allows for very frequent monitoring and feedback of his skill development. Given that trained associates will not be available to Joshua in his first-grade year, and that it is expected that students have mastered letter-sound correspondence early in their first-grade year, it appears that Joshua will need special education services in order to facilitate his rate of progress such that he is on track in learning to read.

Eligibility for Special Education Entitlement

From the answers to these questions, Joshua was considered eligible for special education services as an “entitled individual.” An individualized education program (IEP) was developed to provide Joshua with continued 1:1 early literacy instruction for a short time daily by a special education teacher, with a focus on phonemic awareness skill development. A behavioral skill acquisition and management plan was attached to his IEP to ensure that his eye contact skills would continue to be addressed and monitored across both general and special education settings.
DISCUSSION

Reflections on the Value of Problem Analysis and the Identification of Optimal Learning Conditions within the Heartland PSM

Using the Heartland PSM approach, Joshua’s difficulty in early literacy skill development was carefully analyzed to determine the skills with which he was struggling, in an effort to link an intervention plan to his specific needs. His intervention plan was carefully tailored to address both early literacy and attention skill needs. If a standard protocol method had been used, in which all struggling students receive the same intervention, Joshua may have simply qualified for special education services following a failure to demonstrate progress with the original *Road to the Code* intervention. Within that scenario, the school psychologist would never have been involved in conducting a thorough problem analysis. Without this information, an educator may have been at a loss for how to begin addressing Joshua’s needs.

Throughout the problem-solving process, the team was working to ensure that Joshua received services matched to his level of need. Under the Heartland PSM, support is not eliminated until a child has met a predetermined achievement standard. In this way, there is a continuum of support available. In contrast, the description of the standard protocol approach to RTI described in D. Fuchs et al. (2003) does not specify whether there is continued support available for students who fail to meet the dual discrepancy criteria following intervention implementation. If the team had made a decision about whether Joshua required continued support on the basis of whether he demonstrated a dual-discrepancy following implementation of the combined individualized *Road to the Code* and attention skill instruction intervention, the added supports may have been removed (according to L. Fuchs and Fuchs [1997] model), given that he did not demonstrate such a dual discrepancy. There is certainly a need for the availability of continued support for students who remain below an achievement standard, despite making substantial progress following intervention implementation; the Heartland PSM presents a vehicle for ensuring that such support is available.

If and when special education services are initiated within the Heartland PSM, there is a level of certainty that the services will enhance student outcomes, given that specific conditions under which the student is successful are identified as part of the eligibility determination process. Because the effectiveness of special education for learning problems has been questioned (Bentum & Aaron, 2003; Kavale & Forness, 1999), this is considered a particularly important aspect of the Heartland PSM approach. For Joshua, it was clear that he was successful when *Road to the Code* instruction was provided individually; this information was used to guide the development of his IEP. If a mere dual-discrepancy formula was used to determine special education eligibility (i.e., a student was found eligible based merely on discrepancies in performance level and rate of progress), it would remain unclear whether special education services would have a high likelihood of leading to improved student performance.

The Heartland PSM provides a vehicle for the continued enhancement of general educator skills, knowledge, and decision-making processes. In the case described, the problem-solving team members were able to make more efficient use of resources already available through general education services to meet Joshua’s needs. In fact, the teacher associate that administered the *Road to the Code* program indicated how valuable the experience had been for her, and that it made her feel that her work was really making a difference in the life of a child. From the success of the *Road to the Code* intervention, the kindergarten staff decided to implement a more structured school-wide early literacy skill development program in the following year.
Perceived Challenges of the Heartland PSM Approach

Despite the perceived advantages of the Heartland PSM, several criticisms and challenges of this approach have been put forth. One concern is that the special education eligibility criteria are less stringent than those that involve traditional standardized cognitive testing. Typically, Heartland personnel have been advised to use local norms (i.e., school or district norms) as the standard for calculating individual student discrepancies, and outside benchmarks to determine how the school is performing as a whole. The use of local norms as a standard may on the surface seem inappropriate, given that student eligibility status may therefore fluctuate considerably from district to district. However, it is helpful to consider this practice in light of the school-wide model presented earlier in this paper. When there are external benchmarks available that indicate how well students need to perform to be “on-track” in their development, such as the benchmarks available for the DIBELS probes, a school can determine the percent of students that are “on-track.” When very few students are on-track based on these outside benchmarks, it is an indication that the school may need to do something altogether different to improve student performance as a whole. In this case, the very lowest students may need substantial intervention beyond what most students receive (e.g., those in the bottom 10% according to local norms); however, it is considered important for the general education programming within the school to be altered to better address the needs of the majority of students, rather than simply referring many more students for special education services. In this way, it is anticipated that a school can both delegate resources appropriately to students with the greatest needs, and work to ensure that it is constantly improving the core programming for all students to meet external standards.

It is also important to note that cognitive testing may not necessarily represent an approach that is particularly more consistent in identifying students in need of special education services. For instance, there are a variety of cognitive tests that may result in different scores for the same student. Furthermore, in some states, cut-off scores for IQ-achievement discrepancies vary across districts (Reschly & Hosp, 2004). This seems to suggest that varying standards are present within the more traditional model of LD identification just as they are in the Heartland PSM. Given that there is currently more research to support the instructional utility of direct measures of academic skills, such as the curriculum-based measures (CBMs) that are frequently used within the Heartland PSM (L. Fuchs & Fuchs, 2002), it seems as if these tools could be considered advantageous to traditional cognitive testing measures, which have not yet demonstrated sufficient instructional utility.

The second concern associated with the Heartland eligibility criteria is that there may be considerable subjectivity in determining whether a student’s instructional needs go beyond what can be reasonably provided through general education services. This issue was evident in Joshua’s case. Joshua was found eligible, in part, based on the fact that fewer services would be available through general education in his first-grade year. Many people might question whether it was appropriate to qualify Joshua as having a “disability,” given that he had only spent one year in school, and that it was clear that he was able to make progress with general education services during his kindergarten year. However, when considering this issue, it is important to remember that a goal of the Heartland PSM is to match the level of student need with available school resources in a timely manner. Regardless of whether Joshua would eventually show chronic learning difficulties over a longer period of time (i.e., display disability characteristics), he had substantial needs at the end of his kindergarten year. His difficulties were anticipated to continue into the beginning of his first-grade year, if he was not provided the identified supports that helped him to make progress. There is currently very limited research evidence suggesting that students with mild learning disabilities have substantially different needs than low-achieving students (D. Fuchs, Fuchs, Mathes, Lipsey, & Roberts, 2001); both student groups...
may need similar intensive intervention support at some point during their educational careers in order to make optimal progress. The Heartland PSM can allow students to move more smoothly between receiving general education services alone and receiving special education services, based on their current educational needs, in order to ensure that all students are making progress toward high standards.

Related to the challenge of appropriately determining whether a child requires special education services is the challenge of ensuring that general education interventions are implemented and monitored with integrity. The Heartland PSM assumes that school psychologists and special education consultants will serve as consultants for intervention development, implementation, and progress monitoring. However, depending on the skill and motivation level of the teacher, a school psychologist may need to be directly involved in intervention implementation and monitoring. In Joshua’s situation, the behavioral intervention component was implemented and effects were monitored by the school psychologist. Other components of Joshua’s intervention were monitored through check-ins with the teacher and observations of the teacher associate’s implementation of the Road to the Code program. As various educational agencies begin to implement a similar RTI approach, school psychologists will likely need to provide substantial training to educators in progress monitoring and intervention implementation. Until educators develop and refine these skills, psychologists will likely need to play a significant role in direct assessment and intervention to ensure integrity. Once educators have developed these skills, school psychologists will likely be able to take on more of a consulting role, in which they help to translate the most recent research findings on effective assessment and intervention methods into practice. In this way, school psychologists can assume roles that are ultimately aimed at reducing the research-to-practice gap for instructing students with special needs.

Another perceived challenge associated with Heartland’s model is that special education teachers are not involved in individual student problem-solving efforts until an IEP is written. Although this feature is perhaps intended to ensure that special education services are reserved for those who have the greatest need, it can limit collaboration and communication between special and general educators, and prevent special educators from obtaining information about students that are eventually found eligible for special education services until they begin to receive services. The Minneapolis Problem-Solving Model provides an example of an approach that involves special educators much earlier in the process (Marston et al., 2003).

Finally, the school psychologist involved in Joshua’s case noted her perceptions (based on these experiences) that the problem-solving message can lose credibility and momentum when it is assumed that all academic and social-behavioral problems can be entirely solved, such that extra support is no longer required. These types of assumptions were perceived to lead to discouragement and frustration among problem-solving team members when students were referred several times across multiple years. Based on information that was presented at the NRCLD Symposium (2003), only about 16% of student problems were found to be entirely resolved through Heartland’s problem-solving process (Grimes & Kurns, 2003). Perhaps a more motivating way for educators to think about the process is as a way to improve the learning of students who struggle. General educators are not often familiar with the lack of data to support special education effectiveness, and therefore can often assume that special education is the solution for struggling students. It is important for general education teachers to recognize that their efforts may result in more effective programming for struggling students than special education services, even if their efforts do not necessarily solve problems such that students require no further support. The communicated focus or goal of such an approach should be to improve learning rather than to solve problems.
To communicate this focus on improving student learning, it will be important for teachers to recognize that the efforts they expend to improve the learning of students who struggle is worthwhile. Legislation such as No Child Left Behind is increasingly holding general educators responsible for the learning of all students, including those receiving special education services. School psychologists need to assist these teachers in implementing interventions that improve the learning of students who struggle, and help demonstrate to teachers the effectiveness of these interventions. The use of formative evaluation tools such as CBMs provides teachers with immediate feedback to reinforce intervention efforts. When such data are made more accessible to educators and are useful in directing instructional changes, it is likely that teachers will become more cognizant of their potential role in improving student learning, rather than viewing student difficulties as problems that are difficult to solve.

CONCLUSIONS

It is the opinion of the author that the problem analysis and identification of instructional needs components represented in the Heartland PSM approach are essential and effective. Identification of a lack of responsiveness to intervention only tells what does not work for a particular student; it does not necessarily provide guidance as to what will work. The National Association of School Psychologists (NASP) Professional Conduct Manual indicates that school psychologists are to “develop interventions that are appropriate to the presenting problem of students and are consistent with data collected” (NASP, 2000; p. 28); this indicates that just any empirically-supported intervention is not sufficient. School psychologists have the responsibility to determine whether the given intervention is sufficiently targeted to a given student’s problem.

Although there is not yet substantial research on the relative efficiency of and value-added to interventions that are selected using various problem analysis methods, researchers are exploring the extent to which features of CBA enhance intervention effectiveness (MacQuarrie, Tucker, Burns, & Hartman, 2002), and the possibility of using CBM to more systematically analyze reading problems for the purpose of developing more targeted interventions (L. Fuchs, Fuchs, Hosp, & Hamlett, 2003). Although much more research is needed on how to assess for instructional needs and intervention planning, there are promising methods available to analyze academic problems in ways that link to interventions with a high probability of success (Howell, Kurns, & Antil, 2002; Rosenfield, 2002). Future research is needed to determine the extent to which developed methods for the identification of instructional needs add value to intervention effectiveness, and how to efficiently incorporate these assessment methods within educational settings.

It is important to note that although RTI approaches appear promising, much more research is needed to ensure the technical adequacy of the formative measures used, particularly in math, writing, social-behavior, and reading comprehension. The behavioral progress monitoring measures used in this case study illustrate some of the potential challenges of monitoring progress within this domain.

Agencies such as Heartland that have applied this model have invested a substantial amount of resources in professional development activities and supervision. They have also had the benefit of attracting highly-motivated school psychologists, many of whom have had previous training in problem-solving methods. In addition, it might be argued that the organizational structure of school systems in Iowa has facilitated implementation of this progressive model. At Heartland, school psychologists are employed through an intermediate agency that is separate from the actual school districts that they serve. This intermediate agency (the AEA) has been able to provide substantial ongoing training to support school psychologists in the implementation of the PSM. As similar agencies and school districts consider implementing an RTI approach, it will be important to consider how comprehensive
and ongoing training and supervision can be made available. It will be extremely important for school psychologists and related school support personnel to work together prior to implementing an RTI approach in a given district or agency. Those who have been involved in RTI approach implementation should be sought after for guidance.

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Selecting the Right Tool for the Job: A Review of Behavior Monitoring Tools Used to Assess Student Response to Intervention

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The educational accountability movement has demanded that educators implement and also monitor students’ responses to positive behavioral accommodations in schools as well as communicate this information to others. This new responsibility has left many educators struggling with ways to monitor students effectively. This article provides a brief overview of how to choose a behavioral monitor strategy effectively. Four options for behavioral monitoring are reviewed: (a) permanent products; (b) behavior rating scales; (c) systematic direct observation; and (d) behavior report cards. In addition, the strengths and weaknesses of each method are discussed along six areas of consideration: (a) goodness of fit; (b) directness; (c) generalization; (d) feasibility; (e) training; and (f) intrusiveness. Finally, the methods are considered in relation to each stage of the intervention process. This article provides a brief guide for school-based professionals focusing on behavior problems—one that provides multiple options for assessment and monitoring procedures and outlines considerations for selecting among these options.

Key Words: RTI, Behavior Monitoring, Assessment, Implementation

The push for educational accountability stemming from societal and political issues such as school safety and changing regulations governing education (e.g., Individuals with Disabilities Education Improvement Act [IDEIA] and No Child Left Behind Act [NCLB]) has resulted in increased need for outcomes-based behavior assessment and intervention planning. Educational accountability requires that educators implement and also monitor students’ responses to positive behavioral accommodations in schools, while routinely communicating this information to others. This push for educational accountability has left many educators struggling with ways to monitor students effectively. In fact, Fuchs and Fuchs (2003) discussed the problem with the current mastery measurement framework used in special education monitoring activities, suggesting that, at best, current practice promotes procedural compliance rather than documenting effectiveness. In addition, although comprehensive yet practical resources regarding the monitoring of academic outcomes have become readily available (e.g., Curriculum Based Measurement [CBM] and the Dynamic Indicators of Basic Early Literacy Skills [DIBELS]), behavior monitoring techniques have not received similar attention. To this end, the purpose of this article is to provide a concrete overview of how to choose a behavior monitor strategy effectively.

Four options for behavior monitoring are reviewed: (a) permanent products (any behavioral data already existing in schools); (b) behavior rating scales; (c) systematic direct observation; and (d) behavior report cards. These methods were selected to represent a continuum of options commonly avail-
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able and familiar to school-based professionals, although each is not necessarily appropriate for use in all situations. Thus, the following aims to help school-based professionals make decisions about the selection and use of appropriate techniques for a given situation. This article provides a brief guide for school-based professionals focusing on behavioral problems, discusses multiple options for assessment and monitoring procedures, and outlines considerations for selecting among these options.

THE METHODS

In this section the above-mentioned methods for behavior monitoring are reviewed. For each of the methods a brief overview is provided with a specific focus on the strengths and weaknesses in relation to intervention monitoring. It is important to note that this is not an exhaustive list of behavior monitoring methods. For example, methods such as Goal Attainment Scaling and PDA assisted observation are not reviewed in this article.

Permanent Products

Permanent products are defined as any behavioral data that already exist in the system. Data may include information such as attendance (Mattison, 2004), discipline/suspension rates (Irvin, Tobin, Sprague, Sugai, & Vincent, 2004), homework completion, and existing behavior plan data (e.g., token economy). Permanent products are considered first due to the importance of looking at existing data before exerting substantial effort to “reinvent the wheel” (Riley-Tillman & Chafouleas, 2003).

There are many attractive characteristics of permanent products data. Data obtained using this method are readily accessible, do not require additional data-collecting procedures, and are likely to be considered highly relevant within a school system. For example, given that attendance records are tied directly to a district’s ability to receive external funding, it is understandable that district personnel would consider these records highly important. In addition, much of these data will continue to be produced without the direct involvement of a school psychologist.

Although permanent-product data produce readily accessible information, it generally does not specify the duration, frequency, and intensity of a particular problem behavior or the environment in which it typically occurs. Although it can provide measurable and useful information, permanent-product data may present a somewhat superficial glimpse with regard to the monitoring of some interventions. For example, in the case of a student who needs to develop more positive peer interactions, attendance and discipline records might easily be used to monitor the overall progress of an intervention. However, such records do not provide specific information regarding change to his or her peer interactions. In other cases, permanent-product data could prove to be very useful. For a student who is identified as having poor attendance and who is also a frequent discipline referral, for example, the number of absences and discipline referrals is useful (Irvin et al., 2004; Nelson, Benner, Reid, Epstein, & Currin, 2002). First, the information allows school staff to monitor the progress of an existing intervention connected to these variables. In addition, these data alert school staff and faculty to the existence of a potential behavioral problem. Although some students may respond to disciplinary action aimed at reducing chronic absenteeism, some may not. Therefore, in some cases, other sources of information may be needed to supplement permanent records in order to monitor intervention effectiveness more accurately.

Another example of permanent-product data is homework completion, which provides a useful snapshot of a student’s productivity habits by identifying his or her patterns in production and types of assignments missed. For example, a student’s record may show that he or she is missing 30% of total homework assignments, all of which are vocabulary assignments. This type of data can be used as an
outcome measure and may help school staff monitor an intervention targeted at increasing a student’s rate of homework completion. However, it may lack the sensitivity needed to assess the variables preventing the homework from being completed.

Despite some limitations there are some attractive aspects of the use of permanent products as an outcome variable. Specifically, permanent-product data does not require additional data collection procedures and there is no minimal training required for use. Progress monitoring through use of permanent products may be useful when resources (e.g., time and money) are limited and/or the information is sufficient to make sound judgments about interventions. It is also useful in alerting school personnel to existing behavior problems, particularly when used as a screening tool to identify those students in need of a more intensive intervention and behavior monitoring technique.

**Behavior Rating Scales**

Behavior rating scales are questionnaires that ask an individual (typically a student’s teacher or parent) to rate a student based on his or her recent experience with said student (Kratochwill, Sheridan, Carlson, & Lasecki, 1999). Behavior rating scales can provide more global estimates of student behavior along various dimensions. These dimensions can be specific, such as attention (Brown, 1996; Conners, 1997) or adaptive behavior (Harrison & Oakland, 2000; Oakland & Houchins, 1985; Sparrow, Balla, & Cicchetti, 1984), or may include multiple dimensions to provide a picture of overall behavior (Achenbach, 1991; Reynolds & Kamphaus, 2005). For example, scales such as the Behavior Assessment System for Children (BASC-II; Reynolds & Kamphaus, 2005), Child Behavior Checklist (CBCL; Achenbach, 1991), and Conners’ Rating Scales-Revised (CRS-R; Conners, 1997), assess a range of behaviors including externalizing and internalizing problems, attention/hyperactivity problems, and adaptive behaviors (Ramsey, Reynolds, & Kamphaus, 2002). Each of these scales has versions that can be used by parents, teachers, and the student, depending on his or her age.

On the positive side, many behavior rating scales provide good reliability and validity and require very little training for the rater. These scales can provide school personnel with valuable instruments for identifying the prevalence of clusters of behavior. In addition, they are relatively inexpensive and time-efficient (Ramsey et al., 2002). Finally, the information obtained from behavior rating scales can provide global information about an individual’s behavior (Gladman & Lancaster, 2003; Ramsey et al., 2002).

Unfortunately, a number of difficulties exist with regard to using behavior rating scales in continuous progress monitoring. To monitor the progress of an intervention, multiple snapshots of a student’s behavior are needed in order to gauge whether a particular intervention is effective. Most behavior rating scales are not designed to provide this level of analysis because they are not considered sensitive to change over time. In this case, the hypothetical student is rated by his or her teacher at the beginning of the school year, an intervention is implemented, and the student is then re-assessed at the end of the school year. The difference in scores could yield some information about intervention effectiveness; however, as with permanent-product data, factors contributing to the behavior change are not accounted for within the method. In this example of using the scale in a pre/post manner, the intervention was not monitored directly. In addition, the pre/post nature of the measurement negates any ability to alter the intervention in a timely manner if it is found not to be effective at altering the target behavior.

In sum, behavior rating scales can provide defensible estimates of a student’s behavior across multiple dimensions. Such information can be somewhat useful in the development of behavioral interventions (Nelson, Benner, Reid, Epstein, & Currin, 2002). Although behavior rating scales can be important tools for use during initial assessment, these scales are generally not well-suited for use in progress monitoring. Rather, these scales are more useful for pre-intervention exploration of a student’s behavior (Sandoval & Echandia, 1994).
Systematic Direct Observation

Systematic direct observation is a method of behavioral assessment that requires a trained observer to identify and operationally define a behavior of interest, use a system of observation in a specific time and place, and then score and summarize the data in a consistent manner (Salvia & Ysseldyke, 2004). While systematic direct observation can take a number of forms, it is first important to distinguish it from naturalistic observation. Unlike the consistent and focused nature of systematic direct observation, naturalistic observation simply requires an individual to observe and take anecdotal notes of what happened in the environment (Hintz & Matthews, 2004; Hintze, Volpe, & Shapiro, 2002). An example of a well-studied systematic direct observation measure that uses momentary time sampling and frequency count procedures is the State-Event Classroom Observation System (SECOS; Saudargas & Lentz, 1986). This system provides a reliable and valid observational method for obtaining data regarding both teacher and student behavior in the classroom. Examples of some of the questions about behavior that can be answered when using SECOS include how often the student is out of his or her seat, whether he or she is engaging in disruptive motor behavior, whether he or she is playing with objects, and whether he or she is interacting appropriately with his or her peers and/or teacher. It is important to note that there are a number of other systematic direct observation systems available to school psychologists such as the Behavior Observation of Students in Schools (BOSS; Shapiro, 2003).

There are a number of reasons systematic direct observation has historically been considered the “gold standard” for behavioral assessment measures. Direct observation lends itself to precise (i.e., reliable and accurate) measurement because the information is collected as the behavior actually occurs. Given this access to information regarding the actual behavior of a child in the classroom, it is not surprising that direct observation tools have been touted as highly useful across a number of tasks (e.g., behavioral assessment, intervention monitoring, and diagnosis). When direct observation is conducted with high fidelity, it can provide a reliable snapshot of multiple behaviors that occur within a discrete amount of time, which is useful in identifying and monitoring target behaviors during intervention. For example, knowing that a student is disruptive in class versus knowing that this disruption is associated with the student spending a significant amount of class-time out of his or her seat provides useful information when monitoring a behavioral intervention.

Direct observation tools can have several drawbacks that limit feasibility of use in schools. First, they can cause a significant drain on resources. For example, direct observation can be time-consuming. Although a standard 20-minute direct observation session may seem like a small time commitment, the procedures involved to actually collect the data easily extend those 20 minutes to 30 minutes or more. Furthermore, it is typically suggested that multiple observations be conducted in order to maximize the reliability of the measure. Consider the time demands of biweekly direct observation of a classroom with 10 special education students. In this case, it is not unlikely that the time demands would come close to 10 hours of data collection per week. In addition to using resources such as time, direct observation usually requires the presence of an independent observer (someone other than the classroom teacher). That is, it would be extremely difficult for a teacher to continue normal instruction and collect momentary time sampling data on a student’s behavior without the assistance of an external observer. Related to this limitation, direct observation by an external person has the potential for reactivity. When a person such as the psychologist observes a classroom, the behavior of the target student, other students, and the teacher can be altered by the new presence. Past studies have indicated that when an observer is in the classroom teachers change their behavior in manners such as an increased rate of prompts and/or positive feedback to the target student (Hey, Nelson, & Hay, 1977, 1980). Thus, while there is clearly a place for the use of systematic direct observation in the school, critical limitations to direct observation suggest that at times other methods may be more useful.
In sum, systematic direct observation techniques (e.g., momentary time sampling and frequency counts) are good tools for reliably estimating the occurrence of specified behaviors and are highly adaptable to specific cases. Despite their obvious attraction, these methods can be limited due to the significant resources needed and to potential reactivity effects.

**Daily Behavior Report Cards**

Daily Behavior Report Cards (DBRCs) are observation tools that meet the following four guidelines: (a) a behavior(s) is(are) specified; (b) rating of the behavior(s) occurs at least daily; (c) obtained information is shared across individuals (e.g., parents, teachers, students); and (d) the card is used to monitor the effects of an intervention and/or as a component of an intervention. This broad definition of DBRCs allows flexibility to design the card (i.e., the assessment tool) based on the individual needs of a situation. This flexible nature also allows for multiple criteria to be manipulated in order to match the demands of a situation. The procedures for using a DBRC are similar regardless of their design and intended purpose. The procedural steps involve: (a) defining the target behavior (preferably in positive terms); (b) selecting the rating frequency (how often the behavior will be rated) and type of rating scale; (c) designing the card; (d) determining if consequences (positive and/or negative) will be used, and if so, defining the criteria; (e) generating a list of potential consequences; and (f) determining the responsibilities of all parties involved (Riley-Tillman, Chafouleas, & McGrath, 2004).

Although not currently widely used as a behavior monitoring tool, DBRCs may provide a resource-efficient method for estimating behavior change over time. For example, a DBRC can be designed to allow rating of appropriate group time behavior (e.g., hand/feet to self or listen quietly) in a group of preschoolers as well as to document homework completion of a high school student. In a review by Chafouleas, Riley-Tillman, and McDougal (2002), it was suggested that DBRCs may be feasible (e.g., Nolan & Gadow, 1994; Pelham, 1993), acceptable (e.g., Turco & Elliott, 1986), effective in promoting positive student behavior (e.g., Blechman, Taylor, & Schrader, 1981; Dougherty & Dougherty, 1977), and successful in increasing parent/teacher communication (e.g., McCain & Kelly, 1993). In a recent study that investigated current perspectives about and use of DBRCs among a sample of educators, information such as reported use, frequency of use, and reasons for use were collected (see Chafouleas, Riley-Tillman, & Sassu, 2005). In that study, over 60% of respondents indicated use of a tool like the DBRC to some degree. In addition, results suggested that use of the DBRC both as an intervention tool and as a way to measure behavior was highly acceptable. In summary, these results suggested that educators may find it highly feasible and acceptable to incorporate use of DBRC as a behavioral progress monitoring tool.

Despite the promising role for DBRCs in progress monitoring, available research documenting their technical characteristics is limited. Two recent published studies have begun to provide this information. First, in a study by Steege, Davin, and Hathaway (2001), the reliability and accuracy of a DBRC involving specific behaviors exhibited by persons with developmental disabilities was examined. The researchers found that the use of their performance-based behavioral recording procedure was reliable and accurate for recording the specified behaviors. For example, trends in ratings of the behaviors over time were similar between the DBRC and direct observation data. In addition, a recent study comparing information obtained from DBRCs and systematic direct observation across different raters found a significant positive correlation between systematic direct observation data collected by an outside observer and DBRC data collected by a classroom teacher (Chafouleas, McDougal, Riley-Tillman, Panahon, & Hilt, in press). Together, these studies provide initial support for the DBRC as a potentially feasible supplement or complement to direct observation when measuring behaviors typically found in the school setting (e.g., on-task/off-task). Regardless of these studies, it is critical for
practicing school psychologists and other educational professionals to understand that by their very nature, DBRCs will result in data that are composed of a rater’s perception of the target student’s behavior. The data by definition will be a less accurate estimate of the student’s actual behavior during this observation period than data collected through the use of systematic direct observation. This should be considered a weakness in this outcome measure.

In summary, the flexible nature of DBRCs makes them appealing for use in educational settings. In addition, DBRCs may also be appealing for use in behavior monitoring given their relative low cost in terms of resources. For example, it only takes a brief amount of time to complete a DBRC rating in contrast to the time needed to conduct a systematic direct observation; however, the strengths and weaknesses of using DBRCs for behavior assessment purposes have yet to be fully explored. For example, it is clear that DBRCs do not provide data that are as accurate as data obtained from systematic direct observation. Thus, the relative strengths and limitations of this method should be carefully considered prior to selecting DBRCs as the behavior monitoring tool.

**CHOOSING THE RIGHT METHOD**

Although understanding of different methods for use in behavioral progress monitoring is a critical first step toward the effective selection of a monitoring strategy, additional issues must be considered to fully understand the strengths and weaknesses of each method. In this section, six considerations (goodness of fit, directness, generalization, feasibility, training, and intrusiveness) are outlined. In addition to this discussion, a summary of each method and corresponding consideration can be found in Table 1.

### Table 1.

<table>
<thead>
<tr>
<th>Criteria to be Considered When Choosing A Continuous Behavior Monitoring Strategy</th>
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<td>Permanent Products</td>
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<td>Goodness of Fit</td>
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**Goodness of Fit**

One consideration when selecting a technique is to match the monitoring needs with the behavioral monitoring measure, which is in this instance defined as goodness of fit. For example, if the goal of the intervention is to increase attendance, then a permanent products measure (attendance records) would be appropriate. In contrast, methods such as direct observation and DBRC may be more adaptable to meeting a variety of monitoring needs as they can be customized. In addition to goodness of fit in relation to the target behavior, adaptability of the method to the intervention monitoring needs in terms of the frequency of data collection should be considered. Although a behavior rating scale might sufficiently address the initial and/or final assessment of the target behavior, it is not appropriate to administer this measure on a daily basis in order to monitor incremental change in the behavior.
Directness

A second consideration is the directness of the method. Cone (1978) proposed that methods of assessment could be considered along a continuum of directness that was dependent on the extent to which the behavior was measured at the time and place of actual occurrence. Methods that fell closer to the “direct” end would be considered more objective. Thus, methods such as the DBRC and behavior rating scales could be more heavily influenced by the perceptions of the rater and therefore may not provide data that are as objective as data obtained from methods such as systematic direct observation and forms of permanent products (e.g., attendance records). If it is critical that the behavior is monitored with higher objectivity and with an accurate measure of the target behavior, then the use of the less direct methodologies would be inappropriate. For example, serious behaviors that suggest need for an alternative education setting (e.g., pose serious harm to self or others) would probably warrant monitoring through use of systematic direct observation. Doing so may increase certainty that the data represent actual behavior of the student, which in turn allows educational professionals to draw stronger conclusions about appropriate intervention choices.

Generalization

Although directness of observation is at times important, in other situations it may be more important to make a generalized statement about a child. Recent research has suggested that methods such as systematic direct observation may not be appropriate tools for such a form of generalization (Hintze & Matthews, 2004). That is, although systematic direct observation is an effective methodology for directly assessing behavior specific to one time, setting, and activity, that information may not be easily integrated into an overall statement about the child’s behavior. Thus, in cases that call for a general statement of student behavior, methods such as behavior rating scales and DBRC may be more appropriate than the more direct methodologies.

Feasibility

In addition to the technical characteristics of each method, attention should be paid to the feasibility of the tool for the setting in which it is to be used. In the case of a typical classroom, feasibility would involve the impact on the teacher and support staff that would likely be responsible for implementing it (i.e., collecting the data). Highly feasible methods such as permanent products have almost no impact on the day-to-day work of the teacher or organization, given that the information is already collected as part of the daily routine. However, activities that require an outside observer to collect each data point, such as with systematic direct observation involving momentary time sampling, can have a significant cost in terms of organizational resources. This cost is compounded as research indicates that a considerable amount of observation needs to be conducted in order to make educational decisions (Hintz & Matthews, 2004). Thus, if an organization cannot allocate a trained outside observer to monitor the effectiveness of an intervention, then the methodology will not be feasible for use over time. In contrast, a method such as DBRCs is much more feasible than systematic direct observation. Although there is some cost in terms of creating forms for rating the student and actually completing the brief rating, they are more resource-efficient overall than systematic direct observation.

Training

Training refers to considering the amount of training needed to utilize a method appropriately. Permanent products require little additional training in that the organization already has the method in
place. DBRCs also may require minimal training given findings that many teachers are already familiar with and use some forms of a DBRC (Chafouleas et al., in press). While it is clear that some training would typically be required to make the utilized DBRC methodologies consistent, this training would be minimal when compared to other methods of behavior monitoring. In contrast to the low amounts of training needed to use these methods, a higher need for training is seen with systematic direct observation and the use of behavior monitoring scales. Both methods require training procedures that may not be feasible in a particular school environment. Consider for example all of the facets of systematic direct observation that must be addressed for the process to be conducted with integrity. A school psychologist must be able to identify a specific behavior, operationally define that behavior, use some standardized procedure in a carefully selected time and place, and finally score and summarize the data (Salvia & Ysseldyke, 2004). Unless the school psychologist and/or educational personnel conducting the systematic direct observation have been trained in each one of these steps, engaging in this process would likely have considerable training implications.

**Intrusiveness**

The final consideration, intrusiveness, refers to the amount of disruption that a monitoring methodology has on a teaching environment. In terms of intrusiveness, both permanent products and behavior rating scales seem to have little impact on the daily classroom environment. DBRCs would have some minimal impact in that a teacher must take the brief amount of time to fill out the card. Direct observation is clearly the method that is the most intrusive, in that an actual person must enter the environment. This high level of intrusiveness not only has the potential of producing a reactivity effect as discussed above, but also might lower the acceptability of the monitoring strategy to the teacher whose classroom is being intruded upon.

**Problem Identification, Problem Analysis, and Progress Monitoring**

It is important to consider that different behavioral monitoring tools might prove more effective at different stages of the intervention process. For example, at the stage of problem identification, it is likely that permanent-product data will be heavily considered in that such information is most likely to be present before the intervention process has begun. In addition, at this stage of intervention the discussion of the problem behavior is likely general in nature. As a result, the use of systematic direct observation or DBRCs could be difficult in that each requires that a specific target behavior has been identified. When considering the problem analysis stage, it is clear that each method has the potential to be beneficial to the discussion. If the target behavior is in line with existing permanent products or behavior rating scale data, then such information should be a part of the problem analysis discussion. In addition, given that at this stage a target behavior has been identified, both DBRCs and systematic direct observation become highly appropriate in informing hypotheses about why the problem behavior is occurring. Finally, in the progress monitoring stage, it becomes critical that the tools utilized can be given in a repeated fashion and that the system has the resources to utilize the method/s without compromising the educational environment. If the target behavior is measured by some permanent product (e.g., homework completion) then that source of data should be utilized to monitor the effectiveness of the intervention. In addition, if the educational system has the resources to utilize systematic direct observation repeatedly, this tool would be highly appropriate. If the environment does not have such resources, or the teacher perception is considered very important, then a tool like DBRCs should be considered.
CONSIDERING THE METHODS

There is no simple solution to the question “What is the right method for behavioral progress monitoring?” It is clear that each method presented has strengths and weaknesses, which makes the selection process itself quite important. Table 1 presents a brief rating of each of the four reviewed behavioral progress monitoring techniques using each of the six criteria presented above. This table was developed so that school psychologists and other educational professionals could consider each factor and select the best tool for the job. For example, in a situation in which there are significant resources available and it is critical to have highly accurate data, systematic direct observation would be the logical choice. In another situation in which the availability of an observer is limited, and yet it is important to have daily data collected, a daily behavior report card procedure would be appropriate.

In addition, it is likely that in many situations a combination of methods can be utilized so that the weaknesses of one behavioral monitoring technique are mitigated by the strengths of another. For example, in the case of a student whose intervention is focused on reducing aggressive behavior that results in being sent to the assistant principal’s office, several methods might be used. First, if office referral data are available, it should be utilized as an initial source of information. Second, in order to obtain more accurate data on the behavior that leads up to the office referral, systematic direct observation could be conducted on a weekly basis. Finally, in order to obtain daily updates on the effectiveness of the intervention, teacher-collected daily behavior report cards could be used. In this example, two feasible methods (permanent products and DBRCs) were used in conjunction with one highly accurate method (systematic direct observation). In addition, the highly flexible nature of DBRCs and systematic direct observation minimizes the generally inflexible nature of permanent products data. Finally, the use of two minimally reactive methods allows the psychologist to consider the reactivity effect of the systematic direct observation. In the end, the use of the three carefully considered data sources results in an excellent system to gauge the effectiveness of intervention with this theoretical student.

CONCLUSION

It is clear that now more than ever a school psychologist has a range of technologies available in order to work with educational staff to develop and conduct interventions and monitor the effectiveness of those interventions. Problem-solving consultation methods and empirically supported interventions place the modern school psychologist in an advantageous position in comparison to school psychologists in the past. In addition, educational law is pushing the psychologist as well as the entire educational staff toward a response to intervention model of practice. Nevertheless, all of these advantages are mitigated if the modern technologies are not considered carefully. In the case of behavioral progress monitoring, it is critical for the psychologist to consider both the technical aspects of the method as well as the implications of use. It is only with this thoughtful selection that the monitoring methods will be effective and, as a result, the vast potential of the response to intervention model be fully realized.

REFERENCES


A Review of Behavior Monitoring Tools


Sustaining RtI through Consultee-Centered Consultation

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Response-to-intervention (RtI) models utilize a proactive, prevention approach that requires the implementation of a sophisticated, multi-tiered problem-solving process in the regular education environment. Effective and sustainable implementation of these models will necessitate a mechanism to support professional development, treatment fidelity, and the transportability of evidence-based interventions to the unique ecologies of individual school sites. This paper discusses problems related to the implementation of RtI models and outlines professional development issues related to implementation. A case is then made for the use of consultee-centered consultation, because of its focus on consultee development, to sustain the implementation and dissemination of RtI models in schools. The article ends with a presentation of how one RtI model, Instructional Consultation, integrates consultee-centered consultation into its implementation and professional development procedures.

Key Words: Consultation, Response-to-Intervention, Implementation, Instruction

Reauthorization of the Individuals with Disabilities Education Act (IDEA) opens the door for the general education system to revisit how it assesses and provides service for students who are experiencing academic and behavioral difficulties. As opposed to the current regular education practice of relying upon a refer-test-place approach to support students with special academic or behavioral needs, this alternative approach places an emphasis on both assessment, and importantly, intervention in regular education settings. RtI offers regular education teachers assessment options and intervention tools that encourages them to accept instructional responsibility for a broader range of students than the prior model would allow. Within this approach, teachers are no longer encouraged to automatically “give away” responsibility for low achieving students.

The emphasis in RtI on curriculum-based assessment, multiple level problem-solving, and intervention in regular education will require substantial changes in how teachers and psychologists individually and collectively conduct their professional duties (Hoagwood & Johnson, 2002). For example, how will teachers integrate their prior understandings of a student-focused etiology of learning disabilities into an ecologically oriented instructional model? How will teachers adopt “evidence-based interventions” that may work well under ideal conditions in a university learning laboratory, but are then implemented within the ecological complexity of their individual school sites? What mechanism can be used to support teachers’ insitu professional development of skills such as the use of single-subject design to document intervention effectiveness? This paper first outlines characteristics and components of the RtI process, and highlights and discusses challenges to its successful implementation as an evidence-based intervention. Next, consultee-centered consultation is defined and a rationale presented for its use as a means to facilitate the development of skills that will be needed by consultees to implement and sustain the RtI model in individual school sites. Finally, the paper ends with a discussion about the use of consultee-centered consultation to facilitate consultee’s acquisition of RtI related skills within Showers and Joyce’s (1996) four levels of professional development.

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**Elements of RtI**

Although several variants of RtI models have been proposed many of them share common conceptual frameworks and have overlapping content and process components (Gresham, 2002). An important component of a variety of RtI models is the use of a dual-discrepancy (DD) decision paradigm to assess and intervene with students who are exhibiting low impact, higher incidence school problems. Additionally, as the name implies, RtI models universally use a problem-solving process that is at some level based upon a student’s response to evidence-based interventions (EBIs).

_Dual-discrepancy._ Like the IQ/Achievement model of learning disabilities the dual-discrepancy model uses the concept of establishing a discrepancy to identify students who are “learning disabled” (Reschly, 2003). However, in the DD model the discrepancy refers to students’ pre and post levels of performance in response to an evidence-based intervention (Gresham, 2002). If a student is deficient in critical academic skills and exhibits a low rate of learning in response to effective instructional practices then the student may be identified as having a learning disability (Kovaleski, 2003). This concept is a feature of many RtI models.

_Response to intervention._ The RtI process has two defining characteristics, it is a multi-tiered problem-solving model and it requires the use of evidence-based interventions (Walker, 2004). Medical analogies are often used to explain the rationale. For example, when a person complains to a physician of shortness of breath a doctor does not immediately order a heart transplant or radiation therapy for the patient. Instead, a doctor undertakes a diagnostic approach in which she or he gathers information and moves from lower intensity possibilities towards more severe possibilities. Ultimately, a course of scientifically validated medications or procedures are prescribed based upon the patient’s response to treatment.

Schools also need to adopt the practice of “matching intensity of intervention to problem severity” (Gresham, 2004, p. 4) because as the recent swings in reading instruction between whole language and phonics have demonstrated, one size intervention does not fit all students. Within RtI the intensity of an intervention is based upon the severity of a student’s academic or behavioral issues. Consequently, depending upon his or her responsiveness, a student could potentially move through a tiered system of increasingly intensive interventions.

_Tiered levels of problem solving._ The RtI process is typically described as occurring across three to four levels of increasingly intensive interventions that are administered to an increasingly smaller proportion of the student population (Kovaleski, 2003). For example, North Carolina is implementing a pilot RtI program that has four tiers: Level I, Benchmark, all of General Education; Levels II & III, Strategic Interventions, 15% of population; and Level IV, Intensive Interventions, 5% of population (Deni, 2004). Depending upon a student’s responsiveness to an intervention, he or she may move from being in a skill building small group to receiving individualized instructional modifications. Within each of these levels an intervention will be applied through a distinct problem-solving process: define the problem, develop the plan, implement the plan, and evaluate the student’s response to the intervention. The general problem-solving process is facilitated at each level through either dyadic or team-based consultation.

_New skills._ The implementation of RtI may require educational professionals, especially teachers and school psychologists, to acquire or bolster their skill sets. The Instructional Consultation Team model (Rosenfield & Gravois, 1996), an RtI approach, has four core skill areas that team members need to develop: problem-solving strategies, communication skills, data collection, and curriculum-based analysis. Specific skills that are needed include hypothesis formulation, defining concerns in observable terms, charting and graphing data, conducting a CBA in reading, and active/reflective listening. Most RtI models require knowledge of these core skill areas.
CHALLENGES TO IMPLEMENTING AND SUSTAINING RTI IN A SCHOOL

The scope of the RTI paradigm is broad and its implementation includes change in the life of school systems at the district, building, classroom, and individual levels. What challenges need to be met to transform the programmatic and professional infrastructure of schools from the current refer-test-place model to the RtI, assessment for intervention model? While the specific challenges are many and include fostering system buy-in, revamping schools’ intervention practices, widening the scope of classroom instruction, and providing professional development there is one overarching issue (Adelman & Taylor, 2003; Schoenwald & Hoagwood, 2001; Walker, 2004) that subsumes many of these individual challenges: intervention implementation.

A core assumption of the RTI approach is that students will be better served when teachers and allied professionals use an empirically validated problem-solving process that results in the appropriate selection of evidence-based interventions (EBIs) to meet low-achieving students’ academic and behavioral needs (Reschly, 2004). However, the seemingly straightforward process, first identifying a student’s academic needs and then selecting and implementing an EBI, becomes complicated as it is applied in actual settings. Researchers have identified three key challenges to the problem of implementation: (a) efficacy, (b) transportability and effectiveness, and (c) transportability and dissemination (Hoagwood, 2001; Hoagwood & Johnson, 2002; Schoenwald & Hoagwood, 2001).

**Efficacy**

Traditionally, interventions focusing on behavioral and instructional problems have been developed in “ideal” settings (Burns & Hoagwood, 2002) in which the efficacy of an intervention is established. Initial studies of instructional interventions are often conducted in a setting that will allow for maximum effect and for control of variables. Accordingly, efficacy trials may exclude “low functioning” or “low IQ” students or be limited to teachers who self-select and volunteer for investigations that seem interesting to them. The experimental research process must normally begin with initial trials conducted in controlled settings to establish efficacy. School districts should not routinely adopt new interventions that have not had their effectiveness and efficacy empirically confirmed. However, once efficacy has been established for an intervention and it then moves from a lab or a highly staffed, research funded school site, it will come face-to-face with complicated ecological realities inherent in ordinary schools. An intervention that has only been researched through initial efficacy may not be found to be effective or be evidence-based in “natural settings.”

**Effectiveness and Transportability**

Most every veteran educator or school psychologist has had to devote time and energy to tackling the latest “intervention du jour.” Every year school districts across the country spend millions of professional development dollars and commit massive amounts of staff and student time to engaging in the newest educational “fix.” Programs designed to ameliorate problems ranging from self-esteem, reading levels, citizenship, and motivation are introduced annually. Savvy educators have learned to be skeptical of the promises of new programs and often adopt a “this too shall pass” attitude. What is at the root of this skepticism to innovation? Experienced educators will tell you that many of the programs don’t work, were designed by people who have never been in a classroom, or are merely recycled ideas from “when I started as a teacher.” These comments refer to the issue of the “research-to-practice gap” or transportability.

Schoenwald and Hoagwood (2001) describe transportability as “the movement of efficacious interventions to usual care settings” (p. 1092). Modern schools are complex environments whose func-
tioning is impinged upon by macrosystem issues (i.e., state of the economy and current legislative mandates), mesosystem issues (i.e., interactions between police and schools), and microsystem issues (i.e., current class size). Within this context Schoenwald and Hoagwood describe six dimensions in which there may be contrast between research and practice settings: (a) intervention characteristics, (b) practitioner characteristics, (c) client characteristics, (d) service delivery characteristics, (e) organizational characteristics, and (e) service system mandates. Intervention development has not traditionally focused on bridging the research-to-practice gap to ensure an intervention’s transportability — implementation has often been left to chance.

Integrity. Once an intervention reaches a site and implementation has begun, the issue of integrity (Gresham, 1989; Walker, 2004) cannot be overlooked. Is there consistency of delivery? Are central components ignored? Is consistency possible? For example, the CBA process requires that an intervention’s effectiveness be evaluated, often through the use of a single-subject protocol. However, graphing intervention effectiveness requires a time consuming, multiple step process that necessitates fidelity to insure validity. Teachers and/or school psychologists used to the laxer implementation of many of the interventions undertaken in current pre-referral protocols may not understand or follow the more rigorous steps of data-based problem-identification and charting needed for a valid evaluation of intervention effectiveness.

These questions address some of the salient issues related to integrity: Who has training in evaluation? Who should be responsible for carrying out the evaluation step? Can the intervention be adopted as originally designed (Hoagwood, 2003-2004; Schoenwald & Hoagwood, 2001)? The implementation of an RtI model may need to begin with the basic question of professional responsibility and contain some mechanism to support the transfer of knowledge and skill between professions.

Dissemination and Transportability

Dissemination refers to whether or not interventions are sustained beyond their original adoption within settings of normal practice (Burns & Hoagwood, 2002; Rones & Hoagwood, 2000). To realize dissemination an intervention must include a planned, directed path that addresses how sustainability will be achieved. How will an intervention’s goals become a part of the school’s goals? What processes will be used to facilitate training, buy-in, and organizational support? Who will conduct the intervention in question, under what circumstances and to what effect (Schoenwald & Hoagwood, 2001)? Factors known to be important to dissemination include: comprehensive training (Knoff & Batsch, 1995), participatory action and collaboration (Nastasi, 1998), and supervision and monitoring (McDougal, Clonan, & Martens, 2000).

In order for RtI models to successfully enter schools and then become a long-term presence they must address issues beyond efficacy and actively plan for transportability for effectiveness and dissemination. Programmatic content cannot simply be downloaded into schools via single-session workshops or through administrative mandate. Transportability of RtI models requires an embedded diffusion process that takes into account professional development needs, adaptation to the school’s unique ecological context, a workable evaluation process, and a means to encourage system acceptance of the model (Glisson, 2002). The next section of the paper discusses how consultation may be used to facilitate the implementation of RtI through the various phases of professional development of the personnel responsible for the process.

SUSTAINING RTI THROUGH CONSULTATION

RtI models are noteworthy for their ambitious reach across the entire population of general education students and for their multilayered range of interventions. The RtI initiative embraces a preven-
tion perspective and reframes students’ functioning from a point of view of deficit to one of potential; this conceptual shift in turn reframes how teachers and school psychologists should conduct their professional business. General education professionals are challenged to problem-solve and use assessment in the service of effective intervention, and to use intervention within the context of regular education.

The process of implementing and sustaining an RtI model is daunting because of the requirement that educators effectively acquire new skills, effectively use data-based decision making to inform intervention, and effectively master and adapt EBIs to their unique school setting. How can these training challenges be met? One piece of the answer may be to focus on the process of professional development that is tied to RtI’s implementation. The RtI model will not become embedded simply because of its conceptual merits, someone will have to be responsible for ensuring that skill acquisition, EBI implementation, and collaboration during problem-solving really occurs. Consultation is an interpersonal problem-solving process that can be used to meet these challenges.

Consultation

Consultation is generally defined as an indirect service through which a consultee (i.e., a teacher) gains support for a client (i.e., a student) by engaging in a problem-solving process with a consultant (Bergan & Kratochwill, 1990; Caplan, 1970). For instance, in a school setting a teacher may initiate consultation with a school psychologist in order to problem-solve about ways to provide classroom support for a child who is a frequent target of bullies. In this case, the teacher has primary responsibility for the student and the school psychologist has a primary responsibility to facilitate the teacher’s acquisition of new perspectives and possible solutions to the work problem (classroom interventions to stop bullying). Within the field of consultation there is wide variation in the methods and goals associated with different types of consultation. Behavioral Consultation utilizes behavioral theory and is primarily defined by its emphasis on the use of behavioral technology and the systematic structure of consultation (Bergan, 1977). Mental Health consultation utilizes psychodynamic theory and is defined by its use of an external consultant who works with the consultee to overcome issues such as theme interference (Caplan, 1970).

Consultee-centered consultation. This type of consultation evolved out of Caplan’s original model and has developed to the point that it is in many ways distinct and incompatible with the form of consultation traditionally known as Caplanian Mental Health Consultation (Lambert, 2005). The contemporary definition of consultee-centered consultation was developed over three international seminars in past 10 years and contains the following key elements (Knotek & Sandoval, 2003):

1. Consultee-centered consultation emphasizes a non-hierarchical helping role relationship between a resource (consultant) and a person or group (consultee) who seeks professional help with a work problem involving a third party (client).
2. This work problem is a topic of concern for the consultee who has a direct responsibility for the learning, development or productivity of the client.
3. The primary task of the consultant is to help the consultee pinpoint critical information and then consider multiple views about well-being, development, intrapersonal, interpersonal and organizational effectiveness appropriate to the consultee’s work setting. Ultimately, the consultee may reframe his or her prior conceptualization of the work problem.
4. The goal of the consultation process is the joint development of a new way of conceptualizing the work problem so that the repertoire of the consultee is expanded and the professional relationship between the consultee and the client is restored or improved. As the problem is jointly reconsidered, new ways of approaching the problem may lead to acquiring new means to address the work dilemma.
The name “consultee-centered” consultation itself reflects the core focus of the consultation relationship, which is predicated on facilitating change in the conceptual understandings of the consultee. While the expectation exists that clients will ultimately be better served through consultation, the prime goal of this type is to reframe consultees’ knowledge and reconceptualize their understanding of the work problem. Consultee-centered consultation seeks to facilitate change through the interpersonal process of the relationship, and can be considered as open with respect to the content discussed during consultation. This type of consultation is well suited to support the implementation of the RtI model because: (a) it is also prevention focused; (b) it is designed to foster consultee’s adaptation to novel work problems, such as, deciding how to implement new interventions; and (c) it is content neutral and can be used to discuss implementation issues ranging from individual cases to system wide sustainability.

HOW WILL RTI HAPPEN?

Acquisition of the skills, simple (i.e., filling out information forms) and complex (i.e., integrating intervention results into a coherent, data based interpretation) that are needed to successfully impact the students who RtI is designed to benefit will not occur magically. Successful implementation of RtI will require that school personnel learn skills such as curriculum based assessment, assessment for intervention, and intervention evaluation, and then, conceptually integrate each of these discrete skills within a superordinate explanatory framework. Typically, professionals such as school psychologists learn these abilities, which are part and parcel of the problem-solving process, over several years of course work and internships. How then will these capabilities be acquired by other professionals— in the work environment? Classroom teachers, upon whom much of the RtI implementation process depends, are not usually trained in fine grained academic and behavioral analysis, and intervention design. Rather, teachers’ preservice training usually emphasizes grade level curricular and instructional practices. Successful implementation of an RtI model will be more likely to occur when professional development occurs across four increasingly demanding levels of professional development (Showers & Joyce, 1996).

Qualities of Effective Professional Development

As school districts attempt to provide ongoing professional development, it has become apparent that some forms of training are more efficacious than others (Baldwin & Ford, 1988; Joyce & Showers, 1996). And while numerous training approaches have been attempted, from single-session presentations to year-long demonstrations, the bottom line for professional training programs is whether or not the programs ultimately contribute to the achievement and success of students in classrooms (Roy, 1998). Joyce and Showers (1996) suggest that four major levels of impact are needed to insure that education professionals can adequately implement a new intervention: awareness, conceptual understanding, skill acquisition, and application of skills. The levels are as follows:

Level One. An awareness of the problem is heightened through didactic presentations that result in a person’s ability to cite the general ideas and principles associated with the intervention. In RtI, the trainee would be able to cite important features of the model such as research-based interventions and primary prevention.

Level Two. An individual’s deepening conceptual understanding of an intervention is facilitated through modeling and demonstration. For example, within RtI an individual who had acquired conceptual understanding of the paradigm would be able to conceptually articulate the difference between assessment for referral and assessment for intervention.
Level Three. Skill acquisition occurs when a person engages in simulated practices that are observed and commented on by a facilitator. A person learning the RtI process would, for instance, be given the opportunity to simulate how to obtain district norms for curriculum based measurement of 3rd graders’ reading fluency.

Level Four. This level of professional development is reached when a person is able to demonstrate a successful application of the new intervention within the actual context of his or her school site. A teacher who is able to implement the RtI process with fidelity to meet the academic needs of students with a range of academic problems will have successfully attained this level of professional development.

When a person has achieved the tasks present in each of these four levels he or she is able to conceptually understand the linkages between the goals and means of the training.

Training to implement RtI models will likely vary greatly and occur unevenly across schools, districts, and states. How many districts have the professional development funds to train the personnel who will implement RtI (referred to from here on as implementers) beyond the usual didactic sessions? Further, how many districts will have a development structure in place that supports application of skills in the actual context of individual classrooms? While it would be preferable if districts had the funds to train RtI implementers through the level of application of their skills during actual implementation, in this era of restricted budgets this may be little more than wishful thinking. Consultee-centered consultation cannot replace a well funded and staffed training program; however, it can be used within each of the four levels of impact to augment and support implementation of RtI models.

CONSULTEE CENTERED CONSULTATION APPLIED ACROSS LEVELS OF PROFESSIONAL DEVELOPMENT

Awareness

RtI is not yet a term automatically recognized by the education community at large. Disciplines such as school psychology and special education that have traditionally focused on serving students with special needs likely have a heightened awareness and professional investment in RtI. However, professionals whose roles are traditionally less defined by special education may not be as aware of the principles, motivations, methods and goals involved in the process.

The implementation of RtI models generally requires the participation of professionals from a variety of disciplines, with a variety of experience, and with a variety of prior knowledge about RtI as an intervention. It would therefore be reasonable to expect that as schools move on a large scale to adopt RtI that some educators in a district may not be as aware of the particulars of the model or even the overall reasons for its adoption. Teachers who are not aware of the problems that RtI is designed to impact may have a difficult time internalizing the conceptual foundations of the model. For example, assessment in RtI has purposes that may be new to a teacher. If she or he is not aware of the assessment for intervention dynamic embedded in the model then she or he will not be successful at implementing it with fidelity. Consultee-centered consultation can be used to facilitate change in the conceptual understandings of the consultee.

Conceptual Understanding

RtI represents a conceptual shift in the goals of the provision of academic and behavioral interventions in classroom settings. It presupposes that a careful assessment for intervention will allow many students to have their needs met through the targeted delivery of efficacious instruction. The concept
of direct linkage of assessment and intervention in the service of primary prevention differs substantially from the more common practice of assessment for tertiary intervention. RtI supplants the more passive wait-to-fail approach that typifies how children currently receive support. Presently, many teachers understand assessment as associated with standardized assessments that will be used in what amounts to the first tertiary intervention. Ms. Turner, a second-grade teacher, typified this perspective when she told her school psychologist, “I need this child assessed so that I can get him out of my class and into special ed so he can get some help. Those folks might be able to do something for him.” How will teachers and other implementers reconcile their preexisting belief that the best support for many struggling students will be to give up responsibility for struggling students and remove them from their present instructional environment?

Some implementers will have little trouble reconceptualizing their beliefs about when and where to first begin to intervene with students experiencing academic and behavioral problems. However, for teachers such as Ms. Turner, there may be an unresolved conceptual disconnect between their preexisting beliefs and those that undergird the RtI model. When Ms. Turner was told by the school psychology that the new policy in her school was to first undertake an assessment that would lead to an actual intervention her response was “What do you mean I can’t refer this student (immediately) to the CST (Child Study Team)? Don’t you want to help this child?” Implementers who share Ms. Turner’s beliefs may face a mismatch between their current belief and skill (refer unsuccessful students on to the experts) and the principles of RtI (primary prevention, and shared responsibility).

Consultee-centered consultation offers a process to help the implementer address this work problem of conceptual mismatch. First, the consultant will work to understand the implementer’s beliefs and conceptualization of the relevant issues (role of special education, and role of assessment). Using questioning and other communication skills the consultant might ask “How do you see the problem? How is your view of the problem different from the view embedded in the RtI/EBI? What are the similarities between the two views?” After the consultant and have jointly explored alternate ways to see the problem, the consultant will then help the consider alternative ways and means to address the problem.

Skill Acquisition

RtI will require many implementers to acquire new skills. Some districts may have the funds and training time available to offer the ongoing professional development that will allow implementers to move beyond conceptual understanding and simple awareness of the issues embedded in the RtI model. However, in districts that do not provide implementers with an opportunity to practice simulations or to get feedback from a supportive coach other mechanisms may be needed to support an individual’s acquisition of skill. Consultee-centered consultation can be used to problem-solve with the consultee about possible ways and means to gain needed practice.

In a systems example, an intervention facilitator was having a difficult time arranging for her Instructional Consultation Team to meet. During the meetings the team members would, among other things, role-play and provide each other with scenarios in which to practice their own coaching skills. However, the principal would not allow the team to meet during school hours, instead suggesting that the team meet Friday nights for dinner at a local restaurant. The team’s acquisition of skills was thought by the facilitator to be suffering as a result. The facilitator met with her project consultant and initially conceptualized the problem as being about the personal relationship between herself and the principal in which neither she nor principal were going to budge, on principle. The consultation task was to first understand the facilitator’s view of the problem and to then jointly reconceptualize the problem as one
of the institutionalization of the intervention. Upon further discussion it became evident that the team had managed to develop a very cohesive structure for its members to acquire and practice skills, the problem was actually in how to go about making it a part of the school’s problem-solving culture.

**Application of Skills**

In the Showers and Joyce model, the final aspect of professional development needed to implement a new intervention occurs through the application of the skills the implementers have learned, “for real” in the school. Accordingly, the RtI model must be practiced during application with appropriate feedback and discussion. Consultee-centered consultation may be used to help the implementer reflect on best practice, mistakes, or unexpected road blocks. Consultees may bring problems both large and small to the consultation. “Based upon the screening half of my students need help with fluency skills, our RtI model says I’m to only pick the lowest 10% to work with.” Or, “We keep running out of evaluation forms and my copying allowance is all used up.” In either case, the consultant will endeavor to understand the consultee’s conception of the problem and then discuss and formulate possible alternative explanations and interventions.

Consultation can be used at each level of professional development to increase the implementer’s ability to carry out an RtI model with understanding and fidelity. One RtI model, Instructional Consultation (Rosenfield & Gravois, 1996), uses consultation along the dimensions of implementation and professional development to support implementer’s acquisition of skills and the transportability of the model.

**Instructional Consultation Teams**

Instructional Consultation (Rosenfield & Gravois, 1996) was originally conceived of as an ecologically grounded model of consultation that incorporated the consultee-centered approach described in Caplan’s (1970) model of mental health consultation. It is a structured, systematic, and data-driven problem-solving consultation process focused upon improving the instructional ecology of schools. One of the central goals of Instructional Consultation (IC) is to change how consultees (teachers) frame students’ school problems away from viewing them as internal, child-centered deficits and toward understanding student learning as a result of the interaction of instruction, task and student entry skills. This perspective provides an intervention framework in which a student’s instructional difficulties can be described as an instructional mismatch between a student’s current instructional level, and the curriculum and instruction presented to the student. IC interventions are designed to bridge the gap between a student’s instructional level and instructional delivery in his or her regular education classroom by using the consultation process to help the teacher or consultee acquire new means to address a student’s academic/behavioral problems.

The IC/RtI protocol (Gravois, Knotek, & Babinski, 2002; Gravois & Rosenfield, 2002) consists of six problem-solving steps: (a) contracting; (b) problem identification and analysis; (c) strategy and intervention design; (d) strategy and intervention implementation; (e) evaluation of strategy and intervention; and (f) follow-up, redesign, and closure. Overall, this RtI problem-solving sequence looks similar to what is already required by many pre-referral teams. Yet, experience tells us that in many Student Success Teams (SSTs) this sequence is often not followed with a high degree of fidelity or effectiveness (Knotek, 2003b). The IC model is unique because it has procedures in place to ensure the implementation and dissemination of the intervention. Of particular interest is how the model makes use of consultee-centered consultation to support and sustain the transportability of the IC intervention to unique school sites.
Transportability of Effectiveness within Instructional Consultation

Teachers will not master the fine points of CBA, charting, and intervention evaluation through the force of mandate or a one-day workshop, some process has to occur in which concepts and skills are introduced and then mastered within the context of the teacher’s own classroom. In IC, the consultant assumes responsibility for fostering the teacher’s new conceptualization of the work problem and for developing new skills, while the teacher assumes responsibility for figuring out how to carry out the RtI steps within the context of her classroom.

The IC/RtI process does not leave teachers to their own devices to conceptualize and undertake an ecologically valid problem-solving intervention. The consultant provides a problem-solving framework that allows the consultee to pinpoint critical information and operationalize an aspect of student’s academic functioning. For example, a nebulous presenting problem of “can’t read” would be narrowed down through the use of a jointly conducted RtI protocol in which a CBA would be used to evaluate a student’s language and prior knowledge, word recognition, word study, responding, reading fluency, comprehension and metacognition.

Consultation in IC. Consultation also supports the integrity of the problem-solving intervention by fostering the consistency of the implementation of each discrete step (Knotek, Rosenfield, Gravois, & Babinski, 2003; Gravois & Rosenfield, 2002). Through the application of a reflective communication strategy the consultant helps the consultee monitor his or her fidelity of implementation of each segment. For instance, sometimes teachers are not familiar with the emphasis on data-driven decisions, and this is problematic because each successive step of the IC/RtI protocol relies upon outcome data from the previous one. Teachers who are new to the RtI process have occasionally struggled with allowing data to disconfirm their initial hypothesis. Consultation is used to increase the teacher’s awareness of his or her inconsistent use of data and the result is to expand the teacher’s problem-solving repertoire to include an increased fidelity to data-driven decision making.

Transportability of Dissemination within Instructional Consultation

All too often intervention programs that are introduced into schools, even effective programs, fail to become embedded in the culture of the site and are allowed to die because they fail to include a mechanism for transportability into the design of the intervention. The IC/RtI model includes the implementation of an embedded teaming structure that facilitates the institutionalization of the RtI process into the school’s problem-solving culture. Instructional Consultation teams consist of a facilitator who undergoes extensive consultation training and case manager/consultants, drawn from both teaching and specialist staff members, who meet weekly throughout the school year. The meetings consist of professional development (i.e., practice with decision making with CBAs), case monitoring, documentation, and administrator participation. The development of a collaborative problem-solving team culture is fostered through the facilitator’s consultative engagement with the IC members. For instance, the facilitator uses consultation skills such as asking clarifying questions, perception checking or summarizing to support the team’s development of group norms, including, decision-based problem-solving and a constructive communication process.

SUMMARY

RtI models offer a means for general educators and support staff to assess, and consequently intervene with, students in regular education classes. However, these models are implemented across the depth of a school’s organization structure and will require: (a) professional development; (b) adherence the protocols of evidence-based interventions; and (c) clear, thoughtful collaboration. Consul-
tation offers a means to support the transportability of the RtI model’s effectiveness, dissemination and ultimately, sustainability.

REFERENCES


School Readiness Needs of Latino Preschoolers: A Focus on Parents’ Comfort with Home-School Collaboration

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This study investigated the contextual, social, language, and learning factors that influence the success of Latino preschoolers transitioning to kindergarten. Data were collected on 112 Latino children who completed a four-week preschool program focusing on English language and school readiness skills. Predictive analyses indicate that their parents’ self-reported comfort with home-school collaboration was a stronger predictor of kindergarten success than the academic and social skills measured by this study. These findings suggest that school readiness is a product of the interactions between the child, family and school personnel. Relationships that parents and children experience with school personnel are essential, not only because of their continuing influence on children after they begin school, but also because they provide the opportunity for families to be the best resources possible for their children.

Key Words: School Readiness, Latino, Preschool, English Language Skills, School Personnel

The issue of when children are ready to be taught, the classic readiness query in education (Tyler, 1964), has remained elusive for many decades. Questions about school readiness have received even greater attention and visibility with the development of national educational goals relating to the topic. In the fall of 1989, then-President George Bush and the governors of the 50 states met for the first Education Summit held in nearly 100 years (Meisels, 1998). This meeting established eight “National Education Goals.” First among these goals was the following: “All children in America will start school ready to learn” (National Education Goals Panel, 1991). A 1991 Carnegie Foundation survey of 7,141 kindergarten teachers found teachers to estimate that 35% of the nation’s students were not adequately prepared to start school (Boyer, 1991). Compared to children enrolled in school in 1985, 42% of the teachers in 1991 said that the readiness situation is getting worse; only 25% said that things are getting better.

In Ramey and Ramey’s (2004) study of low-income children who were randomly assigned to participate in a preschool program or a control group, data indicated that children who completed the year-long program scored significantly higher on measures of cognitive abilities. In a follow-up with 99% of study participants into early adulthood, results showed that those who received the preschool services continued to have higher performance on measures of intelligence, math, and reading. Children who completed the preschool program were also three times more likely to attend a four-year college than non-participants (Ramey & Ramey, 2004).

Absent generally accepted and empirically documented criteria of what young children should know and be able to do when they are 4- or 5-years old (Bredekamp, 1992), parents and preschool teachers must rely on their explicit and implicit beliefs regarding readiness as they prepare children for school. In addition, few studies have systematically compared the beliefs of parents, preschool teachers, and kindergarten teachers about what children should know and be able to do at school entry (Gredler, 1992). The small number of studies that have examined parents’ and teachers’ readiness
beliefs found that the groups had different concerns. For example, kindergarten teachers were more likely to emphasize a child’s ability to not disrupt the class; families and childcare providers emphasized school-like skills such as knowing English, knowing the letters of the alphabet, and counting; in addition, childcare providers were most likely to emphasize problem-solving skills (Harradine & Clifford, 1996). Current research is further limited in helping us understand readiness in high-need communities (Piotrkowski, Botsko, & Matthews, 2000); there is limited information regarding school readiness within low-income communities (Holloway, Rambaud, Fuller, & Eggers-Pierola, 1995). The increase in early literacy research and suggestions set forth by the National Reading Panel has helped some to clarify the debate on school readiness skills (National Institute of Child Health and Human Development, 2000).

This is a particularly pressing issue in California, where almost 3 million Latino children attend California schools, outnumbering non-Latino White students by over 100,000 (California Department of Education, 2004). The growth in the population of Latino students has been accompanied by increased awareness of the challenges many Latinos experience in school. Latino children, in general, are not experiencing a high degree of success in the American educational system (Lopez & Cole, 1999). Despite rising levels of school performance across ethnic groups over the last 20 years, Latino children consistently score lower in mathematics, reading, writing, and science proficiency than non-Latino White children (Sable & Stennet, 1998). Additionally, compared to non-Latino White students, Latino students are less likely to finish high school (Sable & Stennet, 1998). From 1999-2000 the dropout rate among Latino 9th – 12th graders was 1 to 2 times the dropout rate of non-Latino White students (Mexican American Legal Defense and Educational Fund, 2002). In California, the percentage of Latino children dropping out of school exceeds the statewide average for all groups: in the 2003-2004 school year, 4.3% of Latino students dropped out of school as compared to the average across all ethnic groups of 3.3% (California Department of Education, 2004).

Kindergarten screening tests have disproportionately identified ethnic minority children and those from the lower socioeconomic (SES) groups as unprepared for school (Ellwein, Walsh, Eads, & Miller, 1991). Minority students and children from lower SES backgrounds are much more likely to be retained than White middle-class students throughout elementary school, including nonpromotion to first grade (Cosden, Zimmer, & Tuss, 1993). In addition, only 24% of eligible Latino children are enrolled in kindergarten or preschool as compared to 57% of eligible White non-Latino children and 43% of eligible African American children (Mexican American Legal Defense and Educational Fund, 2002). Clearly, the need is great to understand more about the factors responsible for early academic success in this population.

Parental Involvement

Researchers have suggested that there is a strong positive relationship between student achievement and parent involvement among Latino families (Lopez & Cole, 1999). The benefits of parental involvement in the educational process have been well documented (e.g., Taylor & Machida, 1994). Parent involvement, broadly defined, includes a variety of activities that allow parents to participate in the educational process at home or at school (e.g., attending school-based activities, and reviewing homework with their child). Izzo, Weissberg, Kasprow, and Fendrich (1999), in their longitudinal assessment of 1,205 urban, kindergarten students, found that improved home-school collaboration was associated with increases in children’s academic functioning. Historically, parents of low socioeconomic status who are also ethno-linguistically diverse have been isolated from educational institutions (Lopez & Cole, 1999). In addition to promoting children’s academic achievement, parent involvement has been shown to have positive effects on related behaviors such as student self-compe-
tence, self-esteem, school adjustment, and classroom behaviors (Izzo, Weissberg, Kasprow, & Fendrich, 1999). Despite strong empirical support for parent involvement, research has found that Latino parents are significantly less involved in their children’s education than Anglo and African-American parents (Lopez & Cole, 1999).

Traditional definitions of readiness have not encompassed critical environmental variables, such as home-school collaboration, so that the burden of proof rests on the child to prove they are “ready” for school (Meisels, 1995). Exploring contextual variables in a sample of Latino children and families is important for developing a better understanding of school readiness.

**Research Questions**

This paper is designed to address issues of school readiness for Latino children and the influence of parental involvement (Pyle, 2003). Three general questions are addressed in this paper:

1. How are Latino preschool children rated by their preschool teachers on school readiness indicators (social emotional development, language development, and approaches toward learning)?
2. How knowledgeable are parents about educational services, how accessible do they find these services, and how comfortable are they employing these services for their families?
3. How well can kindergarten success be predicted by each of the following variables: the child’s social/emotional development, language development, and approaches towards learning; and the parent’s knowledge of who can help them access educational services and their comfort with accessing these services?

**METHOD**

**Participants**

Participants were 112 Latino preschool children who attended a summer immersion, school readiness program before entering kindergarten in Santa Barbara County. Data were also collected from the children’s parents and teachers. No significant differences were found on demographic data of responses to the family questionnaire between parents who gave consent for the follow-up and those who did not. Eighty-eight percent of parents chose to complete the questionnaire in Spanish. Mothers completed 73.3% of the questionnaires, fathers completed 22.5% and 4.2% were completed by both parents. The final sample included 58 males (51.8%) and 54 (48.2%) females. The average age was 5.4 years at the start of their kindergarten year. Seventeen teachers (15 female teachers, two male teachers) participated in this study, 13 were Caucasian and four were Latino. See Table 1 for additional demographic information.

**Measures**

*Santa Barbara County Healthy Start Teacher Questionnaire.* This teacher questionnaire, developed for the study, asked teachers to rate each student’s school readiness domains: social-emotional development, language development, and approaches to learning. The teacher questionnaire was developed after the first author reviewed 13 national- and state-level readiness assessments and recent research relating to common indicators of school readiness. A list of 35 questions was developed from this research and brought to meetings at which the measure was critiqued and edited by representatives from each of the four Healthy Start agencies in Santa Barbara County. Principle components factor analysis was used to derive the three subscales. The three subscales used in final analyses were labeled: Social Emotional Development (e.g., initiating with and responding appropriately to others; alpha = 0.86), Language Development (e.g., communicates verbally, listens to stories, draws pictures...
to tell a story; alpha = 0.89), and Approaches Toward Learning (e.g., learning behaviors such as being curious and enthusiastic about school activities; alpha = 0.84). At the end of the first week of the summer program, teachers were given the assessment and an instruction sheet on how to complete the questions. They were given a full weekend and two school days to complete it. Preschool teachers rated their students’ skills on a 3-point scale (1 = not yet, 2 = emerging, 3 = developed).

Santa Barbara County Healthy Start Family Questionnaire. This questionnaire was developed for the study to measure parents’ perceptions of their child’s readiness for school and their own comfort with interacting with their child’s school personnel. Based on a review of the few measures that relate to family factors of school readiness, and input from personnel from four Healthy Start agencies, the questionnaire was developed and piloted with parents of preschoolers. The final questionnaire contains a list of 10 dichotomous questions (1 = yes, 2 = no) to measure the parents’ knowledge of the educational system, and the parents’ comfort accessing educational services. Parents completed this assessment in Spanish or English during the second week of the preschool program.

Social Skills Rating System. The Social Skills Rating System (SSRS; Gresham & Elliott, 1990) is a norm-referenced, nationally standardized, cross-informant rating scale system designed to screen children and youth suspected of having social and academic problems. It measures three domains: Social Skills, Problem Behaviors, and Academic Competence (M = 100; SD = 15). The reliability of the SSRS is relatively high for internal consistency; median coefficient alphas for the Social Skills Scale, Problem Behavior Scale, and Academic Competence Scale were .90, .84, and .95, respectively.

Table 1. Participant Demographics

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (n = 112)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>58</td>
<td>51.8%</td>
</tr>
<tr>
<td>Female</td>
<td>54</td>
<td>48.2%</td>
</tr>
<tr>
<td>Ethnicity (n = 112)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Latino</td>
<td>112</td>
<td>100.0%</td>
</tr>
<tr>
<td>Parent’s Education Level (n = 112)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No High School</td>
<td>62</td>
<td>55.4%</td>
</tr>
<tr>
<td>Some High School</td>
<td>3</td>
<td>2.7%</td>
</tr>
<tr>
<td>Graduated High School</td>
<td>20</td>
<td>17.9%</td>
</tr>
<tr>
<td>Some College</td>
<td>17</td>
<td>15.2%</td>
</tr>
<tr>
<td>Graduated College</td>
<td>10</td>
<td>8.9%</td>
</tr>
<tr>
<td>Preschool Experience (n = 102)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>32</td>
<td>31.4%</td>
</tr>
<tr>
<td>One Year</td>
<td>69</td>
<td>67.6%</td>
</tr>
<tr>
<td>More than One Year</td>
<td>1</td>
<td>1.0%</td>
</tr>
<tr>
<td>English as a Second Language Status (n = 92)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited English Proficient</td>
<td>85</td>
<td>92.4%</td>
</tr>
<tr>
<td>Fluent English Proficient</td>
<td>4</td>
<td>4.3%</td>
</tr>
<tr>
<td>English Only</td>
<td>3</td>
<td>3.3%</td>
</tr>
</tbody>
</table>
Good test-retest reliability also was noted, with correlations of .85 for Social Skills, .84 for Problem Behaviors, and .93 for Academic Competence. The examiner added two questions to this instrument: Is this child ready for first grade? If not, will he/she be ready by the end of June? This second question was used as the final variable in determining the kindergarten success of the sample. Kindergarten teachers completed this scale during the spring of the children’s kindergarten year.

*Oral Reading Assessment Level – by Jimerson (ORAL-J).* The ORAL-J (Jimerson, 2000, 2002) was designed to assess oral reading fluency. The ORAL-J consists of three subtests: Letter Identification, Letter Sound Pronunciation, and Oral Reading Passages. It is administered individually and takes from 5-10 minutes to complete. Reliability correlation coefficients range from .90-.98. Test-retest reliability data demonstrate correlation coefficients between .91-.98 across the subtests. Analyses of content validity, construct validity, criterion validity, and predictive validity consistently support the use of the ORAL-J as a measure of pre-reading and general reading skills (Jimerson, 2002; Klein & Jimerson, 2005). This assessment is administered by the classroom teacher each fall, winter, and spring; data from the spring of the kindergarten year were used for this study.

**Procedure**

All children in this study completed a pre-kindergarten intervention program that provided English oral language and listening activities (e.g., music, stories, tapes, big books, and poetry) and pre-literacy activities for five hours per day, five days per week for the duration of the four weeks. Teachers introduced experiences to prepare children for learning behaviors appropriate to a kindergarten setting (i.e., sitting together in a circle while listening to a story, how to hold a pencil, turn-taking, etc.).

Data collection and analyses for this study included data collection at two points in time: during the pre-kindergarten program parents and teachers completed school readiness questionnaires, and during the spring of the kindergarten year reading fluency, and teachers’ response to the SSRS were collected. The cumulative files (school record) were reviewed in the spring to gather demographic data (e.g., ethnicity, parents education level, preschool experience, and English as a Second Language Status).

Data were analyzed using *t*-tests and chi-square statistics to address the first two research questions: (a) ratings of Latino students on school readiness indicators and (b) parental knowledge/accessibility/comfort with educational services. A series of multiple regressions were conducted to examine which variables predicted school readiness (research question 3).

**RESULTS**

**Predictor and Criterion Measures**

There were five predictor variables and six criterion variables in this study. The five predictor variables included: the three child factors from the Teacher Questionnaire: (a) Social Emotional Development (SED), (b) Approaches Toward Learning (ATL), and (c) Language Development (LD); and the two family variables from the Family Questionnaire: (d) Parent’s Knowledge of Where to Find Services (PKS), and (e) Parent’s Comfort Level in Going to their Child’s School (PCL). See Table 2 for descriptive statistics for predictor measures at the start of kindergarten.

The six dependent measures, which are indicators of kindergarten success, included: (a) SSRS Academic Competence standard score (AC), (b) SSRS Social Skills standard score (SS), (c) SSRS Problem Behavior standard score (PB), (d) ORAL-J Spring Letter Naming score (LN), (e) ORAL-J Spring Sound Identification score (SI), and (f) the additional question added by the examiner on the SSRS: “In June, will this child be ready for 1st grade?” (RFG). These six criterion measures were
selected because of their frequent use in the literature. See Table 2 for descriptive statistics for criterion measures at the end of kindergarten.

Table 2.

Descriptive Statistics for Predictor Variables (at the start and end of kindergarten)

<table>
<thead>
<tr>
<th>Entrance into Kindergarten</th>
<th>Mean/Freq.</th>
<th>SD</th>
<th>min.</th>
<th>max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher Questionnaire Variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approaches toward learning</td>
<td>2.73</td>
<td>.33</td>
<td>1.8</td>
<td>3.0</td>
</tr>
<tr>
<td>Language development</td>
<td>2.24</td>
<td>.55</td>
<td>1.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Social emotional development</td>
<td>2.65</td>
<td>.37</td>
<td>1.5</td>
<td>3.0</td>
</tr>
<tr>
<td>Family Questionnaire Variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Find services</td>
<td>Yes = 46.2% (n = 51)</td>
<td>Yes = 46.2% (n = 51)</td>
<td>No = 53.8% (n = 61)</td>
<td></td>
</tr>
<tr>
<td>Feel comfortable</td>
<td>Yes = 90.9% (n = 100)</td>
<td>No = 9.1% (n = 11)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring of Kindergarten Year</th>
<th>Mean/Freq.</th>
<th>SD</th>
<th>min.</th>
<th>max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSRS Variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social skills standard score</td>
<td>101.70</td>
<td>14.8</td>
<td>40</td>
<td>130</td>
</tr>
<tr>
<td>Academic competence standard score</td>
<td>95.76</td>
<td>10.9</td>
<td>62</td>
<td>115</td>
</tr>
<tr>
<td>Problem behavior standard score</td>
<td>99.68</td>
<td>11.7</td>
<td>84</td>
<td>135</td>
</tr>
<tr>
<td>Will the child be ready for 1st grade?</td>
<td>Yes = 90.1% (n = 100)</td>
<td>Yes = 90.1% (n = 100)</td>
<td>No = 9.9% (n = 11)</td>
<td></td>
</tr>
<tr>
<td>ORAL-J Variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Letters correct–spring</td>
<td>36.7</td>
<td>14.2</td>
<td>1</td>
<td>71</td>
</tr>
<tr>
<td>*District scores for letters correct–spring</td>
<td>39.9</td>
<td>16.5</td>
<td>0</td>
<td>100*</td>
</tr>
<tr>
<td>Sounds correct–spring</td>
<td>21.3</td>
<td>6.1</td>
<td>0</td>
<td>30</td>
</tr>
<tr>
<td>*District scores for sounds correct–spring</td>
<td>22.3</td>
<td>6.5</td>
<td>0</td>
<td>55*</td>
</tr>
</tbody>
</table>

* These variables were not used in the analyses, but are presented here for comparison.

Research Question 1: Teacher Ratings of Child-Focused School Readiness Indicators

Several one-sample t-tests were conducted to look at teacher ratings of the sample (alpha was adjusted to .02 to control for type I error). Teachers rated their preschool students as significantly higher on Social Emotional Development skills than Language Development skills, t(112) = -9.51, p < 0.001, and Approaches Toward Learning, t(112) = -2.54, p < 0.01. Additionally, teachers rated their students’ Approaches Toward Learning skills as significantly higher than their Language Development skills, t(112) = -7.86, p < .001. These results are consistent with the newly developing English language skills of these children (i.e., 92.4% classified as Limited English Proficient in the fall of their kindergarten year). The Approaches Toward Learning and Social Emotional scales measure non-verbal behaviors that facilitate participation and learning in the classroom, children can perform well along this domain without using any verbal language skills.

Research Question 2: Parent Ratings of Knowledge, Comfort and Need for Help

Most parents (83.2%) reported that they would like help to assist their child at home across all areas of educationally related tasks. Yet, 53.8% of parents noted that they do not know who could help
them find educational services for their family, and 9.1% reported feeling uncomfortable going to school and talking to their child’s teacher. Although 90.9% of parents reported feeling comfortable, only 54.9% had actually met and talked to their child’s teacher and 46.8% had gone to parent meetings or workshops at their child’s school.

Research Question 3: Predictive Power of Child- and Family-Focused School Readiness Variables on Kindergarten Success

Several variables were observed to determine the best predictors of school readiness. Analyses of the factors that influence school readiness included both an examination of child-focused variables (from the Teacher Questionnaire) and family-focused variables (from the Family Questionnaire). Multiple regressions were conducted to observe the impact of these variables on measures of school readiness. As a primary question in this study is “how do we measure school readiness?” multiple criterion variables measuring school readiness were included in analyses.

Child-focused results. Social Emotional Development (SED), Language Development (LD), and Approaches Toward Learning (ATL) were entered as the first step in a series of six regression analyses. The alpha level was adjusted downward to .01 to limit type I error. SED, LD, and ATL explained 10% of the variance in teachers’ ratings of the children’s readiness for first grade; this finding was statistically significant, $F(3, 95) = 5.89, p < .001$. With academic competence standard score as the criterion measure, the child-focused variables accounted for 13% of the variance, which was also statistically significant, $F(3, 95) = 5.89, p < .003$. The child-focused variables accounted for 8% of the variance in social skills standard score, $F(3, 95) = 3.73, p < .01$. In contrast, the child-focused variables were not significantly related to problem behaviors standard score, $F(3, 95) = 1.32, p = .27$. These variables accounted for 8% of the variance in the ORAL-J letters correct spring scores, $F(3, 98) = 3.72, p < .01$, and 10% of the variance in the ORAL-J sounds correct spring scores, $F(3, 98) = 4.66, p < .004$.

Data indicate that Language Development was the most significant child-focused school readiness variable for this sample. Specifically, Language Development significantly predicted Academic Competence Standard Scores, $B = 7.74; p < .01$, and Social Skills Standard Scores, $B = 9.47; p < .01$. Approaches Toward Learning significantly predicted teacher ratings of a child’s readiness for first grade, $B = 3.82; p < .001$. Language Development predicted more kindergarten success variables than Social Emotional Development and Approaches Toward Learning (See Tables 3 to 7 for all child-focused regression analyses).

Table 3. Summary of Linear Regression Analysis Predicting Academic Competence Standard Score (n = 98)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1 Child-Focused Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Emotional Development</td>
<td>-3.59</td>
<td>4.42</td>
<td>-.10</td>
</tr>
<tr>
<td>Language Development</td>
<td>7.74</td>
<td>2.70</td>
<td>.38</td>
</tr>
<tr>
<td>Approaches Toward Learning</td>
<td>2.81</td>
<td>4.33</td>
<td>.09</td>
</tr>
<tr>
<td><strong>Step 2 Family-Focused Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comfort</td>
<td>-4.91</td>
<td>3.59</td>
<td>-.13</td>
</tr>
<tr>
<td>Knowledge</td>
<td>-1.53</td>
<td>2.07</td>
<td>-.07</td>
</tr>
</tbody>
</table>

*Note. $R^2 = .13$ for Step 1; $\Delta R^2 = .03$ for Step 2 ($p = .24$).*
Table 4.
Summary of Linear Regression Analysis Predicting Social Skills Standard Score (n = 98)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1 Child-Focused Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Emotional Development</td>
<td>3.17</td>
<td>6.32</td>
<td>.06</td>
</tr>
<tr>
<td>Language Development</td>
<td>9.47</td>
<td>3.86</td>
<td>.34*</td>
</tr>
<tr>
<td>Approaches Toward Learning</td>
<td>-3.54</td>
<td>6.19</td>
<td>-.08</td>
</tr>
<tr>
<td><strong>Step 2 Family-Focused Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comfort</td>
<td>-11.47</td>
<td>5.06</td>
<td>-.22</td>
</tr>
<tr>
<td>Knowledge</td>
<td>0.14</td>
<td>2.91</td>
<td>.01</td>
</tr>
</tbody>
</table>

Note. $R^2=.08$ for Step 1; $\Delta R^2=.05$ for Step 2 ($p=.08$).

* $p < .01$.

Table 5.
Summary of Linear Regression Analysis Predicting Problem Behaviors Standard Score (n = 98)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1 Child-Focused Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Emotional Development</td>
<td>-2.51</td>
<td>4.89</td>
<td>-.07</td>
</tr>
<tr>
<td>Language Development</td>
<td>0.34</td>
<td>2.99</td>
<td>.02</td>
</tr>
<tr>
<td>Approaches Toward Learning</td>
<td>-5.21</td>
<td>4.79</td>
<td>-.16</td>
</tr>
<tr>
<td><strong>Step 2 Family-Focused Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comfort</td>
<td>5.91</td>
<td>4.02</td>
<td>.15</td>
</tr>
<tr>
<td>Knowledge</td>
<td>1.24</td>
<td>2.20</td>
<td>.06</td>
</tr>
</tbody>
</table>

Note. $R^2=.01$ for Step 1; $\Delta R^2=.02$ for Step 2 ($p=.31$).

Table 6.
Summary of Linear Regression Analysis Predicting ORAL-J Letter Names - Spring (n = 101)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1 Child-Focused Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Emotional Development</td>
<td>-7.60</td>
<td>5.98</td>
<td>-.16</td>
</tr>
<tr>
<td>Language Development</td>
<td>4.83</td>
<td>3.66</td>
<td>.18</td>
</tr>
<tr>
<td>Approaches Toward Learning</td>
<td>10.42</td>
<td>5.84</td>
<td>.26</td>
</tr>
<tr>
<td><strong>Step 2 Family-Focused Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comfort</td>
<td>-4.57</td>
<td>4.96</td>
<td>-.09</td>
</tr>
<tr>
<td>Knowledge</td>
<td>.84</td>
<td>2.86</td>
<td>.03</td>
</tr>
</tbody>
</table>

Note. $R^2=.08$ for Step 1; $\Delta R^2=.01$ for Step 2 ($p=.65$).
Table 7.
**Summary of Linear Regression Analysis Predicting ORAL-J Letter Sounds - Spring (n = 101)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1 Child-Focused Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Emotional Development</td>
<td>.78</td>
<td>2.49</td>
<td>.04</td>
</tr>
<tr>
<td>Language Development</td>
<td>1.19</td>
<td>1.53</td>
<td>.11</td>
</tr>
<tr>
<td>Approaches Toward Learning</td>
<td>4.16</td>
<td>2.44</td>
<td>.24</td>
</tr>
<tr>
<td><strong>Step 2 Family-Focused Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comfort</td>
<td>-4.50</td>
<td>2.02</td>
<td>-.22*</td>
</tr>
<tr>
<td>Knowledge</td>
<td>-.21</td>
<td>1.17</td>
<td>-.02</td>
</tr>
</tbody>
</table>

Note. $R^2 = .10$ for Step 1; $\Delta R^2 = .05$ for Step 2 ($p < .07$).

$p < .01$.

*Family-focused results.* Family-focused variables were tested in a series of multiple regression analyses. The scores on the dependent measures were regressed on the family-focused predictor variables (parents’ comfort and parents’ knowledge) in the second step of the hierarchical analysis, after entering the child-focused variables. When teacher reports of the child’s readiness for first grade are used as the criterion variable, results are significant, $F$ change (5, 93) = 4.15, $p < .002$, indicating that family-focused variables predicted an additional 13% of the variance in a child’s readiness above and beyond the child-focused variables (See Table 8). Of the predictor variables, only parents’ comfort level had a significant positive relation to the readiness variable. However, when school readiness was measured by academic competence standard scores, social skills standard scores, problem behavior standard scores, or ORAL-J letters correct in the spring of grade K, the predictive value of family-focused variables was not significant. The family-focused variables did account for 5% of the variance in ORAL-J sounds correct in the spring, $F$ change (2, 96) = 2.71, $p < .01$. Again, the only predictor that had a significant positive relation to the criterion measure was parents’ comfort level.

Table 8.
**Summary of Logistic Regression Analysis Predicting Teacher Reports of Readiness for 1st Grade (n = 98)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1 Child-focused variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social emotional development</td>
<td>-.66</td>
<td>1.56</td>
<td>.18</td>
</tr>
<tr>
<td>Language development</td>
<td>-.69</td>
<td>1.06</td>
<td>.44</td>
</tr>
<tr>
<td>Approaches toward learning</td>
<td>3.82</td>
<td>1.51</td>
<td>6.49**</td>
</tr>
<tr>
<td><strong>Step 2 Family-focused variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comfort</td>
<td>-2.02</td>
<td>1.03</td>
<td>3.83*</td>
</tr>
<tr>
<td>Knowledge</td>
<td>-.23</td>
<td>.93</td>
<td>.06</td>
</tr>
</tbody>
</table>

Note. $R^2 = .10$ for Step 1; $\Delta R^2 = .13$ for Step 2 ($p < .001$).

*p = .01, **p < .001.
Parents’ comfort going to their child’s school and talking to their teacher emerged as a significant predictor of both teacher ratings of a child’s readiness for first grade and ORAL-J sounds correct score. Results were significant, and predicted an additional 13% of the variance over the child-focused variables.

**DISCUSSION**

The major finding of this investigation is that even after participating in a pre-K summer academic preparation program, the success of the Kindergarten year as measured by teacher ratings of readiness for first grade centered on the relationship of the parents to the school. The family-focused variables predicted an additional 13% of the variance in a child’s readiness for first grade above and beyond the child-focused variables. Of the predictor variables, only parents’ self-reported comfort with accessing school personnel had a significant positive relation to the readiness variable.

Although research has not empirically studied parents’ comfort with collaborating with school personnel, authors have hypothesized its importance (Christenson, Rounds, & Gorney, 1992; Lopez & Cole, 1990). Most of the parents in this sample (88%) completed the Family Questionnaire in Spanish and 55.4% did not have any high school education. Parents with limited English proficiency and lower level of formal schooling relative to United States standards may be less confident in their ability to collaborate with school personnel and to help their children with academic tasks. Other studies indicate that parents’ work schedule and lack of bilingual communication at school are significant barriers to parent involvement for Latino families (Edwards, 1990; Lopez & Cole, 1999). Data from this sample suggest that parents’ comfort in going to their child’s school and talking to the teacher may impact their child’s performance at the end of kindergarten. This finding suggests that there are ways in which schools and communities can intervene to promote kindergarten success by acting in ways to solicit and value the involvement of Latino parents in the schooling process.

Results from this study also indicate that there is a disconnect between parents report of comfort in going to their child’s school and talking to their teacher and the frequency with which they have actually met with and talked to the teacher. In light of the findings presented here that parent’s comfort has a significant and positive impact on their children’s school success, facilitating parental involvement is critical.

It should be noted that several of the measures developed for use in this study were developed for the purposes of this investigation and, therefore, there is limited information on the psychometric properties or normative values of the measures. However, trends that emerged through these analyses provide interesting and important information about school readiness. In addition, a more recent study has independently verified the factors of the Santa Barbara County Healthy Start Teacher Questionnaire (Redding, 2004).

An additional limitation relates to the absence of pre-academic skill levels and English language proficiency as variables included in the description of Latino preschoolers’ school readiness. Although not a focus of this study, these variables have been shown in the research to significantly impact the domain of readiness (Piotrowski, Botsko, & Matthews, 2000).

First, Language Development and Approaches Toward Learning emerged as significant predictors of school readiness. Although Language Development was a stronger predictor of school readiness, in this sample the teachers rated students more highly on Approaches Toward Learning than Language Development. As many of these students were in the process of developing English proficiency, the Approaches Toward Learning finding indicates that basic classroom tasks such as drawing a story, using pencils and paint brushes, and expressing curiosity and excitement about school through
non-verbal communication are also significantly related to teachers’ ratings of readiness for first grade. This finding suggests that academic standards should not be the primary focus for kindergarten students to be deemed successful. Rather, these students need support in developing basic learning skills and fostering positive feelings about their school experiences. It also highlights that discussions about being ready to learn when entering Kindergarten are not the ultimate objective, rather it is responsiveness to kindergarten instruction that sets the foundation for early and sustained school success.

It was surprising that Social Emotional Development did not significantly predict kindergarten success, given the research illustrating its significance. However, this sample is unique to the literature that has focused primarily on Caucasian and African American samples (Holloway, Rambaud, Fuller, & Eggers-Pierola, 1995; Piotrkowski, Botsko, & Matthews, 2000).

Perhaps, for this sample, the effects of Language Development are preeminent such that language skills are a necessary precondition for appropriate social emotional development. These results suggest that language development should be a continued focus of future research to better understand school readiness within the Latino population.

Most of the parents in this sample (88%) completed the Family Questionnaire in Spanish and 55.4% did not have any high school education. Data from this sample suggest that parents’ comfort in going to their child’s school and talking to the teacher may impact their child’s performance at the end of kindergarten. There are implications of recognizing that school readiness is an outcome of an interactive process. First, it may be difficult to assess a particular child’s “school readiness” except when that child is immersed in the challenges of the primary grade classroom. Prior assessments of school readiness outside of the context of school may be poorly predictive of how children will fare when they reach the classroom because the school has a large impact on how they and their parents function within this environment.

Second, data from Research Question 3 (regarding how well kindergarten success can be predicted by each of the child-focused variables) suggest the significance of understanding school readiness as an interaction of the child with the family and school and therefore the benefits of relationships to learning. These data provide support for future research of parents’ rating of their comfort and suggest that traditional school readiness assessments may be missing an important predictor of success. This result indicates the important role parents have in enhancing their children’s success in kindergarten and suggests that schools and communities can participate in this process.

Particular attention should be paid to the school psychologist’s role in working with parents and teachers. School psychologists have an opportunity to positively encourage home-school relationships by supporting teachers to include parents in at-school experiences such as classroom volunteering and to link school curriculum with activities that parents may engage in with their children.

Relationships that parents and children experience with the school are essential because of their continuing influence on children after they begin school, and because of the social and emotional resources they provide to families to allow them to be the best resources for their children. In each case, this positive connection, facilitated by school psychologists, provides young children and their families with some of their best resources for school success.

REFERENCES


The Self-Reported Effects of Crisis Intervention Work on School Psychologists

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California State University, Sacramento

Documenting the effects of crisis intervention work on school psychologists was the primary purpose of this study. To examine these effects a sample of 400 randomly selected school psychologists were surveyed. Half of the surveys were returned. Among respondents who had previously participated in a crisis intervention, just over 90% reported one or more of 37 specific negative reactions following crisis intervention work. Physical reactions in general and fatigue/exhaustion in particular were the most frequently reported reactions. All respondents reported use of self-care strategies and 94% viewed these strategies as important. Implications of these findings for the practice of school psychology are discussed.

Key Words: Crisis Intervention, School Psychologists, Self-Care, Physical Reactions

In addition to being associated with a variety of adverse mental health outcomes, crisis events can significantly affect a student’s ability to learn and function effectively (Nader & Muni, 2002; Silverman, & La Greca, 2002; Vogel & Vernberg, 1993). Given this potential for adverse outcomes it is critical that schools be prepared to provide crisis intervention assistance to students affected by crises. The importance of crisis intervention is further emphasized by recent changes made to school psychology training standards. Both the California Commission on Teacher Credentialing (CCTC, 2001) and National Association of School Psychologists (NASP, 2000) now require school psychology training programs to offer their credential candidates training in crisis intervention. Consistent with these training standards, school administrators view school psychologists as the school’s crisis intervention “experts” (Poland, Pitcher, & Lazarus, 2002). Consequently, it is not surprising that crisis intervention work often falls squarely on the shoulders of the school psychologist.

Given the importance of, and expectations for, school crisis intervention it is essential that school psychologists provide these services. However, it is important to acknowledge that the provision of crisis intervention is not without potential personal costs. In addition to taking time away from routine duties, it has been suggested that crisis intervention exposes caregivers to the same or similar stressors as those experienced by crisis victims (Greenstone & Leviton, 1982), and results in many of the same crisis reactions (Mitchell & Everly, 1998). Participating in crisis intervention can be physically and emotionally taxing (Harbert, 2000); and can result in compassion fatigue, increased sick time utilization, higher rates of personnel turnover, and an increase in premature retirements (Figley, 1995; Off & Henry, 1997).

Given these observations, it is important to assess the effects crisis intervention has on school psychologists, and to document use of techniques and strategies designed to mitigate negative consequences. From a PsycINFO database search conducted in April 2005, no prior study of these variables could be located. Thus, the current study surveyed a random sample of psychologists working in northern California to assess: (a) their general levels of crisis intervention training, (b) the extent of their crisis intervention work, (c) their attitudes toward crisis intervention, (d) the effects of their crisis intervention work on their own well being, and (e) their use of self-care strategies.
METHOD

This descriptive study employed a brief survey to investigate the effects of crisis intervention on school psychologists. Developed by Bolnik (2003), the survey examined variables related to involvement and training in crisis intervention, crisis event quantification, crisis-related reactions, self-care techniques, and participation in debriefing activities. The primary variable of interest was school psychologist retrospective self-reports of their typical reactions secondary to having participated in school crisis intervention.

Participants

The target population was practicing school psychologists working in northern California. To sample this population, contact information for 400 members was obtained from the California Association of School Psychologists (CASP). These names were randomly selected from the 1,084 CASP members living in northern California (CASP Region I, Northern Coast; Region II, Greater Bay Area; and Region X, Sacramento Valley). Of the 400 questionnaires distributed, 200 were returned. However, some respondents either failed or were not required to answer all survey items (e.g., if a respondent had never been involved in a crisis intervention they would not answer questions relating to their reactions subsequent to such work). Thus, some analyses were conducted with fewer than 200 responses. Eighty-three percent (83%) of the respondents were female. Regarding school psychology experience, 21% had 2 or less years, 17.5% had 3 to 5 years, 14.5% had 6 to 10 years, 22.5% has 11 to 20 years, and 21.5% has more than 20 years. Regarding level of education, 20.5% had a Masters degree, 66.5% had a Masters degree plus 30 units, and 11.5% had a doctorate degree.

Measure

After obtaining demographic information; experience with, training in, and attitudes toward crisis intervention were assessed by the questionnaire. From the first author’s review of the literature (Bolnik, 2003), 37 specific burnout, vicarious traumatization, compassion fatigue, and stress-related reactions were identified as appropriate for inclusion in the questionnaire. These items were, listed under one of the following five domains: physical, emotional, behavioral, cognitive, and work performance. In responding to this item, respondents were asked to indicate how many these 37 specific reactions they typically experience following crisis intervention work.

The questionnaire also addressed the issue of self-care. It asked respondents to indicate on a 5-point Likert-type scale the importance they applied to self-care. From Mitchell and Everly’s (1998) applied experiences, nine specific self-care strategies were listed. In responding to this item respondents were asked to indicate if they had employed the corresponding self-care strategy during their crisis intervention work. The final question inquired about participation in crisis intervention debriefing. Before distribution, this measure was pilot tested on a group of school psychologist interns. From pilot test responses some minor wording changes to questionnaire items were made.

Procedures

After developing the survey, obtaining approval of a Human Subjects Committee, and identifying the target population, surveys were mailed to the 400 randomly selected school psychologists. The survey packets mailed included a cover letter (with return deadline specified), the survey, and an addressed stamped return envelope. In an attempt to increase return rates, follow-up post cards were sent to participants two weeks before the return deadline.
RESULTS

Crisis Intervention Training

Regarding their crisis intervention training, 61% ($n = 122/199$) of respondents reported having had course work in crisis intervention during their pre-service training, and 83% ($n = 161/195$) reported participation in in-service crisis intervention training.

Extent of Crisis Intervention Work

The majority of respondents (86%, $n = 172/199$) reported having been involved in at least one school crisis intervention. Among respondents with these experiences, the mean number of crisis interventions was 6.1 ($SD = 7.8$). However, it is significant to note that 76% of the respondents had been involved in five or fewer school crisis interventions during their careers.

Attitudes Toward Crisis Intervention Work

The vast majority (93.5%, $n = 187/200$) of respondents reported feeling at least “Somewhat Comfortable” participating in crisis intervention. Only 4.5% ($n = 9/200$) reported feeling some degree of discomfort. Almost all of the respondents reported that the school crisis intervener role is at least “somewhat” challenging (98.5%, $n = 197/200$), rewarding (97.5%, $n = 195/200$), and interesting (98.5%, $n = 197/200$).

Reactions Following Crisis Intervention Work

Among respondents who reported having been involved in crisis intervention work, 90% ($n = 155/172$) reported having experienced at least one of 37 specific physical, emotional, behavioral, cognitive, or work performance reactions following their school crisis intervention work. The reaction domain most frequently endorsed by respondents was physical reactions (31.6% of the total number of reactions endorsed by respondents fell in this class), and the class least frequently endorsed was work performance reactions (only 11.7% of the reported reactions fell in this class). Table 1 provides the percent and rank of specific reactions to crisis intervention work both across and within reaction domains.

Self-Care During Crisis Intervention Work

All respondents who had participated in a crisis intervention ($n = 175$) reported using at least one self-care strategy during such work, and 94% ($n = 188/191$) of the school psychologists sampled felt that self-care strategies are “important” or “very important” during crisis intervention work. Only 1% viewed self-care as “unimportant.” The mean number of self-care strategies employed by those sampled was 5.2 ($SD = 2.34$), with 10.9% ($n = 19/175$) indicating use of all nine listed self-care strategies. The percentage of respondents who reported using specific self-care strategies is as follows: (a) follow a normal routine, 77.1%; (b) help fellow crisis interveners by sharing feelings, 69.1%; (c) realize those around you are under stress, 68%; (d) exercise, 62.2%; (e) get plenty of rest, 60.6%; (f) spend time with other crisis interveners, 56%; (g) do things that feel good to you, 47.4%; (h) eat well-balanced and regular meals, 44%; and; (i) avoid drugs and alcohol, 28%. In addition to selecting the specific self-care strategies listed on the survey form, 24 respondents wrote in specific self-care strategies. Of these responses the majority involved either spending time with a family member ($n = 6$) or engaging in religious/meditative activities ($n = 8$). Specifically, these write-in responses were as follows: (a) 12
Table 1.
Percent and Rank of Crisis Reactions Across and Within Domains

<table>
<thead>
<tr>
<th>Domain</th>
<th>% Across Domain</th>
<th>Rank Across Domain</th>
<th>% Within Domain</th>
<th>Rank Within Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical Reactions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatigue/Exhaustion</td>
<td>48.25</td>
<td>1</td>
<td>38.78</td>
<td>1</td>
</tr>
<tr>
<td>Sleep Difficulty</td>
<td>20.35</td>
<td>6</td>
<td>16.35</td>
<td>2</td>
</tr>
<tr>
<td>Headache</td>
<td>15.70</td>
<td>9</td>
<td>12.61</td>
<td>3</td>
</tr>
<tr>
<td>Rapid Heartbeat</td>
<td>13.37</td>
<td>11</td>
<td>10.74</td>
<td>4</td>
</tr>
<tr>
<td>Appetite Change</td>
<td>8.72</td>
<td>16</td>
<td>7.01</td>
<td>5</td>
</tr>
<tr>
<td>Stomach Upset</td>
<td>8.14</td>
<td>17</td>
<td>6.54</td>
<td>6</td>
</tr>
<tr>
<td>Sweating</td>
<td>5.23</td>
<td>22</td>
<td>4.24</td>
<td>7</td>
</tr>
<tr>
<td>Breathing Difficulty</td>
<td>3.49</td>
<td>26</td>
<td>2.8</td>
<td>8</td>
</tr>
<tr>
<td>Illness</td>
<td>1.16</td>
<td>31</td>
<td>0.93</td>
<td>9</td>
</tr>
<tr>
<td><strong>Emotional Reactions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased Sensitivity</td>
<td>34.30</td>
<td>2</td>
<td>32.96</td>
<td>1</td>
</tr>
<tr>
<td>Anxiety</td>
<td>31.98</td>
<td>3</td>
<td>30.73</td>
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</tr>
<tr>
<td>Helplessness</td>
<td>22.67</td>
<td>5</td>
<td>21.79</td>
<td>3</td>
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<tr>
<td>Depression</td>
<td>4.65</td>
<td>23</td>
<td>4.37</td>
<td>4</td>
</tr>
<tr>
<td>Numbness</td>
<td>4.07</td>
<td>24</td>
<td>4.91</td>
<td>5</td>
</tr>
<tr>
<td>Guilt</td>
<td>3.49</td>
<td>27</td>
<td>3.35</td>
<td>6</td>
</tr>
<tr>
<td>Fear</td>
<td>2.91</td>
<td>29</td>
<td>2.79</td>
<td>7</td>
</tr>
<tr>
<td><strong>Behavioral Reactions</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Irritability</td>
<td>16.86</td>
<td>7</td>
<td>28.71</td>
<td>1</td>
</tr>
<tr>
<td>Moodiness</td>
<td>12.79</td>
<td>12</td>
<td>21.78</td>
<td>2</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>11.05</td>
<td>14</td>
<td>18.81</td>
<td>3</td>
</tr>
<tr>
<td>Pessimism</td>
<td>7.56</td>
<td>18</td>
<td>12.87</td>
<td>4</td>
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<tr>
<td>Cynicism</td>
<td>5.81</td>
<td>21</td>
<td>9.9</td>
<td>5</td>
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<tr>
<td>Nightmares</td>
<td>2.91</td>
<td>28</td>
<td>4.95</td>
<td>6</td>
</tr>
<tr>
<td>Defensive</td>
<td>1.16</td>
<td>32</td>
<td>1.98</td>
<td>7</td>
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<tr>
<td>Loss of Trust</td>
<td>0.58</td>
<td>35</td>
<td>0.99</td>
<td>8</td>
</tr>
<tr>
<td><strong>Cognitive Reactions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficulty Concentrating</td>
<td>28.49</td>
<td>4</td>
<td>47.12</td>
<td>1</td>
</tr>
<tr>
<td>Preoccupied w/Trauma</td>
<td>16.86</td>
<td>8</td>
<td>27.88</td>
<td>2</td>
</tr>
<tr>
<td>Perfectionism</td>
<td>7.56</td>
<td>19</td>
<td>12.5</td>
<td>3</td>
</tr>
<tr>
<td>Decreased Self-Esteem</td>
<td>4.07</td>
<td>25</td>
<td>6.73</td>
<td>4</td>
</tr>
<tr>
<td>Disorientation</td>
<td>2.32</td>
<td>30</td>
<td>3.85</td>
<td>5</td>
</tr>
<tr>
<td>Rigidity</td>
<td>1.16</td>
<td>33</td>
<td>1.92</td>
<td>6</td>
</tr>
<tr>
<td><strong>Work Performance Reactions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obsession Over Details</td>
<td>15.12</td>
<td>10</td>
<td>32.91</td>
<td>1</td>
</tr>
<tr>
<td>Task Avoidance</td>
<td>11.63</td>
<td>13</td>
<td>25.32</td>
<td>2</td>
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<tr>
<td>Low Motivation</td>
<td>9.30</td>
<td>15</td>
<td>20.25</td>
<td>3</td>
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<tr>
<td>Detachment</td>
<td>7.56</td>
<td>20</td>
<td>16.46</td>
<td>4</td>
</tr>
<tr>
<td>Negativity</td>
<td>1.16</td>
<td>34</td>
<td>2.53</td>
<td>5</td>
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<tr>
<td>Absenteeism</td>
<td>0.58</td>
<td>36</td>
<td>1.27</td>
<td>6</td>
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<tr>
<td>Tardiness</td>
<td>0.58</td>
<td>37</td>
<td>1.27</td>
<td>7</td>
</tr>
</tbody>
</table>
step program; (b) consult with mentors; (c) spend quality time with family ($n = 2$); (d) debriefing; (e) nap; (f) prayer ($n = 3$); (g) spend time with spouse ($n = 3$); (h) yoga; (i) read; (j) chiropractor; (k) garden; (l) meditation ($n = 3$); (m) massage; (n) spend time with family; and (o) bubble bath ($n = 2$).

Finally, in response to the question of whether or not the respondent had ever participated in a crisis intervention “debriefing,” 57.1% ($n = 113/198$) responded “Yes.”

Relationships Among Questionnaire Items

Before concluding data analysis, attempts were made to determine relationships between school psychologist characteristics (i.e., experience, level of education, frequency of crisis intervention involvement, crisis intervention training, crisis intervention self-care, and crisis intervention attitudes) and symptoms typically experienced following crisis intervention work. With just a few exceptions, these relationships were not statistically significant, and the few significant relationships identified were weak. Specifically, the greater the number of self-care strategies respondents reported using, the greater the number of physical ($r = .25, p = .01$), emotional ($r = .22, p = .01$), and cognitive ($r = .16, p = .05$) reactions respondents reported having. Also, respondents who rated self-care as more important tended to report a fewer number of cognitive reactions ($r = -.16, p = .05$).

DISCUSSION

Commensurate with a study by Allen and colleagues (2002), 39% of respondents reported that they did not have pre-service crisis intervention training. However, when including in-service training, the number of school psychologists who reported not having any preparation for school crisis intervention work drops to 17%. Regardless of when such training takes place, the fact that a number of school psychologists report not having any crisis intervention training is significant. Given that, only 13.5% of the sample reported never having participated in a school crisis intervention, it is possible that some psychologists have been presented with situations that require skills they may not have developed.

Consistent with the findings of Harbert (2000), the results of this study suggest crisis intervention to be taxing on school psychologists. Most of the respondents who reported experiencing a crisis intervention indicated they have experienced one or more reactions subsequent to their crisis work, with fatigue/exhaustion being the most common reaction. It is important to acknowledge that this finding may be a result of the interaction between the stressful nature of crisis intervention work and the fact that the school psychologist’s normal job duties do not disappear while they are engaged in these efforts.

Since only one respondent reported absenteeism to be a consequence of crisis intervention work, school psychologists may tend to return immediately to work (potentially without a chance to rest and recover). This may, in part, be a consequence of the fact that maintaining a normal routine was the most commonly reported self-care strategy, and that many school crisis intervention protocols argue that returning to such routine as soon as possible is helpful (e.g., Brock, Sandoval, & Lewis, 2001). From this finding, it is suggested that it may be appropriate to educate psychologists that some chance for crisis interveners to rest and recover (e.g., by allowing them to take a “mental health” day-off or to come into work later than normal) is acceptable before resuming normal duties.

The high percentage of school psychologists who experience reactions subsequent to their crisis intervention work also suggest that not only is it important for training programs to develop crisis intervention skills, but also to prepare the pre-service school psychologist for the reactions associated with such work. As Figley (1989) points out, crisis intervention training must include information on
stress and coping mechanisms, development and maintenance of support networks, self-care strategies and establishing realistic goals and boundaries. School psychology coursework should emphasize not only knowledge and skill, but also the coping skills required to promote a healthy response to crisis intervention work (Brock et al., 2001). Training programs must make pre-service school psychologists aware of the possible consequences to their own health and well being of their crisis intervention work.

Interestingly, only 30.5% of respondents indicated that they experienced one or more of the work performance related reactions, with the most common specific symptom reported being “obsession over details.” This finding may contradict the work of Greenstone and Leviton (1982) who suggested that the ability to intervene efficiently and effectively, as well as the ability to operate in traditional roles, is affected when an intervener is involved in a crisis. The authors hypothesize several reasons for the low number of work performance related reactions reported. First, the normal day-to-day demands of school psychology work may make it difficult for the school psychologist to “allow” their crisis intervention work to affect their traditional duties. Second, as was just mentioned, many school crisis response models suggest that a quick return to normal rituals and routines can be helpful in coping with crises (Brock et al., 2001). Third, given the retrospective self-report nature of this study, it is possible that participants simply did not remember and/or recognize these effects. Other possible explanations for the low number of work performance reactions reported include (a) more school psychologist received education and training in crisis intervention in recent years (Allen et al., 2002), (b) increased comfort level due to greater involvement in crisis interventions, (c) increased awareness and utilization of self-care strategies, and (d) increased collaboration among crisis intervention team members that may lighten the work loads.

A final explanation for the low number of work related reactions reported was the finding that over 97% of respondents viewed their role during crisis intervention as at least somewhat challenging, rewarding, and interesting. Lammers (1991) concluded that when crisis line volunteers felt their work was challenging, rewarding, and interesting, their duration of volunteerism increased. Another study found that feeling supported and appreciated by supervisors, feeling sufficiently trained, and being realistic about the job itself were all variables that contributed to the prevention of burnout symptoms (Cyr & Dowrick, 1991).

Knowledge of the negative effects of trauma work and use of self-care strategies are important in preventing and/or coping with the consequences of crisis intervention work (Brady, Guy, Poelstra, & Brokaw, 1999). Results from the current study indicate that school psychologists are aware of and use self-care strategies. Of the school psychologists in this sample who reported having been involved in a crisis intervention, all indicated that they utilized at least one self-care strategy and 94% of respondents reported viewing self-care as important. The importance of these findings is emphasized by Greenstone and Leviton (1982), who found that when crisis interveners continually discount their own needs, health, nutrition, and safety, their effectiveness was greatly reduced.

As was mentioned above, the most commonly reported self-care strategy employed was to maintain a normal routine. This is of utmost importance given that a crisis, by definition, is a temporary disruption in normal functioning, accompanied by a state of upset and disorganization (Brock et al., 2001). Thus, it is logical that following a normal routine would be a useful strategy. However, as was previously noted, use of this self-care strategy should take into account the need to rest and regain strength, and not making a complete return to routine too quickly.

Interestingly, only 52% reported having been involved in a crisis intervention debriefing. This approach is designed to help prevent or mitigate traumatic stress among crisis interveners (Mitchell & Everly, 1996). In addition to simply reflecting unavailability of this type of assistance, this finding
may also point to the idiosyncratic nature of self-care strategies. It is possible that coping with crisis intervention work requires the school psychologist to develop a self-care plan tailored to his or her needs and resources, and that when it comes to coping with crisis intervention work “one size does not fit all.”

Small yet significant relationships were found between the number of different self-care strategies an individual used and the number of specific crisis reactions reported. Specifically, respondents who reported using a higher number of different strategies also tended to report a greater number of physical, emotional, and cognitive reactions. This may be an indication that among respondents who have more reactions to their crisis intervention work, there is a need to seek out alternative self-care strategies. The fact that no other significant relationships were found is somewhat surprising. For example, failure to find a significant relationship between level of crisis intervention training and crisis intervention attitudes conflicts with the observations of Taylor, Brady, and Swank (1991), who documented that after completing a training program, interveners felt more effective.

Limitations

Several limitations of this study need to be acknowledged. First, the sample included school psychologists who are members of CASP and who reside in northern California. Thus, survey findings may not generalize to those who are not members of CASP and/or live outside of northern California. Another limitation of this study was that half of those who were mailed surveys did not respond. These individuals may have differed systematically from respondents on some variable important to this study. For example, it is possible that those returning the survey may have more interest in the topic of crisis intervention than those who did not. The researchers were unable to determine if these individuals systematically differed from those who did respond.

It is also important to acknowledge the subjectivity of the survey questions. In an attempt to make responding easy, the authors chose to keep the survey as concise as possible. Thus, terms such as “crisis,” “crisis intervention,” and “debriefing” were not defined. Consequently, respondents may have had different views of what a crisis event is and what a crisis intervention and debriefing involves.

Finally, the retrospective nature of this study may have influenced results. As was mentioned earlier, respondents may not have been able to perfectly recall their reactions to crisis intervention work. Further, we do not know if the reactions reported by respondents were a direct consequence of their crisis intervention exposures or other life stressors. The latter may have had a significant role in the symptoms psychologists experience given prior research findings that trauma history and other personal vulnerabilities influence traumatic stress reactions (Brock, 2002).

Future Study

This study asked school psychologists to retrospectively report reactions they experienced during or following their crisis intervention work. This required the respondents to recall feelings and physical states from crises that may have occurred months, or even years prior. Research that examines the effects of crisis intervention during and immediately after a crisis event is recommended. It is possible that real-time estimates of reactions to crisis intervention work (and the severity of those reactions) may be different from those recalled retrospectively. In addition, to overcome the limitations of a survey, an interview strategy for collecting these descriptive data is recommended, and qualitative research techniques may also help to overcome some of this study’s limitations. Finally, measures of crisis type and intervention effectiveness might also provide meaningful data.
REFERENCES


Temperament Differences Among Children with Conduct Disorder and Oppositional Defiant Disorder

Diana Joyce and Thomas Oakland

University of Florida

Temperament-based learning style preferences of 80 children, ages 8 to 17, 40 with conduct disorder (CD) and 40 with oppositional defiant disorder (ODD) were examined using the Student Styles Questionnaire (SSQ). The SSQ measures four dimensions of learning style preferences based on temperament theory (Extroverted-Introverted, Thinking-Feeling, Practical-Imaginative, and Organized-Flexible). Their T-scores were compared for strength of preference between the two disorders. In addition, analysis for frequency of preference among children with CD and ODD was compared to the frequency of preference typically found in the general population. When comparing the strength of temperament preferences of children with CD and ODD significant differences were noted only for Practical-Imaginative styles. Children with ODD displayed a stronger preference for acquiring and assessing new information in Practical styles than did children with CD. Students with CD or ODD did not differ significantly for strength of preference on Extroverted-Introverted, Thinking-Feeling, and Organized-Flexible styles. When comparing the frequency of temperament preferences of children with CD and ODD to preference rates found in the general population, significant differences were noted only for children with ODD. They more often indicated a preference for Practical and Thinking styles.

Key Words: Temperament, ODD, CD, Student Styles Questionnaire, Children

Children with conduct disorder (CD) comprise between less than 1% to more than 10% of the general population and the prevalence of oppositional defiant disorder (ODD) is reported to be between 2% and 16% (American Psychiatric Association [APA], 2000). Their symptomology ranges from mildly disruptive (e.g., arguing) to injurious (e.g., assault) behaviors. Although they represent a small percentage of students, their behaviors can have a tremendous impact on peers and their own academic achievement.

The Diagnostic and Statistical Manual of Mental Disorders-IV-TR (APA, 2000) criteria for children displaying a conduct disorder emphasize a repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules have been violated over a 12-month period. The DSM-IV-TR (APA, 2000) criteria for children displaying oppositional defiant disorder emphasize a pattern of negativistic, hostile, and defiant behavior lasting at least six months. Additionally, CD must be ruled-out and impaired learning or social functioning must be evident.

Due to the externalizing and disruptive nature of their behaviors, students with CD and ODD may receive special education services for emotional disturbance (ED). Although IDEA provides exclusion of students determined to be socially maladjusted they may be included if determined to also have an emotional disturbance. The inclusion of students with CD or ODD in special education is still debated and policies may vary by state and school districts as some states have not included the terminology “socially maladjusted” in their statutes and Board of Education rules. Special education services are provided to approximately 8.8% (5,775,722 nationally) of students ages 6-21. Emotionally Disturbed is the fourth largest category (8.2%, 473,663 students) of special education and the number of students enrolled has risen 18.4% since 1992 with a steady increase each year (U.S. Department of Education [U.S. DOE], 2002).

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On average, per pupil, special education costs ($12,639) are more than double those of regular education services ($4,394) with additional costs (estimated $1,086 per student) for eligibility determinations (U.S. DOE, 2002). Their service needs are further complicated by the high comorbidity rates for other disabilities including attention deficit disorders and specific learning disabilities (APA, 2000).

Within special education, the category of ED can require higher than average state and federally funded services resulting in considerable financial and professional personnel investment. For example, students with ED have a higher incidence of discipline referrals with nearly 50% of ED students being suspended or expelled at some time. They are also more likely than other disability groups to be served full-time in separate facilities (32.9%). In addition, externalizing behavior problems are linked with several negative long-term outcomes (e.g., higher dropout, school failure, maladjustment, and incarceration) that have both financial and emotional costs to the individuals and their communities (U.S. DOE, 2002).

An understanding of their temperament qualities that utilizes their strengths may provide insights leading to more effective interventions. Although the research for academic gains when matching teacher-student learning styles is mixed, there is strong support for other factors that affect behavior and thus have intervention implications. Cornett (1983) found significant positive affective regard when teachers and students were matched for learning styles, which can be important to behavioral dynamics of a classroom. Temperament learning styles have been identified as indicators of both academic persistence and graduation (Schurr, Ruble, Palomba, Pickrell, & Moore, 1997). Research on counselors’ incorporation of components of a patient’s style, in therapy, has resulted in lower therapy drop-out rates and voluntarily extension of number of treatment sessions (Myers, McCaulley, Quenk, & Hammer 1998).

TEMPERAMENT OF CHILDREN WITH ODD AND CD

Temperament refers to traits or predispositions to display certain behavioral tendencies. They are presumed to have a biological basis and be relatively stable (Bates, Wachs, & Emde, 1994). Early historical temperament theory dates back to Hippocrates and Galen with a combination of both physical and emotional characteristics described as four humors or four temperaments (Galen, trans. 1992; Hippocrates, trans. 1939). Based on his clinical observations of patients’ behaviors in the early 1900s, Carl Jung defined two attitudes of temperament: Extroversion and Introversion (Jung, 1921/1971). He conceptualized Extraverted and Introverted qualities as opposite ends of a continuum, noting each person possesses both, however, one also has a preference to display one set of qualities over the other. Jung observed that his patients were most likely to display pathology in a manner consistent with their propensity for temperament qualities. For example, his Extroverted patients more frequently exhibited hysteria or aggression and Introverted patients more frequently exhibited internalizing disorders such as depression or anxiety. Therefore, he posited a balance of temperament qualities with the ability to use either set of qualities when appropriate resulted in better adjustment. His theory also delineates four other basic psychological functions: Sensation/Intuition and Thinking/Feeling. This theory was later modified by Myers, adding a fourth dimension, Judging/Perceiving (Myers & Myers, 1980). Other definitions of temperament have included physiological perspectives such as measures of activity level, distractibility, and reaction intensity for younger children (Thomas & Chess, 1989).

This study is based on the Student Styles Questionnaire (SSQ), a self-report measurement of temperament in the tradition of Jung’s theory as related to students’ learning style preferences (Oakland, Glutting, & Horton, 1996). Four bipolar temperament dimensions comprise the model: Extroversion-Introversion, Practical-Imaginative, Thinking-Feeling, and Organized-Flexible. All four tempera-
Temperament dimensions have positive qualities that can represent strengths in the child’s learning style. As temperament dimensions are dichotomous, very strong preferences on one dimension may also identify underdeveloped attributes for the opposing trait that can lead to problem behaviors. Assessment of the child’s temperament strengths coupled with a variety of teaching methods that permit all students to utilize their strengths may improve learning and behavior. In addition, it may promote better understanding between educators and students whose styles are very different by providing a non-pathological language for discussion of problem behaviors. Thomas and Chess (1989) described the concept of “Goodness of Fit” in temperament to exist when parents and children either had similar temperaments or the parents had tolerance for the differences. When parents lack an understanding of temperament differences and mandate that children comply with parental styles, conflict can develop (Barkley, 1997; Thomas & Chess, 1989).

**Extroverted-Introverted Styles**

Extroversion refers to a propensity to draw energy from external sources (e.g., friends and environment) or orient energy outward toward people and events in the external environment. Positive learning style qualities associated with Extroversion include enjoying group discussions, a wide range of topic interests, and a preference for verbal responses (Oakland et al., 1996; Thorne, 1987). If Extroversion is extreme, opposing traits such as respect for others privacy and self-reflection before acting may be underdeveloped. Introverted children renew their energy from within and exert their energy inward (e.g., own ideas/thoughts). Learning style strengths associated with Introversion include in-depth interests, reflective analysis, and preference for written responses. Weaknesses for students with extreme Introversion may include withdrawal, overprotectiveness of personal space, and poor social interaction skills (Myers et al., 1998; Oakland et al., 1996).

Empirical evidence for brain activity differences between Extroverts and Introverts have included studies of cortical arousal, blood flow activity, and select limbic sites. Wilson and Languis (1990) found differences in brain electrical activity with lower cortical arousal for extroverts as compared to introverts. Sternberg (1990) found differences in anterior temporal lobe activity with lower activity for Extroverts. Further support for a biological difference between Extroverts and Introverts is provided by longitudinal studies of differences in measures of limbic sites (Kagan & Snidman, 1991). The higher arousal level for introverts may relate to their inclination to withdraw and seek solitude more often to renew their energy. Shelton’s (1996) analysis of stress coping studies indicated hypertension and coronary heart disease was reported one and one-half times more often in introverts compared to what would be expected for their representation in the sample group. On a scale of Emotional Exhaustion, Introverts mean score was significantly higher than that of Extroverts (Maslach, Jackson, & Leiter, 1996). The lower arousal level of extroverts may contribute to their desire to seek external stimulation through increased interactions with others and the environment.

As observed by Jung (1921/1971), persons receiving mental health services with an Extroverted style were noted as more likely to display externalizing disorders and those with an Introverted style to display internalized disorders. When confronted with problems, Extroverts are more likely to first blame others or look to the environment for explanations whereas Introverts are more likely to first become introspective (Myers et al., 1998). Children diagnosed as CD and ODD by nature of their diagnosis display problem behaviors in an externalizing rather than internalized manner. Study of Extroverted children who required counseling for disruptive behaviors noted they are extrapunitive, often punishing others or destroying property in the environment (Myers & McCaulley, 1985). Those preferring Introversion were often intrapunitive or self-punishing and engaged in self-destructive behaviors. Symptoms for CD and ODD both involve extrapunitive problematic behaviors (e.g., oppos-
tion, arguing, and fighting), however, behaviors of CD children are more severe and chronic than those with ODD and therefore, a stronger preference for Extroversion would be anticipated. Aggressive children also tend to be more attentive to their external environment and display negative attributional bias to the behaviors of others (Dodge & Newman, 1981).

**Practical-Imaginative Styles**

The Practical-Imaginative dimension refers to one’s preferences for acquiring and assessing new information. The Practical style includes a pragmatic approach that enjoys learning facts in a linear, sequential manner with applications first through hands-on experience (Beyler & Schmeck, 1992). They often interpret information in a literal manner with an emphasis on current events and facts (Myers et al., 1998). Harrison and Lawrence (1985) found when asked to write essays about their personal future, Practical students time orientation had a shorter frame of reference with a linear emphasis on the present, whereas Imaginative orientation was longer and looked toward the future. For a child with a very strong Practical orientation, skills typical of Imaginative styles (e.g., ability to generalize global concepts or guidelines, and ability to recognize patterns predicting consequences) may be underdeveloped. Imaginative style is associated with a preference for learning concepts first through study of theory and intuitive insight, then generalization to applications. Weaknesses for these students may include inattention to detail and overlooking practical issues related to real-world applications (Oakland et al., 1996).

Children with CD and ODD often exhibit behaviors that reflect a tendency toward the weaknesses of Practical rather than Imaginative styles. For example, their rigid attitudes, narrow focus on present issues, and failure to consider long-term consequences of behaviors (Oakland et al., 1996). They can become easily annoyed and argumentative when directions are not explicit or when people do not meet their expectations. For example, they are often argumentative over the literal interpretation of rules (Frick, 1998) and unwilling to compromise or value others’ point of view. In addition, they do not generalize the intent or premise of rules well to other situations. Newman (1979) and DiTiberio (1977) found those with a preference for Practical styles were less adept at identifying implied meanings and recognizing covert feeling messages. Parental behavior management training that utilizes the preferences of a Practical orientation, such as providing very explicit rules and well delineated sequential consequences has been helpful in changing defiant behaviors (Barkley, 1997).

The qualities of Imaginative students may be well suited to learning in present educational settings as they are overrepresented among gifted students (Oakland, Joyce, Glutting, & Horton, 2000) and the highest achievers, especially in college (Myers & McCaulley, 1985). In comparisons of intelligence, SAT, and GRE scores, Imaginative children were consistently higher (Myers, 1962; Myers & McCaulley 1985). Students with the combined qualities of Introversion, Imaginative, and Organized have among the highest GPAs and graduation rates (Myers & Myers, 1980).

Although research is limited, there is some physiological evidence of differences in EEGs between persons preferring Practical and Imaginative Styles (Newman, 1985). Those with a preference for Practical qualities had greater activity in the left hemisphere and those with a preference for Imaginative styles had greater activity in the right hemisphere. In addition, persons with a Practical style are over-represented in research on stress and self-reported hypertension and coronary heart disease (Shelton, 1996).

**Thinking-Feeling Styles**

Thinking-Feeling style refers to how one makes decisions. Learning style strengths associated with a Thinking preference include a strong concern for justice, logic, and a quizzical nature. Weak-
nesses may include over emphasis on competitiveness, abrupt opinions, discomfort expressing feelings, and less sensitivity to the feelings of others (Oakland et al., 1996). Children with CD and ODD often exhibit blunt verbal interactions and initiate debate in provoking or responding to conflict. Thus, those with ODD and CD as well as those with a Thinking preference are more likely inclined to directly confront disagreements rather than exert diplomacy or seek harmony.

Numerous research studies have found males in the general population prefer a Thinking style and females generally prefer a Feeling style. Approximately 65% of males prefer Thinking and 72% of females prefer Feeling (Myers et al., 1998; Oakland et al., 1996). The majority of persons with CD and ODD are males; therefore, it is hypothesized in this study that CD/ODD students would have high scores on Thinking styles.

Those with a Feeling preference make decisions with an emphasis on harmony, sympathy, and diplomacy. However, when overly concerned with avoiding conflict, students with a strong Feeling style may lack appropriate application of critical thinking and open expression of opinions (Oakland et al., 1996). Given their preference for a Feeling style, females may be inclined toward internalizing disorders (e.g., depression) while males may be inclined toward externalizing disorders (e.g. ODD, CD, disruptive behaviors). For example, in most cultures physical aggression is more common among males (Rosenzweig, Leiman, & Breedlove, 1996) and incidents of depression are more common among females (APA, 1994).

Organized-Flexible Styles

The Organized-Flexible dimension refers to when one makes decisions. Organized children prefer planning, routine, and impose systems to maintain order. Students with this preference report a stronger goal orientation (Atman, 1993). Underdeveloped traits associated with stronger Organized preferences may include flexibility, tolerance, and adaptation to change. The strengths of students with a preference toward Flexible styles include embracing change, spontaneity, and desire for variety. Their weaknesses can include organization skills and compliance (Oakland et al., 1996). Children with CD and ODD often display less compliance to classroom structure and self-control. For example, they lose their temper, blame others for their misfortunes, argue, defy rules, neglect to follow procedures, and dislike externally imposed regulations.

Weaknesses on each temperament dimension are associated with more extreme preferences that result in underdevelopment of the opposing traits. Children with ODD and CD exhibit many of the weaknesses associated with strong Extroversion, Practical, Thinking, and Flexible learning styles (Oakland et al., 1996). Because children with CD exhibit more chronic and severe behavioral problems, it was hypothesized children with CD would have stronger preferences than those with ODD for the Extroversion, Practical, Thinking, and Flexible styles. In addition to strength of preference, it was also predicted a larger ratio of students with CD or ODD would prefer Extroversion, Practical, Thinking and Flexible styles than is typically found in the general population of students. The rates of student preferences are well-documented in temperament literature and were used for comparison.

METHOD

Participants

Eighty children and youth ages 8 to 17 served as participants: 40 (37 males; 26 Caucasian, 12 African American, 2 Hispanic) had a current diagnosis of Oppositional Defiant Disorder, and 40 (31 males; 28 White and 12 African American) had a current diagnosis of Conduct Disorder. Diagnoses were based on DSM-IV criteria and made by psychologists, psychiatrists, and/or school psychologists.
In addition, documentation was verified with the child’s medical, judicial, or school records. Participants were recruited while receiving self-contained services in local alternative schools, adjudicated youth-juvenile justice programs, and an adolescent psychiatric unit. All SSQ data were collected from participants in their respective intervention settings by the first author.

**Measure**

The Student Styles Questionnaire (SSQ), a self-report measure of temperament (Oakland et al., 1996), was administered to all participants in this study. The instrument’s 69 dichotomous forced-choice questions elicit information on children’s preference on one of four bi-polar temperament qualities: Extroversion-Introversion, Practical-Imaginative, Thinking-Feeling, and Organized-Flexible. The standardization sample for the SSQ (7,902 students) was drawn to be representative of the 1990 U.S. Bureau of the Census data.

The SSQ manual reports reliability estimates were examined by administering the test twice with a seven-month interval to 137 students. Test-retest reliability coefficients for the SSQ range from .67 on the Practical-Imaginative dimensions to .80 on the Extroversion-Introversion measures. The average test-retest reliability is .74 (Oakland et al., 1996).

Internal validity for the instrument was established by expert consensus, factor analysis, and item analysis methods. Convergent validity studies included the Myers-Briggs Type Indicator (MBTI; Myers & McCaulley, 1985) and the Values Inventory (VI; Oakland et al., 1996). Analysis of relationships between the MBTI and the SSQ indicated significant correlations on similar dimensions. Univariate correlations between the subscales of the VI and SSQ also were significant. The SSQ’s construct validity is highly similar for children of various ages, for both boys and girls, and for children from the three racial-ethnic groups on which it was standardized (i.e., African American, Hispanics, and Caucasian). Item response patterns also are similar for children from these groups (Stafford & Oakland, 1996).

**Procedures**

The SSQ data for this study were coded in two ways. First the data set was reviewed to determine the \( T \)-score for each temperament dimension. Secondly the learning style preference on each dimension (e.g., Extroverted or Introverted) was established to categorize participants into one of the two bipolar dimensions. High \( T \)-scores are associated with Extroversion, Practical, Thinking, and Organized subscales. Low \( T \)-scores are associated with Introversion, Imaginative, Feeling, and Flexible subscales.

**Statistical analysis of \( T \)-scores.** Children with CD display more chronic and severe behavior problems than children with ODD, thus their temperament preferences were hypothesized to be more extreme. Pathology is more likely to be displayed when temperament preferences are very strong (i.e., \( T \)-scores on one end of continuum) because the opposing qualities on that temperament dimension are less developed. Therefore, \( T \)-score data were analyzed to determine mean group differences on each temperament dimension scale.

Norming data from the SSQ manual indicates the subscales are relatively independent with factor intercorrelations ranging from \( r = -0.30 \) to \( r = .24 \) between the Practical Imaginative scale and the Organized-Flexible scale (Oakland et al., 1996), therefore, MANOVA correlation was conducted in this study. However, because MANOVA is a very conservative estimate of significance (i.e., applies \( .05 \) \( p \) value across all four variables) additional Analyses of Variance (ANOVA) were also conducted on each dimension.
Statistical analysis of frequency. Children with CD and ODD display a number of Extroverted, Practical, Thinking, and Flexible traits in their problem behaviors. For example, they externalize aggression/blaming, they can have rigid attitudes focused primarily on the present, they are inclined to arguing and direct confrontation, and they resist compliance to classroom structure. In addition, traits of the opposing learning styles (i.e., Introversion, Imaginative, Feeling, and Organized) appear underdeveloped. Therefore, both children with CD and ODD were hypothesized to express a preference for Extroverted, Practical, Thinking, and Flexible styles more frequently than typically found in the general population. Chi-square analyses was used to test these hypotheses.

The data set was analyzed by chi square analysis for proportion/frequency of each temperament dimension. This method is used commonly with temperament data (Myers & McCaulley, 1985; Myers et al., 1998). Chi-square normally sets default values evenly for each cell (e.g., 50% Extroverted, 50% Introverted). However, there is a large body of research over several decades that have consistently established the percentages each temperament dimension occurs are not evenly distributed in the general population (Myers & McCaulley 1985; Oakland et al., 1996). Therefore the preference frequency on each temperament dimension for students with CD or ODD was compared against set expected cell values established in the general population. These percentages are available in Table 2. On the Thinking-Feeling dimension, the small sample sizes for females with CD and ODD (n=12) precluded reliable analyses. Thus, Chi-square analyses on the Thinking-Feeling dimension consider data only for boys.

RESULTS

MANOVA comparison of all four temperament dimensions was not significant, Wilk’s Lambda, $F(4, 75) = 1.843, p = .129$. Because the MANOVA is a very conservative estimate of significance (i.e., applies .05 $p$ value across all four variables) ANOVA analyses were conducted for each temperament dimension. Descriptive data for children with CD and ODD on the four temperament dimensions are reported in Tables 1 and 2.

### Table 1.
**Temperament Means and Standard Deviations**

<table>
<thead>
<tr>
<th></th>
<th>CD</th>
<th>ODD</th>
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<tbody>
<tr>
<td>Extroversion-Introversion</td>
<td>M = 54.3, SD = 14.3</td>
<td>M = 56.5, SD = 9.5</td>
</tr>
<tr>
<td>Practical-Imaginative</td>
<td>M = 65.2, SD = 11.4</td>
<td>M = 70.4, SD = 7.6</td>
</tr>
<tr>
<td>Thinking-Feeling</td>
<td>M = 57.0, SD = 9.5</td>
<td>M = 58.4, SD = 10.0</td>
</tr>
<tr>
<td>Organized-Flexible</td>
<td>M = 46.8, SD = 10.4</td>
<td>M = 47.0, SD = 7.7</td>
</tr>
</tbody>
</table>

*Note. CD = Conduct Disorder, ODD = Oppositional Defiant Disorder. Extroversion/Introversion and Thinking/Feeling dimensions, T-scores > 50 = Extroverted and Thinking; T-scores < 50 = Introverted and Feeling. On the Practical/Imaginative dimension T-scores > 60 = Practical and T-scores < 60 = Imaginative. On the Organized/ Flexible dimension, T-scores > 47 = Organized and T-scores < 47 = Flexible.*
Extroversion-Introversion Styles

$T$-score differences on Extroversion and Introversion styles between children with CD or ODD were not significant, $F(1, 78) = .675, p = .414$. The frequency did not differ between children with CD or ODD who express a preference for Extroversion or Introversion, CD, $\chi^2 = .000, p < .000$; ODD, $\chi^2 = 2.747, p < .097$, and the rates typically found in the general population. The preference rate for the general population is 65% Extroverted and 35% Introverted (Oakland et al., 1996).

Practical-Imaginative Styles

$T$-score differences on Practical and Imaginative styles between children with CD and ODD were significant, $F(1, 78) = 5.805, p = .018$. Compared to children with CD, children with ODD expressed a stronger preference for Practical styles. The frequency of children with CD who expressed a preference for Practical and Imaginative styles and preference rates typically found in the general population was not significant, CD, $\chi^2 = .440, p < .507$. In contrast, differences between children with ODD and the general population were significant, ODD, $\chi^2 = 18.571, p < .000$, with ODD children more likely to express a preference for Practical styles. The preference rate for the general population is 65% Practical and 35% Imaginative (Oakland et al., 1996).

Thinking-Feeling Styles

$T$-score difference on Thinking and Feeling styles between children with CD and ODD were not significant, $F(1, 78) = .428, p = .515$. Differences between male children with CD and the typical preference rates for the general population were not significant, CD, $\chi^2 = 1.067, p < .302$. In contrast, differences between male children with ODD and the general population were significant, ODD, $\chi^2 = 6.905, p < .009$, indicating children with ODD are more likely to express a preference for Thinking styles than children in the general population. The preference rate for the general population is 64% Thinking and 36% Feeling (Oakland et al., 1996).

Organized-Flexible Styles

$T$-score differences on Organized and Flexible styles between children with CD or ODD were not significant, $F(1, 78) = .005, p = .942$. The frequency of children with CD or ODD who express a

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Table 2.
Temperament Preference Percentages - Students With CD/ODD and General Population

<table>
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<th>M</th>
<th>T</th>
<th>F</th>
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</tr>
</thead>
<tbody>
<tr>
<td>CD</td>
<td>65%</td>
<td>35%</td>
<td>70%</td>
<td>30%</td>
<td>68%</td>
<td>32%</td>
<td>55%</td>
<td>45%</td>
</tr>
<tr>
<td>ODD</td>
<td>78%</td>
<td>22%</td>
<td>98%</td>
<td>2%</td>
<td>80%</td>
<td>20%</td>
<td>43%</td>
<td>57%</td>
</tr>
<tr>
<td>CD/ODD Total</td>
<td>71%</td>
<td>29%</td>
<td>84%</td>
<td>16%</td>
<td>74%</td>
<td>26%</td>
<td>49%</td>
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General Population

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<td>E</td>
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<tr>
<td>I</td>
<td>65%</td>
<td>34%</td>
<td>67%</td>
<td>33%</td>
<td>64%</td>
<td>36%</td>
<td>42%</td>
<td>58%</td>
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<tr>
<td>P</td>
<td>64%</td>
<td>36%</td>
<td>64%</td>
<td>36%</td>
<td>28%</td>
<td>72%</td>
<td>59%</td>
<td>41%</td>
</tr>
</tbody>
</table>

Note. CD = Conduct Disorder, ODD = Oppositional Defiant Disorder, E = Extroverted, I = Introverted, P = Practical, M = Imaginative, T = Thinking, F = Feeling, O = Organized, L = Flexible.

preference for Organized or Flexible did not differ between them and the preference rates found in the
general population, CD, $\chi^2 = .400, p < .527$; ODD $\chi^2 = .900, p < .343$. The preference rate for the
general population is 50% Organized and 50% Flexible (Oakland et al., 1996).

**DISCUSSION**

All temperament styles have positive strengths and the potential for underdeveloped opposing
qualities. Understanding learning style preferences can provide a non-pathological framework for ac-
knowledging children’s strengths and identifying qualities that require remediation. As Jung (1921/ 1971) noted, this perspective strives to develop a balance of traits for better adjustment.

Differences in temperament learning styles have been identified for academic persistence, gradu-
ation (Schurr et al., 1997), giftedness (Oakland et al., 2000), and achievement (Myers et al., 1998).
Research indicates consideration of learning styles can impact positive affective regard for teachers
(Cornett, 1983), lower therapy dropout rates, and increase therapy duration (Myers et al., 1998). Using
a Goodness-of-Fit concept, some successful ODD remediation programs include parental education in
temperament differences to increase both tolerance and understanding of differences and thus lower
child/adult conflicts (Barkley, 1997).

Temperament-based learning style data were analyzed for strength of preference between chil-
dren with CD and ODD as well as for frequency of preference between CD, ODD, and well-docu-
mented frequency rates in the general population. When comparing the strength of learning style pref-
erences for children with CD or ODD results were not significant on three temperament dimensions:
Extroversion-Introversion, Thinking-Feeling, or Organized-Flexible. However, a significant differ-
ence was noted for Practical-Imaginative with ODD children having a stronger preference for Practical
qualities. Analysis of frequency of preference indicated a significant difference in the number of
ODD children for Practical (98% ODD, 65% in general population) and Thinking (68% CD, 80%
ODD, 64% in general population of males) styles only.

**Practical Style**

The finding that 98% of children with ODD expressed a Practical style preference is especially
noteworthy and this has implications in several areas: teaching methods, communication, and behav-
ioral intervention. Practical students generally prefer teaching methods that include hands-on experi-
ences (e.g., experiments and manipulation) that utilize all their senses as opposed to more sedentary
methods (e.g., lecture or reading). However, the latter methods are more common in schools (Myers &
McCaulley, 1985). In general, alternative schools that offer vocational training utilize these hands-on
learning styles. A preference for Practical learning style by both teachers and students has been found
in three studies of vocational education programs (Barrett, 1989; Johnson, Zimmerman, & Brooker,
1994; Vollbrecht, 1991). Persons who prefer Practical styles are attentive to detail, and form a literal
understanding as opposed to generalized theoretical concepts (Oakland et al., 1996).

With their preference for sequential, linear, and concrete information, Practical students may be at
particular risk for misinterpreting expectations that are general or vague. Patterson (1982) found an
inability to communicate clear behavior expectations and consequences to be the one common factor
among parents of children with behavioral disorders. The need for explicit behavioral expectations
with specific consequences often is vital for children with a preference for concrete terms, simplicity,
and detail. The stronger preference of children with ODD for Practical styles also may help explain
why parenting programs that emphasize succinct sequential communication of expectations have been
helpful in changing their defiant behaviors (Barkley, 1997; Patterson, 1982).
With a strong preference for Practical styles, the opposing characteristics of Imaginative styles (e.g., generalizing concepts to multiple situations and analysis of long-term effects) may be underdeveloped and therefore helpful to remediate. For example, The temperament preferences of the majority of children with CD/ODD for Practical styles may help explain why they do not generalize the principles of rules well to multiple situations. Behavioral interventions that utilize their strengths (e.g., hands-on activities when teaching social skills and real-world explanations for rules) may be most productive in creating positive change.

**Thinking Styles**

Children with ODD exhibit many conduct problems consistent with the weaknesses of stronger Thinking style (e.g., blunt opinions and arguing). In addition, children who are aggressive tend to have a negative attributions bias (Dodge & Newman, 1981). This propensity to interpret interactions in a hostile manner coupled with an inclination to blunt, critical opinions may further escalate their defiance and arguing behaviors. Thus, children with ODD may benefit from teaching strategies that recognize Thinking strengths (e.g., logical analysis, critical thinking, and direct feedback), yet remediate the opposing Feeling skills (e.g., diplomacy, empathy, and consensus) (Oakland et al., 1996). Their preference for Thinking styles may explain why children with CD and ODD benefit from social skills training programs designed to improve their listening skills and sensitivity, qualities commonly attributed to Feeling styles.

**LIMITATIONS**

Several study issues warrant consideration when examining temperament preferences of children with CD or ODD. These include low incidence of females, the age range of participants, differences in severity of behaviors, and univariate comparison limitations. The majority of participants in this study were males; therefore, findings may not represent the preferences of females given a larger female sample. Participants ranged in age from 8 to 17 and the sample size did not permit reliable analysis by age, which has implications for long-term chronic versus short-term disruptive behaviors. In addition, there is a wide spectrum of behaviors within ODD and CD ranging from mild to severe (e.g., arguing versus cruelty to people). The participants in this study were all participating in self-contained programs with extensive disruptive behavior histories. Therefore, these results may be best representative of CD/ODD children with more chronic and severe behavioral problems. MANOVA comparison of all four temperament dimensions in this study was not significant. However, because the MANOVA is a very conservative estimate of significance (i.e., applies .05 p value across all four variables) further univariate analyses was also conducted. Although some univariate comparisons were significant, this procedure increases the likelihood of Type I error.

**SUMMARY**

In summary, the primary findings of this study indicate students with ODD expressed a significantly stronger preference for Practical versus Imaginative learning styles. In addition, significantly more students with ODD as compared to those with CD expressed a preference for Practical and Thinking styles. All temperament styles have positive strengths and the potential for underdeveloped opposing qualities. In particular, students with a preference for Practical and Thinking styles have strengths in their ability to learn from hands-on experiences, factual detail, sequential/linear formats, critical analysis, and direct feedback. Encouraging teachers to include these methods may offer more opportunities for students with ODD to succeed. Potential weaknesses for students with strong Practi-
cal and Thinking learning styles include a poor ability to generalize concepts and rules to varying situations, bluntness, and being argumentative. Recommending interventions strategies that develop opposing qualities of the Imaginative and Feeling learning styles (e.g., sensitivity, social skills training, and ability to generalize rules) may help remediate negative behavior (Oakland et al., 1996). The perspective of including temperament qualities in assessment and intervention strives to acknowledge students’ strengths and weaknesses in a non-pathological framework that promotes a balance of traits for better student adjustment.

REFERENCES


