

## SPECIAL TOPIC

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### Improving Children's Educational Outcomes by Advancing Assessment and Intervention Practices: An Overview of the Special Series

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*Abstract.* This article reviews the studies making up this special topic issue on state of the art research in academic and behavioral assessment and intervention. Each unsolicited research study illustrates scientific advances in assessment and intervention practices that have direct implications for improving children's educational outcomes. A case is made that scientific improvements in our field serve as the primary mechanism for improving practice and this article attempts to highlight features of the studies that are directly related to reformed methodological and statistical techniques.

The necessity of improving children's educational outcomes has become a matter of national consequence. Perhaps the most recent supporting evidence can be found in the No Child Left Behind Act (P.L.107-110), which sets standards for children's grade-level achievement and measures progress accordingly. Similarly, the Individuals with Disabilities Education Act Amendments of 1997 (P.L.105-117) mandated, in some instances, the use of functional behavioral assessment (FBA) and positive behavioral supports to improve children's behavioral outcomes. Recently, a number of initiatives have focused on improving children's academic, behavioral, and physical outcomes by recommending additional educational and social policy reforms (Department of Health and Human Services, 2001;

President's Commission on Excellence in Special Education, 2002; The Teaching Commission, 2004). Within the field of school psychology, similar appeals have been made. For example, in the proceedings from the 2002 Conference on the Future of School Psychology (*School Psychology Review*, 32; *School Psychology Quarterly*, 14), five outcome areas were prioritized: (a) improved academic competence for all children; (b) improved social-emotional functioning for all children; (c) enhanced family-school partnerships and parental involvement in schools; (d) more effective education and instruction for all learners; (e) increased child and family services in schools that promote health and mental health and are integrated with community services (Dawson et al., 2003/2004).

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Although legislative, social policy, and discipline-specific reform efforts are theoretically related to improving children's outcomes, none provide a causal mechanism. As argued by many in the educational and psychological fields, scientific reform may be the primary mechanism for improving children's educational outcomes. Only through improved methodological and statistical practices can we unequivocally determine what works, for whom, and under what conditions (Raudenbush, 2005). Within the past 6 years, rapid changes in methodological practices have been advocated, including improving our standards for testing and assessment (AERA, APA, & NCME, 1999), developing guidelines for identifying effective educational practices (U.S. Department of Education, 2003), and advancing our knowledge of evidence-based interventions (Kratochwill & Stoiber, 2000). Parallel improvements have been promoted to reform statistical practice and improve the effectiveness of research and research communication (Fidler et al., 2005). These efforts include reporting effect sizes and statistical power (APA, 1994), discussing the clinical significance of results (Kazdin, 1999), and reporting confidence intervals (Cumplings & Finch, 2001; Wilkinson & Task Force on Statistical Inference, 1999).

The articles contained in this special topic issue of *School Psychology Review* exemplify scientific advances in assessment and intervention practices that have direct implications for improving children's educational outcomes. Not only does each unsolicited article represent state of the art research in academic and behavioral assessment and intervention, each article is either directly related to reformed methodology and statistical practice, or will serve as an impetus for improving the effectiveness of school-based research in the near future.

### **Advances in Academic and Behavioral Assessment**

Two of the articles included in this special topic advance our knowledge of academic assessment in significant ways. In the first article, Hosp and Fuchs (2005) examined

whether Reading-Curriculum Based Measurement (CBM) can be used as an index of other fundamental reading skills, such as decoding, word reading, and comprehension, and whether children's performance on these reading skills change as a function of grade level. Children's performance on Reading-CBM and subtests of the Woodcock Reading Mastery Test-Revised (WRMT-R; Woodcock, 1987) were compared across Grades 1 through 4 and the utility of computing Reading-CBM cutscores as benchmarks of mastery on subtests of the WRMT-R was examined. The results of this study suggested that Reading-CBM is strongly related to reading subskills measured on the WRMT-R. These results imply that Reading-CBM cutscores for basic reading and total reading may be appropriate to use as an overall indicator of children's reading competence.

In the second article, Jewell and Malecki (2005) examined the relationship between three scoring categories of Written Language-CBM across grade levels (i.e., second, fourth, sixth) and explored whether gender differences existed. The results of this study provide initial validation for the three scoring categories as well as demonstrate differences in children's writing fluency across grades. These findings suggest that measures focusing exclusively on writing fluency are more appropriate for children in younger grades. When working with children enrolled in older grade levels, it is important to include measures of writing accuracy and quality. Gender differences in children's writing fluency were also observed across grade levels. The results of this study stress the importance of considering children's grade level and gender prior to selecting assessment measures.

Two additional articles included in this special topic advance our knowledge of behavioral assessment, by refining procedures associated with functional behavioral assessment (FBA) and examining the measurement properties of FBA. In the first article, Hoff, Ervin, and Friman (2005) examined multiple controlling variables that were associated with the occurrence of disruptive behavior displayed by a middle school student. The authors of this article conducted an FBA within the context

of typical classroom practices and directly involved the teacher in the assessment process. In addition to illustrating an ecologically valid assessment, the results of this study highlighted the influence of multiple controlling variables in classroom settings and demonstrated the potency of implementing an intervention that concurrently targeted these variables.

Floyd, Phaneuf, and Wilczynski (2005) conducted an intriguing study of the measurement properties of two commonly used FBA measures, the Motivation Assessment Scale (Durand & Crimmins, 1992) and the Functional Assessment Interview (O'Neill et al., 1997). The authors prudently applied stringent review criteria, which incorporated the *Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 1999), to assess the use and interpretation of these two measures in countless published research studies. The results of this study suggested that numerous inadequacies were identified with published research studies that incorporated these measures. The implications of these findings for future research, in terms of description, research design, and statistical analysis, are considerable. Furthermore, the results of this study further reinforce the importance of conducting comprehensive FBAs that do not rely exclusively on indirect estimates of student behavior.

### **Advances in Academic and Behavioral Intervention**

In this special series there are four studies that directly advance our knowledge of academic and behavioral intervention. In the area of academic intervention, Dufrene, Noell, Gilbertson, and Duhon (2005) investigated the effects of an empirically supported treatment, reciprocal peer tutoring, to improve children's academic outcomes. However, this study signifies a major advancement in our understanding of factors related to the *implementation* of empirically supported treatments. In this study, the accuracy of daily intervention implementation and the reliability of student-gathered progress monitoring data were examined. To address the issues associated with poor intervention implementation, the authors imple-

mented a performance feedback intervention as well as a prompted maintenance procedure to ensure continued accurate implementation of the intervention. Not only did this study provide additional empirical support for the use of reciprocal peer tutoring, the study identified key factors that need to be addressed to ensure suitable implementation in classroom settings.

Directly related to the previously discussed study, Noell and his colleagues (2005) investigated factors related to the accurate implementation of interventions in school settings. This research represents the first randomized field trial that examines the effect of performance feedback on intervention implementation, student outcomes, and teachers' perceptions of intervention acceptability and effectiveness. Within the context of providing teachers with performance feedback information, the authors examined how follow-up and overt social influence information influence intervention implementation and moderate outcomes. The results of this study, which are of great consequence to the field, demonstrate the value of incorporating performance feedback as a follow-up procedure to improve intervention implementation and outcomes. In addition, descriptive results suggested that teacher acceptability of interventions was not sufficient to guarantee implementation. All of these findings have direct implications for consultative work.

Ducharme and DiAdamo (2005) examined the effectiveness of a nonaversive classroom management intervention to reduce the oppositional behavior of a child enrolled in a special education classroom. Errorless compliance training, an example of a positive behavioral support, has received considerable empirical attention as part of home-based, parent-mediated interventions. By incorporating teacher perceptions of child compliance, conducting observational probability analysis, and employing hierarchical categorization techniques, the authors were able to organize the compliance training components so that they were applicable to the classroom setting. These methodological specifications resulted in an ecologically valid intervention that resulted in

positive child outcomes. Social validation data corroborated these results.

Finally, Parker and his colleagues (2005) documented the increasing application of standard statistical analyses, such as effect sizes, to supplement visual inspection in single case research methods. As more single case studies use this type of analysis to provide objective measures of treatment effects, it becomes important to examine the appropriateness of applying group-based effect size interpretation guidelines to single case research findings. In an attempt to improve our communication of intervention outcomes across methods of study, the authors examined the use of nine analytic techniques for single case data in terms of resulting effect size estimates, power analyses, and autocorrelation. The results of this study raise important and timely warnings regarding our current practice. First, the effect sizes calculated varied significantly as a function of the analytic technique. Second, few of the effect sizes corresponded with standard guidelines for interpreting effect sizes. Third, only four of the analytic techniques demonstrated adequate power for use with time series data. Fourth, autocorrelation was noted as a significant limitation, regardless of analytic technique used.

## Conclusions

School psychologists are uniquely positioned to have a significant impact on children's learning experiences and educational outcomes (Christenson, 2003/2004). The Futures Conference articulated a shared scientific and professional agenda for the field (Kratochwill & Shernoff, 2003/2004) and it seems that we have embarked on a mission to improve the educational outcomes of children, families, schools, and society (Sheridan, 2004). The research represented in this issue provides fundamental and significant improvements over previous practices in academic and behavioral assessment and intervention. The findings from these research studies should move us closer to reaching our goals—improving the outcomes for children, families, and schools.

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