

Response to Intervention for Young Children With Extremely Challenging Behaviors: What It Might Look Like

David W. Barnett
University of Cincinnati

Neely Elliott and Laurie Wolsing
Northern Kentucky Head Start

Carrie Elizabeth Bunger, Heidi Haski, Chele McKissick, and
Carolyn D. Vander Meer
University of Cincinnati

Abstract. Response to intervention is a framework for organizing planned sequences of prevention and empirically validated interventions ordered by intensity. Plans might increase or decrease in intensity depending on risk status and outcomes. If interventions are well sequenced and technically adequate, these outcomes can be interpreted (with other sources) as evaluation data concerning educational needs. This article presents *broad-spectrum* response to intervention as a method for answering practical preschool service delivery questions. Following a presentation of key literatures and a model for this purpose, and elaborating on decision making for extremely challenging behaviors, a case study adapted from a school psychology practicum is presented. The case study shows how response to intervention might work in preschools. Possible advantages, problem areas, and practice implications are discussed.

The promise of a response to intervention (RTI) framework stems from its focus on prevention, empirically based and sequentially designed interventions, progress monitoring, and data-based decision making. Prevention is used in two ways: (a) long-term prevention of risk and (b) specific

prevention of challenging behaviors through instructional and antecedent environmental interventions (e.g., Neilsen & McEvoy, 2004). Building on discussions of RTI as a *broad-spectrum* model (e.g., Batsche et al., 2005), one that encompasses variables to reduce social *and* academic risks, this article

Appreciation is extended to Julia Haar, Ellen Kent, and Annie McNerney Tate, who collected data and supported the case adapted for this article during a preinternship practicum, and to Renee Hawkins for a critical reading of the manuscript.

Correspondence regarding this article should be addressed to David Barnett, P.O. 210002, University of Cincinnati, Cincinnati, OH 45221-0002; E-mail: David.Barnett@UC.EDU

Copyright 2006 by the National Association of School Psychologists, ISSN 0279-6015

presents RTI as a potential method of answering preschool service delivery questions.

Following a presentation of a context for challenging behaviors and a RTI model that includes strategies for addressing early risk indicators, a case study demonstrates its application in a Head Start setting. Advantages, challenges, and role implications are discussed.

Challenging Behaviors and Early Risk Indicators

In the present use, *challenging* refers to inappropriate, disturbing, or harmful behaviors that might be pervasive social excesses or deficits, situational disturbances, low activity engagement, and episodic crises. *Extreme* challenges have included highly aggressive children with other characteristics such as minimal language and behaviors such as elopement (e.g., Tarbox, Wallace, & Williams, 2003). Most evident has been the amount of child risk, need for family support, and the deleterious effects on classrooms (e.g., Carr, Taylor, & Robinson, 1991).

In the Individuals With Disabilities Education Improvement Act of 2004 (IDEIA 04; IDEIA, 2004), these early challenges are variously referred to as emotional and behavior problems that might lead to serious emotional disturbance, possible characteristics of autism spectrum disorders, or inappropriate behaviors of children described as disabled that might require positive behavior interventions and supports. Internalizing, externalizing, or psychiatric classifications may be used. RTI provides a functional classification system that fits the challenges of young children and that may avoid inappropriate labeling (Barnett, Bell, Gilkey et al., 1999).

Prevalence estimates for behavioral challenges show rates as high as 7–25% in preschool populations, with higher estimates in high-risk populations (e.g., Feil, Walker, Severson, & Ball, 2000; Qi & Kaiser, 2003). Waiting for children who are at risk to begin schooling is late for prevention and intervention as considerable research links early challenges to later serious problems of adjustment

(e.g., Campbell, Pierce, March, Ewing, & Szumowski, 1994).

RTI in Preschools and Head Start

Foundations exist for RTI components in preschools, including systemwide early intervention, positive supports, and problem solving (IDEIA 04; Prasse, 2006). RTI principles might be applied generally in early childhood, but here we focus on a Head Start program because these programs serve children and families characterized by risk factors (e.g., Qi & Kaiser, 2003). Head Start also has a mental health agenda consistent with RTI objectives (Child Mental Health, 2002).

Theoretical and Empirical Support for a Broad-Spectrum RTI Model

Primary sources for a broad-spectrum preschool RTI model include applied behavior analysis and positive behavior support (PBS; see Johnston, Foxx, Jacobson, Green, & Mulick, 2006, for the relationships and separate contributions). Applied behavior analysis provides a technology of change and many examples of individually valid interventions and components for group interventions that build capacity for services (Baer, Wolf, & Risley, 1987). PBS provides a system of prevention and service delivery (Sugai, Horner, & Gresham, 2002). RTI adds the possibility of using a technically adequate cumulative intervention history as evaluation data.

RTI for Challenging Behaviors

RTI addresses reform for educational services to children identified as emotionally disturbed (Gresham, 2005), although it is not specified in IDEIA 04 for this purpose. Before a classification of emotional disturbance, behavior disorders, or psychiatric diagnosis, effective interventions are tried, and the results are used to help clarify needed intervention qualities to promote change and to make identification and service delivery decisions (Gresham, 1991, 2005).

Evidence-Based Practices

For RTI to be possible, interventions must have validity evidence (e.g., Horner, Carr, McGee, Odom, & Wolery, 2005; Kratochwill & Shernoff, 2003) and be ordered on a continuum of intensity (Brown, Odom, & Conroy, 2001; Conroy, Davis, Fox, & Brown, 2002). However, the requirements of evidence-based practice are not easily met (see Conroy, Dunlap, Clarke, & Alter, 2005; Dunlap et al., 2003), especially for idiosyncratic child and situational variables. We include interventions evaluated by single-case designs and based on replicated principles of learning (e.g., Lentz, Allen, & Ehrhardt, 1996; Wolery, 2005). Intervention selection may require the analysis of many variables (e.g., Elliott, Witt, Kratochwill, & Stoiber, 2002) with some based on establishing behavioral function (Crone & Horner, 2003; see also Gresham et al., 2004).

Solving the Screening and Assessment Links

Universal screening is a significant feature of RTI models. However, developers of screeners for social behaviors will have challenges meeting RTI criteria (e.g., prevention, not classification), base rate effectiveness, decision reliability, and treatment utility (cf. Feil et al., 2000). To meet RTI objectives, screening for social behaviors in preschools will likely be multifaceted and include social competence goals linked to curriculum, instruction, and positive managerial tactics as well as other screening methods and targets expanded later (e.g., Barnett, VanDerHeyden, & Witt, in press; Brown, Odom, & Conroy, 2001).

Assessments, like interventions, might be ordered sequentially by intensity. For prevention, or if challenging behaviors persist, settings and contextual variables are assessed in greater depth as needed (e.g., Stichter & Conroy, 2005). For extremely challenging behaviors, functional record reviews, ecological and problem-solving interviews, direct assessments of contextual variables and behaviors, structured parent and teacher reports, and brief conditions or intervention trials, are used as basics (Barnett, Bell, & Carey, 1999; Brown, Odom, & Buysse, 2002; Conroy et al., 2002).

Simplifying, an intervention trial consists of a sequence of hypothesis-derived interventions (having validity evidence) ordered by intensity (i.e., intrusiveness, ease) and tried out carefully, as needed, to help build sound plans (e.g., Harding et al., 1999; Martens, Eckert, Bradley, & Ardoin, 1999).

Teacher Support Programs

Classwide interventions (e.g., Reeve & Carr, 2000; VanDerHeyden, Witt, & Gatti, 2001), at the heart of sound RTI programming, are based on effective instruction and applied behavior analysis (e.g., Wolery, 2005). Moreover, teachers may need considerable support to accomplish broader RTI goals (i.e., Duda, Dunlap, Fox, Lentini, & Clarke, 2004; Dunlap et al., 2000; Kohler, Anthony, Steighner, & Hoyson, 2001; Lerman, Vorndran, Addison, & Kuhn, 2004; O'Neill, Johnson, Kiefer-O'Donnell, & McDonnell, 2001).

Parent Expectations, Roles, and Family-Centered Support

Parent expectations, roles, and support programs often have been of concern for children with challenging behaviors (e.g., Wagner, Kutash, Duchnowski, Epstein, & Sumi, 2005). Parent roles will be open-ended, requiring agency flexibility. Teams may need to consider specific interventions associated with challenging behaviors such as compliance with adult requests. Research converges on the possibility of (a) a coercive process, rapidly learned at home, and generalized to other settings (McMahon & Forehand, 2003; Patterson & Bank, 1986); (b) the importance of problem solving (Wahler & Meginnis, 1997); and (c) the need for creating ways for parents to support intervention efforts and be supported as well (e.g., Dunst et al., 2001). Problems are exacerbated by poverty, and service needs may be substantial (Qi & Kaiser, 2003; Wagner et al., 2005).

RTI Decisions Through Increasing and Decreasing Intensity Designs

Increasing intensity designs serve as a general RTI model for academic and behav-

ioral interventions (Gresham, 2004), characterized by a familiar cone describing three tiers and heuristic strategies and targets for children served at each tier (Sugai et al., 2002). Risk status is determined through universal screening and prevention outcomes, and sequences of tiered interventions (i.e., classroom, supplemental small group, individualized) are added as necessary based on progress monitoring data.

Considered by its fundamental qualities, RTI can be described by increasing *and* decreasing intensity designs (Barnett, Daly, Jones, & Lentz, 2004). Decisions about RTI designs depend on prior information about risk status, the severity of immediate risks, and prior prevention and intervention outcomes. For children with extremely challenging behaviors, programming can take place initially within all tiers simultaneously, with the RTI design goal being that of decreasing intensity. Some features of decreasing intensity designs are the same as increasing intensity RTI, such as universal screening and prevention efforts (Tier 1). However, decreasing intensity designs would begin with a multicomponent or comprehensive plan to address a child's needs, parent participation, possible peer roles, and teacher support, and thus immediate risks. Components are systematically withdrawn or faded as soon as behavioral goals are met until the least restrictive intervention has been reached. Examples of use include children with early identified challenges transitioning to settings or at risk for being excluded from settings because of disruptive behavior. By addressing challenging behaviors with components as needed, timely behavior change can occur, lowering the potential for harm and possibly preventing deleterious intervention failures. This design also facilitates the eventual reintegration from special to general education by maintaining progress in typical classroom environments with less intense efforts.

An Example of a RTI Model for Extremely Challenging Behaviors

This section includes the description of a RTI model building on the aforementioned RTI and PBS literature and intervention-based

school psychology training (Barnett, Bell, Gilkey et al., 1999; Barnett et al., in press). A Head Start program serves as the training site where the model has evolved, contributing considerable energy and insights from many participants (Barnett et al., 2002).

Procedural Guidelines and the PBS Contract

Procedural guidelines for broad-spectrum RTI facilitate the process for teams by specifying key steps and documentation in service delivery (i.e., methods, decision points and rules, parent contacts; technical adequacy, graphs, and so on). For extremely challenging behaviors, a PBS contract also is negotiated between team members (examples of procedural guidelines and a PBS contract, and tiered intervention references are available from the corresponding author).

The PBS contract includes preconditions (e.g., team communication, classwide plans), scripted prevention and instructional interventions, and hypotheses-derived interventions that are combined as components from problem solving, intervention strength requirements, and needs at each tier. The contract also specifies the training for intervention components, scheduling of the intervention (e.g., "dose"), and evaluation.

Screening

Screening is addressed by the following: (a) universal health and parent-reported child risk indicators; (b) teacher observations linked to curricular objectives (Head Start Outcomes Framework; U.S. Department of Health and Human Services, 2000) and behavioral incidence reports; (c) classroom observations by mental health consultants; and (d) early literacy screening (e.g., McConnell, Priest, Davis, & McEvoy, 2002). Consultants (Item c) use a standardized observation of classroom variables and child engagement (Nichols et al., 2005).

Tier 1: Classwide

Tier 1 includes classwide interventions and teachers' efforts to supplement core cur-

riculum as needed and to manage PBS programs. These may include interventions to increase active engagement or instructional modifications and interventions for students that are *teacher managed*. Agency supports include helping a teacher to implement curriculum successfully, PBS, and effective management. Teacher support may include problem solving and progress monitoring for low-intensity interventions (i.e., typically found in effective classrooms). Parent support includes a range of programming consistent with Head Start guidelines and research (e.g., Dunst et al., 2001).

Tier 2: Group and Embedded

Tier 2 includes supplemental interventions for children not responding to Tier 1 efforts based on determining the effects of universal classwide intervention and clarifying the need for additional intervention for children who need more immediate comprehensive programming. Tier 2 might involve a social curriculum for groups of children (Joseph & Strain, 2003). In addition, embedded interventions might provide additional practice opportunities for specific skills (e.g., Daugherty et al., 2001; VanDerHeyden, Snyder, Smith, Sevin, & Longwell, 2005).

Specialized professionals help teachers plan and monitor group and embedded interventions and might help implement interventions. Decisions for any Tier 2 program are based on more frequent (than Tier 1) data from program- or classwide progress monitoring. Teams develop decision rules for returning to Tier 1, making changes in Tier 2 methods, or moving to Tier 3. In Tier 2, parents have further choices for involvement (i.e., more frequent progress reports, and supportive services; e.g., Hancock, Kaiser, & Delaney, 2002).

Tier 3: Intensive and Individualized

Tier 3 adds more frequent progress monitoring to support decision making and structured problem solving by applying functional assessment methods for children not responding to Tier 2 interventions, or who

need more immediate comprehensive programming. Brief intervention trials are used as necessary to confirm and refine appropriate intervention plans. An expanded team of professionals and parents might develop more intensified plans for a child, and teacher supports are added as needed (e.g., Wolery, Brashers, & Neitzel, 2002). Tier 3 plans also include maintenance and generalization methods to be used in Tier 1 (i.e., Johnson & Golden, 1997). Eligibility decisions for specialized services or supports would be based on a technically adequate data set through three tiers of prevention and intervention as well as other IDEIA 04 requirements. RTI methods and outcomes might be used for IEP development.

Tier 3 parental roles include further decisions about involvement. As a programming example, activity schedules might be used across home and school to target practice and generalization for serious language and behavior challenges. Developed for children with autism, child-specific activity schedules have many flexible adaptations at different levels of intensity (e.g., Morrison, Sainato, Benchaaban, & Endo, 2002). Through problem-solving efforts, the interventions are made into a cohesive plan using the PBS contract.

The Case of Robin

This case shows how tiered decisions were made in a RTI model for challenging behaviors. Although there are many possibilities and points of analysis, we focus on Robin, linking classroom variables (Tier 1) to group (Tier 2) and individual decisions (Tier 3) through teacher support. The aforementioned RTI procedures and PBS contract developed with the local Head Start were used to guide and document all steps.

Screening for Classroom and Individual Variables

Screening included instructional, classroom, and child variables through consultant observations (a Head Start performance standard), child health (i.e., physician) and parent-reported risk indicators (by questionnaire and

staff home visits), curriculum-referenced teacher observations, and developmental screening. The primary screening outcomes used for decision making for Robin, in what follows, include teacher managerial tactics and children's behavior.

Referral and Record Review

Robin, age 4, was referred for dangerous behaviors (i.e., jumping off furniture, elopement), peer aggression, and noncompliance. Parent report, records, and child screening results indicated that Robin had no complications at birth, reached developmental milestones on time, and passed vision, speech, hearing, and developmental screening.

Assessment Techniques

Curriculum-based screening and assessment. The Head Start Outcomes Framework (U.S. Department of Health and Human Services, 2000) was referenced for social and emotional development. The outcomes pertaining to independence, self-control, following rules, and sustained positive interactions were operationalized and assessed through teacher daily report and consultant observations (e.g., teacher managerial tactics, active engagement).

Teacher and parent interviews. Robin's teachers and mother were interviewed using ecobehavioral and problem-solving interviews. Her teachers prioritized center time (i.e., children are given choices for participation in curriculum-linked classroom activity centers such as math, dramatic play, computers, art, literacy, in small, flexible groups) as most problematic and confirmed dangerous and aggressive behaviors as the primary target variables. Robin's mother expressed concerns regarding the aggression and noncompliance at home and school. She also wanted more communication with the teachers regarding Robin's school day.

Observations. Consultant observations were used for screening and assessment, including narrative real time observations (NRT), a standardized code to assess instruc-

tional variables (Instructional and Caring Contacts, ICC; Nichols et al., 2005), and a code developed for progress monitoring. NRT can be used to help define, select, and assess a broad range of variables, events, and sequences, and were used for a natural and descriptive functional assessment (e.g., Barnett et al., 1999; Bijou, Peterson, & Ault, 1968). Observations with NRT lasted between 15 and 81 min per session ($N = 8$, $Mdn = 30$ min, $M = 35.13$, $SD = 20.23$) and sampled various classroom activities (i.e., center time as well as playground and lunch). Because of space limitations and as NRT was used for several purposes, not all NRT observation results are reported here and NRT results are not shown by graphing. Rates are discussed as *per hour* to help with comparisons with teacher data and teaming.

Observations (NRT) and other data (i.e., teacher reports) were used to support hypothesized variables and intervention decisions. A classroom NRT conducted during center time indicated that along with Robin, several other children engaged in behaviors considered dangerous (e.g., climbing, running) or aggressive. From the NRT data, Robin's positive peer and sustained positive interactions (minimum of 2-min duration) were determined. Robin engaged in positive peer interactions and sustained positive interactions at a rate of 7.8 and 5.2 times/hr (similar to peers in the same activities). Because Robin demonstrated appropriate skills, although there were performance concerns, it was decided that a replacement behavior did not need to be taught explicitly (Johnston, 2006) beyond curricular objectives. The NRT also showed that Robin received a significant amount of attention for her inappropriate (dangerous or aggressive) behaviors. These behaviors occurred several times when she was redirected to another activity for not following the rules or prevented from engaging in an activity. There also appeared to be ineffective consequences, positive or negative, for behaving appropriately (e.g., Strain, Lambert, Kerr, Stagg, & Lenkner, 1983). Furthermore, activity rules were not posted.

A standardized behavioral code (ICC) was used to help assess Tier 1 classroom environmental variables. The ICC provides estimates of instruction, effective and noneffective classroom management, and child engagement, and it allows comparisons with local and agency norms. Results revealed levels of teacher managerial positive and instructional tactics equivalent to local norms (25%, percentage interval agreement = 88%), levels of teacher managerial negative and noninstructional tactics slightly higher than local norms (8%; local norms = 5%; percentage interval agreement = 92%), and overall student engagement in the classroom approximating local classroom norms (87%; local norms = 86%, agreement = 93%; see Figure 1, top panel). Thus, consultants could address the contingent use of managerial techniques (Strain et al., 1983). Robin and peer dangerous or aggressive behaviors also were observed (partial interval = 30 s). Results confirmed teacher reports of concerning levels of dangerous or aggressive behaviors for both Robin and, at overlapping levels but less severe, her peers (16 and 24% of intervals, respectively, total interobserver agreement = 98%; see Figure 1, middle panel).

An individualized observation code for progress monitoring was refined based on the findings reported in the preceding paragraphs. The observational code sampled instructional variables and child behavior (partial interval = 30 s: teacher managerial, dangerous and aggressive; scan sampling, every fifth interval: engagement) from 90-min center time (i.e., early, late; N observations = 43, range = 5–30 min, Mdn = 15 min, M = 12.07 min, SD = 6.08 min). Variability in observation session length was attributable to various functions of the observation (e.g., target variable and activity selection, hypothesis formation, adherence and maintenance checks) and teacher's alterations in routines that shortened planned activities. ICC variables were maintained in intervention plans and monitored because of the need to modify the contingent use of managerial strategies. Figure 1 shows observational code data combined from early and late center time sessions. It includes baseline

and major outcomes for tiered intervention phases and components. The top panel includes instructional and managerial variables and classwide engagement, the middle panel includes dangerous and aggressive behaviors for Robin and peers, and the bottom panel summarizes the intervention conditions by tiers and phases.

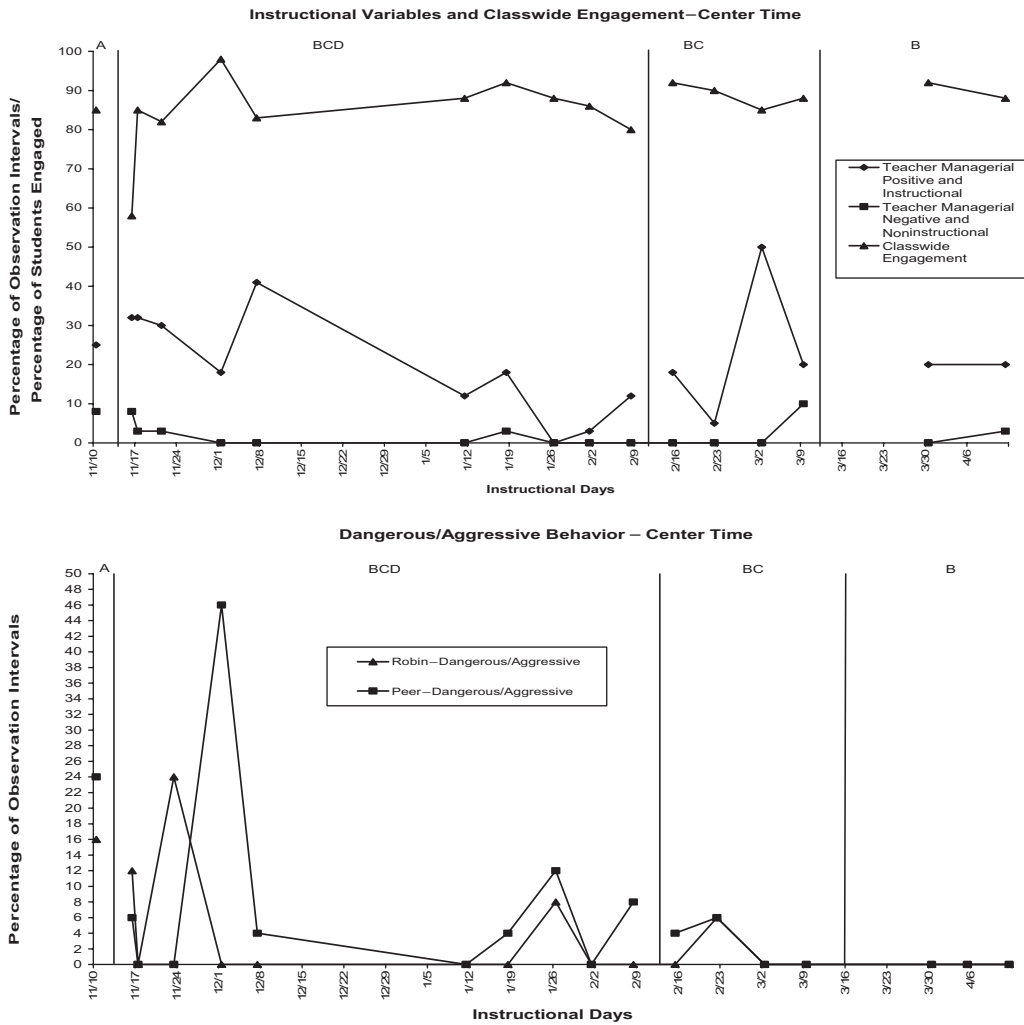
The team hypothesized that Robin's (and peers') behavior was maintained because of high levels of attention for inappropriate behavior. The team used the PBS contract beginning with a multicomponent strategy to reduce dangerous or aggressive behaviors, and developed interventions for three tiers based on a decreasing intensity design.

Developing Tiered Interventions

Tier 1 intervention selection. Positively stated rules were selected, posted, taught, practiced, and reviewed before center time. A consequence hierarchy also was developed. Increasing positive teacher attention was supported by using a small vibrating timer (MotivAider by Behavioral Dynamics)¹ prompting teachers to scan, circulate, and attend to students engaging in rule-following behaviors at 3-min intervals throughout center time. Rotation of high-interest activities during center time was added to increase children's engagement.

Tier 2 intervention selection. Embedded skills practice was planned and implemented through teaching routines throughout the school day, providing additional opportunities for practicing and generalizing social problem solving. In addition, the positive attention intervention included a component for monitoring appropriate behaviors for both Robin and classwide by having the teacher praise Robin and a nearby peer for engaging in appropriate behavior when prompted (in this case, at 3 min) during the approximately 90-min center time (adherence was sampled throughout center time, reported later).

Tier 3 intervention selection. To address Robin's individual needs, a multicom-



	A Baseline	BCD	BC	B
Tier 1		<ol style="list-style-type: none"> Classwide rules Consequence hierarchy Positive attention (peers) Rotation of high interest activities 	<ol style="list-style-type: none"> Classwide rules Consequence hierarchy Positive attention (peers) Rotation of high interest activities 	<ol style="list-style-type: none"> Classwide rules Consequence hierarchy Positive attention (peers) Rotation of high interest activities
Tier 2		<ol style="list-style-type: none"> Embedded incidental teaching of social problem solving Positive attention (Robin) 	<ol style="list-style-type: none"> Embedded incidental teaching of social problem solving Positive attention (Robin, reduced) 	<ol style="list-style-type: none"> Embedded incidental teaching of social problem solving Positive attention (Robin, faded to peer norms)
Tier 3		<ol style="list-style-type: none"> PBS Safety plan Social story School-home note 	<ol style="list-style-type: none"> PBS Safety plan (not used) 	<ol style="list-style-type: none"> PBS Safety plan (not used)

Figure 1. Robin’s keystone data across three tiers of intervention. The top panel shows teacher variables during center time and classwide engagement; the middle panel shows Robin and peer aggressive or dangerous behavior during center time; the bottom panel shows the intervention components (BCD, BC, B) in place for tiers and across phases. PBS = positive behavior support.

ponent strategy also was used. One component was an elopement prevention (“safety”) plan (with attention and clear limit setting as the hypothesized variables). A social story (Gray, 2000) was developed for addressing Robin’s behavior when redirected for not following rules or requests. Based on parent request, a daily communication addressing Robin’s behavior was added. A script for how the mother used the note was written and practiced. (Other parent services are not described, to focus on RTI teacher support.)

Goals and decision rules. Collaboratively set goals and decision rules included dangerous or aggressive behaviors (0%), teacher managerial variables (local norms; positive managerial and instructional = 25%, negative managerial and noninstructional = 5%) and engagement (local norms; 86% or higher). Three data points at 0% for dangerous or aggressive behaviors was used as the decision rule for decreasing intervention intensity. Decisions were based on consultant observations and supported by teacher reports. The team agreed to meet 3 weeks after intervention implementation to evaluate progress, or before if behavior intensified.

Progress was monitored using the observation code (sampled throughout center time by planned 15-min sessions), including interobserver agreement checks. In addition, a teacher daily report for Robin’s dangerous and aggressive behaviors was used for monitoring. Intervention adherence was monitored during a 3-day fluency trial where the consultant first modeled the interventions, then coached the teachers, and gave feedback following independent implementation (Ehrhardt, Barnett, Lentz, Stollar, & Reifin, 1996). Following training, intervention adherence was obtained through direct observation by the consultant using the intervention scripts (intervention adherence = number of steps completed/number of script steps). Adherence data were collected approximately once per week during the first two months of the intervention and approximately once per month during subsequent

months (data points = 17, *Mdn* = 89%, *M* = 84%, *SD* = 14.38).

Outcomes and Decreasing Intensity Decisions

Levels of behavior continued to be monitored by the consultant through direct observation with co-observations (interobserver agreement as percentage interval agreement) being completed periodically (data points = 7, *Mdn* = 98.4%, *M* = 97.7%, *SD* = 2.41). The teachers also continued to complete daily reports. After 3 weeks, the team reconvened to examine outcomes. As shown in Figure 1, results indicated that Robin’s dangerous or aggressive behaviors were at 12% (11/16) and 0% (11/17), respectively, for the first 2 weeks, but during more recent data collection they had increased to 24% (11/21). Teacher report described an especially challenging day in general, but that Robin’s behavior had improved overall. The team agreed that data collection continue to ensure that Robin was making progress. Although peer levels of dangerous or aggressive behavior were variable (range 0–46% see 11/23 to 1/11, middle panel), the overall trend was decreasing and the team decided to continue with the classwide interventions. Observations during center time also revealed generally low levels of teacher managerial negative and noninstructional tactics, but decreasing levels of teacher managerial positive and instructional tactics (see 12/7 to 1/25, top panel). Levels of engagement often were below agency goals (averaging 75% classwide).

The team met to examine outcomes on 1/26 after five additional data points had been collected (winter break contributed to the lapse between meetings). As shown in Figure 1, results indicated dangerous or aggressive behaviors were at 0% (1/11 and 1/18) for Robin during the first 2 weeks after winter break. However, the last data collection indicated that dangerous or aggressive behavior for Robin had increased to 8% (1/26), with peers’ targeted behaviors even

higher (12%). The teachers reported that this was a difficult day for the class collectively. The team decided that data collection continue for 2 more weeks to ensure that progress was being made. Peer levels of dangerous or aggressive behavior were variable during this same period (range 0–12%). The overall trend was lower and the team decided to continue implementation of the Tier 1 interventions.

After two additional weeks of data collection, the team met again (2/8) to review Robin's progress. Robin's dangerous or aggressive behaviors continued to be at zero based on consultant observations and teacher report. Robin had been observed using the strategies from the social story. In addition, the school–home note data showed that Robin had been following the rules with occasional reminders and had mostly positive feedback. The team decided to discontinue the social story and school–home note, and reduce the goal for positive attention for Robin's appropriate behavior (positive attention intervention) to approach the rate of other children in the classroom. Robin had not engaged in elopement since the onset of the interventions, but the safety plan was still available. The team decided to continue implementation of the remaining interventions and reevaluate progress after 4 weeks.

NRT observations (2/14) during center time showed that Robin was continuing to demonstrate positive and sustained peer interactions (5.2 positive peer interactions per hour and 5.2 sustained interactions per hour). Other results showed continued zero rates of dangerous or aggressive behaviors for Robin during three of the four observations (2/15 to 3/9; see Figure 1). A final NRT (3/9) showed positive and sustained peer interactions at a rate of 13 and 11 interactions per hour, respectively. Teacher report supported these observations and that Robin's behavior had improved overall. Peer dangerous or aggressive behaviors also showed reduced levels, averaging 2.5% of intervals (range from 0 to 6%); the last two data points were at zero (3/2 and 3/9). Class-wide engagement was above the goal (89%)

and teacher managerial positive and instructional tactics and teacher managerial negative and noninstructional tactics averaged 28% and 3%, respectively. Intervention adherence ranged from 50 to 100% during this time. Based on these outcomes, the team decided to continue with the class-wide interventions and fade Robin's individual components, with the exception of the available elopement plan.

Final Outcomes

Consultant observations showed that dangerous or aggressive behaviors continued to remain at 0% for both Robin and her peers (Figure 1, middle panel). The maintained components were indicative of high-quality classrooms based on local norms. The teachers continued with the rule review before center time as well as the consequence hierarchy. The rotation of high-interest activities during center time was continued. MotivAider use was discontinued; however, positive attention for appropriate behaviors was sustained. Teachers used incidental teaching for social skills at a natural rate as opportunities presented themselves. A social validity questionnaire (items on intervention acceptability and outcome; Ehrhardt et al., 1996) was rated very positively by the teachers ($N = 12$ ratings, $Mdn = 4$, $M = 4.13$, $SD = 0.6$) on a 5-point Likert scale (e.g., showing input in planning, ease of use, and positive outcomes for children).

Other Case Notes

This consultation was based on data collected in preservice training. We reduced some complexities to illustrate the application of RTI in a Head Start context; at the same time, realities associated with implementation in applied contexts were presented. Many aspects of the RTI model and case could be improved. Examples include stronger universal screening and prevention components. Specific maintenance and generalization planning during early team meetings would have helped Robin and other children fully acquire these skills and use them in other settings.

Moreover, ongoing measurement of multiple variables and data sources is complex. Figure 1 shows only behavioral coded data, but other observations (NRT) and teacher reports were used for decision making (i.e., baseline for aggressive and dangerous behaviors was supported by more extensive data; teacher reports included other activities and routines). More systematic design procedures might allow teams to evaluate more precisely which interventions were most effective. However, basic accountability designs, not research designs, will be used primarily by teams for RTI. Likewise, a descriptive functional assessment based on NRT was used. In Tier 3, teams may need to consider more extensive functional analyses but a descriptive analysis of hypothesized variables and relationships often might be practical and adequate (e.g., Gresham et al., 2004).

Discussion and Conclusions

Preschool services based on RTI would be similar to school-age models. Using the same tiered foundations, a tactic characterized by decreasing intensity designs was described for early identified concerns and extremely challenging behaviors. Beyond the other clear potential benefits of RTI, early transition services might improve by including proven interventions to help minimize challenges for children predicted to be at risk in the next environment.

Further development is needed for universal screening methods, curriculum and outcome measures, variables and methods to estimate intensity, tiered intervention combinations and sequences, and decision rules used to change tiers and for eligibility. Some different technical adequacy requirements apply to RTI (Barnett, Elliott et al., in press). There are challenges with bringing RTI to scale, including the necessity for agency commitment and high degrees of professional skills. Perhaps the most serious potential dangers are poorly selected and implemented interventions leading to erroneous inferences about both the child and a team's RTI experience from these trials.

In general, social behaviors can be difficult to change (e.g., Gresham, Sugai, & Horner, 2001) or can require extensive programming (e.g., Webster-Stratton & Reid, 2003). Embedded interventions show promise as Tier 2 structures to build tiered intervention plans. Teams might need specific skills, analyses, and intervention plans that have not been typical in schools.

Alternatively, a potential concern with decreasing intensity designs is that interventions might be overly reactive and inappropriately intensive as challenging behaviors might be resolved at times with relatively low-intensity interventions. This is why prevention and intervention sequences starting in Tier 1 (e.g., positive and instructional management), risk appraisals linked to adaptive progress monitoring (i.e., more risk, more frequent observations), and appropriately brief intervention trial lengths can be important. A critical step includes reducing systematically the intensity of intervention plans as much as possible by eliminating unnecessary components that exaggerate estimates of intensity.

Comprehensive programs for social behaviors are available (Brown et al., 2001; Joseph & Strain, 2003; Vaughn et al., 2003; Webster-Stratton & Reid, 2003). Materials from these programs might be used or integrated into services at all tiers. However, strategies such as modeling, play-activity analyses, instruction and practice, are well developed and could be used as intervention components (Vaughn et al., 2003).

Decisions about specialized services and supports will require defensible data sets. Children and teams progressing through the tiers in RTI are likely to end up with an effective intervention that merits support because of the level of intensity needed for it to be sustained and generalized. Alternatively, data might indicate that it is necessary to replan interventions and add resources, or subtract components (e.g., tested through brief withdrawals). Ongoing decision points for specialized services and supports might be based on (a) a functional and socially valid discrepancy between the

children's challenging behaviors and peer norms (Bell & Barnett, 1999) and (b) judgments of intervention intensity. Although estimating intensity variables represents a challenge for RTI development and implementation, the analysis can include (a) a team review of prior interventions (e.g., permanent products of intervention scripts, graphs, technical adequacy summaries); (b) the specification of the Tier 3 plan in operational terms; (c) the scheduling or contingencies for plan use (i.e., intervention contacts between change agent and child, or environmental changes and normative comparisons of contacts); and (d) other variables related to intervention planning and professional involvement (Barnett et al., 2004).

To help counter problems with relatively brief data series (i.e., Figure 1), decisions are based on intervention-phase qualities from prior tiers and intensified problem solving and high-quality intervention in Tier 3. Keystone variables (i.e., instruction, social engagement) can be used for monitoring tiered decisions while more refined analyses of response classes, not shown in Figure 1, are used for intervention planning (e.g., brief trials confirming hypotheses). The legal requirements might be met by the following: (a) prevention conditions suggested by IDEIA 04; (b) quality of prior information; (c) multiple measures, as needed, by multiple professionals and parents; (d) developmental histories and assessments establishing levels of performance and functional discrepancies of key variables; and (e) evidence-based interventions and supports as needed through three tiers. Teams can supplement these data with what they deem necessary to meet IDEIA 04 requirements, but a RTI model might be sufficient given strong procedural adherence and technical adequacy checks.

Changes in school psychologists' roles are likely to be considerable as the focus shifts to intervention services. School psychologists can provide leadership in systems planning, prevention, problem solving, and data-based decision making through all tiers. The more training is advanced to deal with the complexities and specifics of teacher support and tiered

programming, the greater likelihood the promise of RTI will be realized and school psychologists will have central roles.

In conclusion, RTI is more descriptive of a present point, not an end point, of a 30-year journey in applying science to educational services (e.g., Baer et al., 1987). Given the complexities of RTI, any specific resolution might be debatable. However, RTI, or something like it, is consistent with a reform agenda for children with challenging behaviors.

Footnotes

¹For information, visit www.habitchange.com

References

- Baer, D. M., Wolf, M. M., & Risley, T. R. (1987). Some still-current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis, 20*, 313–327.
- Barnett, D. W., Bell, S., & Carey, K. T. (1999). *Designing preschool interventions*. New York: Guilford.
- Barnett, D. W., Bell, S. H., Gilkey, C. M., Lentz, F. E., Jr., Graden, J. L., Stone, C. M., & Smith, J. J. (1999). The promise of meaningful eligibility determination: Functional intervention-based multifactorial preschool evaluation. *The Journal of Special Education, 33*, 112–124.
- Barnett, D. W., Daly, E. J., III, Jones, K. M., & Lentz, F. E., Jr. (2004). Response to intervention: Empirically-based special service decisions from increasing and decreasing intensity single case designs. *The Journal of Special Education, 38*, 66–79.
- Barnett, D. W., Elliott, N., Graden, J. L., Ihlo, T., Macmann, G., Nantais, M., & Prasse, D. (in press). Technical adequacy for response to intervention practices. *Assessment for Effective Intervention*.
- Barnett, D., Hamler, K., Conway-Hensley, L., Maples, K., Nelson, K., Niehaus, J., & Siemons, S. (2002). Preparing school psychologists for early intervention settings. In M. Shinn, G. Stoner, & H. Walker (Eds.), *Interventions for academic and behavior problems II: Prevention and remedial approaches* (pp. 1021–1045). Washington, DC: National Association of School Psychologists.
- Barnett, D. W., VanDerHeyden, A. M., & Witt, J. C. (in press). Achieving science-based practice through response to intervention: What it might look like in preschools. *Journal of Educational and Psychological Consultation*.
- Batsche, G., Elliott, J., Graden, J. L., Grimes, J., Kovaleski, J. F., Prasse, D., Reschly, D. J., Schrag, J., & Tilly, W. D., III. (2005). *Response to intervention: Policy considerations and implementation*. Alexandria, VA: National Association of State Board of Directors of Special Education.
- Bijou, S. W., Peterson, R. F., & Ault, M. H. (1968). A method to integrate descriptive and experimental studies at the level of data and empirical concepts. *Journal of Applied Behavior Analysis, 1*, 175–191.

- Bell, S. H., & Barnett, D. W. (1999). Peer micronorms in the assessment of young children: Methodological review and examples. *Topics in Early Childhood Special Education, 19*, 112–122.
- Brown, W. H., Odom, S. L., & Buysse, V. (2002). Assessment of preschool children's peer related social competence. *Assessment for Effective Intervention, 27*, 61–71.
- Brown, W. H., Odom, S. L., & Conroy, M. A. (2001). An intervention hierarchy for promoting young children's peer interactions in natural environments. *Topics in Early Childhood Special Education, 21*, 162–175.
- Campbell, S. B., Pierce, E. W., March, C. L., Ewing, L. J., & Szumowski, E. K. (1994). Hard to manage preschool boys: Symptomatic behavior across contexts and time. *Child Development, 65*, 836–851.
- Carr, E. G., Taylor, J. C., & Robinson S. (1991). The effects of severe behavior problems in children on the teaching behaviors of adults. *Journal of Applied Behavior Analysis, 24*, 523–535.
- Child Mental Health. (2002). *Head Start Bulletin, 73*. Retrieved from www2.acf.dhhs.gov/programs/hsb/
- Conroy, M. A., Davis, C. A., Fox, J. J., & Brown, W. H. (2002). Functional assessment of behavior and effective supports for young children with challenging behaviors. *Assessment for Effective Intervention, 27*, 35–47.
- Conroy, M. A., Dunlap, G., Clarke, S., & Alter, P. J. (2005). A descriptive analysis of positive behavioral intervention research with young children with challenging behavior. *Topics in Early Childhood Special Education, 25*, 157–166.
- Crone, D. A., & Horner, R. H. (2003). *Building positive behavior support systems in schools*. New York: Guilford.
- Daugherty, S., Grisham-Brown, J., & Hemmeter, M. L. (2001). The effects of embedded skill instruction on the acquisition of target and nontarget skills in preschoolers with developmental delays. *Topics in Early Childhood Special Education, 21*, 213–221.
- Duda, M. A., Dunlap, G., Fox, L., Lentini, R., & Clarke, S. (2004). An experimental evaluation of positive behavior support in a community preschool program. *Topics in Early Childhood Special Education, 24*, 143–155.
- Dunlap, G., Conroy, M., Kern, L., DuPaul, G., VanBrakle, J., Strain, P., Hemmeter, M. L., Ostrosky, M., & Joseph, G. E. (2003). *Research synthesis on effective intervention procedures: Executive summary*. Tampa, FL: University of South Florida, Center for Evidence-based Practice: Young Children with Challenging Behavior. Retrieved October 24, 2005, from www.challengingbehavior.org
- Dunlap, G., Hieneman, M., Knoster, T., Fox, L., Anderson, J., & Albin, R. W. (2000). Essential elements of inservice training in positive behavioral support. *Journal of Positive Behavioral Interventions, 2*, 22–32.
- Dunst, C. J., Bruder, M. B., Trivette, C. M., Hamby, D., Raab, M., & McLean, M. (2001). Characteristics and consequences of everyday natural learning opportunities. *Topics in Early Childhood Special Education, 21*, 68–92.
- Ehrhardt, K. E., Barnett, D. W., Lentz, F. E., Jr., Stollar, S. A., & Reifin, L. H. (1996). Innovative methodology in ecological consultation: Use of scripts to promote treatment acceptability and integrity. *School Psychology Quarterly, 11*, 149–168.
- Elliott, S. N., Witt, J. C., Kratochwill, T. R., & Stoiber, K. C. (2002). Selecting and evaluating classroom interventions. In M. R. Shinn, H. M. Walker, & G. Stoner (Eds.), *Interventions for academic and behavior problems II* (pp. 243–294). Bethesda, MD: National Association of School Psychologists.
- Feil, E. G., Walker, H., Severson, H., & Ball, A. (2000). Proactive screening for emotional/behavioral concerns in Head Start preschools: Promising practices and challenges. *Behavior Disorders, 26*, 13–25.
- Gray, C. (2000). *The new social story book*. Arlington, TX: Future Horizons.
- Gresham, F. M. (1991). Conceptualizing behavior disorders in terms of resistance to intervention. *School Psychology Review, 20*, 23–36.
- Gresham, F. M. (2004). Current status and future directions of school-based behavioral interventions. *School Psychology Review, 33*, 326–343.
- Gresham, F. M. (2005). Response to intervention: An alternative means of identifying students as emotionally disturbed. *Education and Treatment of Children, 28*, 328–344.
- Gresham, F. M., McIntyre, L. L., Olson-Tinker, H., Dolstra, L., McLaughlin, V., & Van, M. (2004). Relevance of functional behavioral assessment research for school-based interventions and positive behavioral support. *Research in Developmental Disabilities, 25*, 19–37.
- Gresham, F. M., Sugai, G., & Horner, R. H. (2001). Interpreting outcomes of social skills training for students with high-incidence disabilities. *Exceptional Children, 67*, 331–344.
- Hancock, T. B., Kaiser, A. P., & Delaney, E. M. (2002). Teaching parents of preschoolers at high risk: Strategies to support language and positive behavior. *Topics in Early Childhood Special Education, 22*, 191–212.
- Harding, J., Wacker, D. P., Cooper, L. J., Asmus, J., Jensen-Kovalan, P., & Grisolan, L. A. (1999). Combining descriptive and experimental analysis of young children with behavior problems in preschool settings. *Behavior Modification, 23*, 316–333.
- Horner, R. H., Carr, E. G., McGee, G., Odom, S., & Wolery, M. (2005). The use of single subject research to identify evidence-based practice in special education. *Exceptional Children, 71*, 165–179.
- IDEIA. (2004). *Individuals With Disabilities Education Improvement Act of 2004*. P.L. 108–1446. Retrieved from <http://thomas.loc.gov/cgi-bin/query/z?c108:h.1350.enr>
- Johnson, C., & Golden, J. (1997). Generalization of social skills to peer interactions in a child with language delays. *Behavioral Interventions, 12*, 133–147.
- Johnston, J. M. (2006). “Replacing” problem behavior: An analysis of tactical alternatives. *The Behavior Analyst, 29*, 1–11.
- Johnston, J. M., Foxx, R. M., Jacobson, J. W., Green, G., & Mulick, J. A. (2006). Positive behavior support and applied behavior analysis. *The Behavior Analyst, 29*, 51–74.
- Joseph, G. E., & Strain, P. S. (2003). Comprehensive evidence-based social-emotional curricula for young children: An analysis. *Topics in Early Childhood Special Education, 23*, 65–76.

- Kohler, W., Anthony, L. J., Steighner, S. A., & Hoyson, M. (2001). Teaching social interaction skills in the integrated preschool: An examination of naturalistic tactics. *Topics in Early Childhood Special Education, 21*, 93–103, 113.
- Kratochwill, T. R., & Shernoff, E. S. (2003). Evidence-based practice: Promoting evidence-based interventions in school psychology. *School Psychology Quarterly, 18*, 389–408.
- Lentz, F. E., Jr., Allen, S. J., & Ehrhardt, K. E. (1996). The conceptual elements of strong interventions in school settings. *School Psychology Quarterly, 11*, 118–136.
- Lerman, D. C., Vorndran, C. M., Addison, L., & Kuhn, C. (2004). Preparing teachers in evidence-based practice for young children with autism. *School Psychology Review, 33*, 510–526.
- Martens, B. K., Eckert, T. L., Bradley, T. A., & Ardoin, S. P. (1999). Identifying effective treatments from brief experimental analysis: Using single case design elements to aid decision making. *School Psychology Review, 14*, 163–181.
- McConnell, S. R., Priest, J. S., Davis, S. D., & McEvoy, M. (2002). Best practices in measuring growth and development for preschool children. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology IV* (pp. 1231–1246). Bethesda, MD: National Association of School Psychologists.
- McMahon, R. J., & Forehand, R. L. (2003). *Helping the noncompliant child* (2nd ed.). New York: Guilford.
- Morrison, R. S., Sainato, D. M., Benchaaban, D., & Endo, S. (2002). Increasing play skills of children with autism using activity schedules and correspondence training. *Journal of Early Intervention, 25*, 58–72.
- Neilsen, S. L., & McEvoy, M. A. (2004). Functional behavioral assessment in early education settings. *Journal of Early Intervention, 26*, 115–131.
- Nichols, A., Barnett, D., Carr, V., Boat, M., Macmann, G. M., & Moomaw, S. (2005). [Instructional and caring contacts agreement data]. Unpublished raw data, University of Cincinnati.
- O'Neill, R. E., Johnson, J. W., Kiefer-O'Donnell, R., & McDonnell, J. J. (2001). Preparing teachers and consultants for the challenge of severe problem behavior. *Journal of Positive Behavioral Interventions, 3*, 101–108, 119.
- Patterson, G. R., & Bank, L. (1986). Bootstrapping your way in the nomological thicket. *Behavioral Assessment, 8*, 49–73.
- Prasse, D. (2006). Legal supports for problem-solving. *Remedial and Special Education, 27*, 1–15.
- Qi, C. H., & Kaiser, A. P. (2003). Behavior problems of preschool children from low-income families: Review of the literature. *Topics in Early Childhood Special Education, 23*, 188–216.
- Reeve, C. E., & Carr, E. G. (2000). Prevention of severe behavior problems. *Journal of Positive Behavioral Interventions, 2*, 144–160.
- Stichter, J. P., & Conroy, M. A. (2005). Using structural analysis in natural settings: A responsive functional assessment strategy. *Journal of Behavioral Education, 14*, 19–34.
- Strain, P. S., Lambert, D. L., Kerr, M. M., Stagg, V., & Lenkner, D. A. (1983). Naturalistic assessment of children's compliance to teachers' requests and consequences for compliance. *Journal of Applied Behavior Analysis, 16*, 243–249.
- Sugai, G., Horner, R. H., & Gresham, F. M. (2002). Behaviorally effective school environments. In M. Shinn, H. Walker, & G. Stone (Eds.), *Interventions for academic and behavior problems II: Preventive and remedial approaches* (pp. 315–350). Bethesda, MD: National Association of School Psychologists.
- Tarbox, R. S. F., Wallace, M. D., & Williams, L. (2003). Assessment and treatment of elopement: A replication and extension. *Journal of Applied Behavior Analysis, 36*, 329–344.
- U.S. Department of Health and Human Services, Administration on Children, Youth and Families/Head Start Bureau. (2000). *Head Start Outcomes Framework*. Washington, DC: Author.
- VanDerHeyden, A., M., Snyder, P. Smith, A., Sevin, B., & Longwell, J. (2005). Effects of complete learning trials on child engagement. *Topics in Early Childhood Special Education, 25*, 81–94.
- VanDerHeyden, A. M., Witt, J. C., & Gatti, S. (2001). Descriptive assessment method to reduce overall disruptive behavior in a preschool classroom. *School Psychology Review, 30*, 548–567.
- Vaughn, S., Kim, A., Sloan, C. V. M., Hughes, M. T., Elbaum, B., & Sridhar, D. (2003). Social skills interventions for young children with disabilities: A synthesis of group designs. *Remedial and Special Education, 24*, 2–15.
- Wagner, M., Kutash, K., Duchnowski, A. J., Epstein, M. H., & Sumi, W. C. (2005). The children and youth we serve: A national picture of the characteristics of students with emotional disturbances receiving special education. *Journal of Emotional and Behavior Disorders, 13*, 79–96.
- Wahler, R. G., & Meginnis, K. L. (1997). Strengthening child compliance through positive parenting practices: What works? *Journal of Clinical Child Psychology, 26*, 433–440.
- Webster-Stratton, C., & Reid, M. J. (2003). Treating conduct problems and strengthening social and emotional competence in young children. *Journal of Emotional and Behavior Disorders, 11*, 130–143.
- Wolery, M. (2005). DEC Recommended practices: Child-focused practices. In S. Sandall, M. L. Hemmeter, B. J. Smith, & M. E. McLean (Eds.), *DEC recommended practices: A comprehensive guide for practical application* (pp. 71–106). Longmont, CO: Sopris West.
- Wolery, M., Brashers, M. S., & Neitzel, J. C. (2002). Ecological congruence assessment for classroom activities and routines: Identifying goals and intervention practices in childcare. *Topics in Early Childhood Special Education, 22*, 131–142.

Date Received: February 23, 2006

Date Accepted: September 7, 2006

Action Editor: Patricia Snyder ■

David Barnett is a professor of school psychology at the University of Cincinnati (PhD, Indiana State University). He has served as a mental health consultant to an area Head Start program for many years and his research interests include training in intervention-based services and early intervention.

Neely Elliott is a mental health consultant at Northern Kentucky Head Start. She received her MEd from the University of Cincinnati in 2002. Her research interests include early intervention and RTI in preschool.

Laurie Wolsing is the assistant director of Head Start in Northern Kentucky Community Action Commission's Head Start Program. For many years she served as the education, disabilities, and mental health manager for Northern Kentucky Head Start.

Carrie Elizabeth Bunker, MEd, is a doctoral student in the school psychology program at the University of Cincinnati. She has taught middle school math and science in Kenton County, Kentucky. Her research interests include curricular design, effective math interventions, and RTI in middle school.

Heidi Haski, MEd, is a doctoral student in the school psychology program at the University of Cincinnati. Her research interests include early intervention, RTI in preschool, and low-incidence disabilities.

Chele McKissick, MEd, is a doctoral student in the school psychology program at the University of Cincinnati. Her research interests include behavioral interventions across the continuum of tiered service delivery and interventions at the secondary level.

Carolyn Vander Meer received her EdS in school psychology in 1995 from Miami University of Ohio. She participated in the project as a doctoral student at the University of Cincinnati. Her research interests include RTI and assessment and academic and behavior interventions for school settings.